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GOVERNMENT NOTICES

Environment Protection and Biodiversity Conservation Act 1999

INCLUSION OF TWO PLACES IN THE NATIONAL HERITAGE LIST

AUSTRALIAN CORNISH MINING SITES: BURRA AND MOONTA

I, Josh Frydenberg, Minister for the Environment and Energy, having considered in relation to the two places and the National Heritage values described in the Schedule of this instrument:

(a) the Australian Heritage Council's assessment whether the places meet any of the National Heritage criteria; and

(b) the comments given to the Council under sections 324JG and 324JH of the *Environment Protection and Biodiversity Conservation Act 1999*; and

being satisfied that the two places described in the Schedule have the National Heritage values specified in the Schedule, pursuant to section 324JJ of the *Environment Protection and Biodiversity Conservation Act 1999*, include the places and the specified National Heritage values in the National Heritage List.

Dated 4/5/2017

[signed]
Josh Frydenberg
Minister for the Environment and Energy

SCHEDULE

SOUTH AUSTRALIA
Copper Coast District

NAME: Australian Cornish Mining Sites: Burra

BOUNDARY:
Approximately 640ha at Burra comprising the Burra State Heritage Area (Heritage Number 27549 and State Heritage ID 16183) designated as a state heritage area in 1993

	Criterion	**Values**
(a)	the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.	The 'Burra' copper mine operated profitably for thirty two years from 1845 to 1877. This mine was one of the early and first copper mines in Australia, established following finds of copper in South Australia. The copper mines at Burra and Kapunda (a much smaller mine) mark the beginning of Australia's base metal mining industry. This new form of deep, hard rock mining required new skills and technology not then present in Australia. Mining for copper required the skills of miners who knew how to establish mines and systematically mine them in a way which created the best return for the effort and cost required to access the ore body. Cornish technology, embodied in the steam engines, work practices and ore processing methods applied in the early copper mines of South Australia, was critical to the establishment and ongoing economic viability of these mines. The application of steam power in particular was essential. Without steam power copper mining was impossible. Over the course of the nineteenth century Australia began to move from a pre-industrial agrarian based society and economy to one which was rapidly industrialising. At Burra, Cornish miners established a system of mining on a 'greenfield' site, transplanting from one of the world's most advanced centres of machine innovation (Cornwall) an emergent form of industry which was being shaped by a new revolutionary machine, the steam engine. South Australia's colonial relationship with Britain enabled access to Britain's steam engine technology which at the time was protected to prevent transfer to competitor nations. Steam power was not just an 'improving' technology - it was revolutionary. The power of one boiler for example replaced the power of one thousand men. Burra is of outstanding importance because Burra remains, with Moonta, one of only two areas in Australia where Cornish mining technology, skills and culture is demonstrated to a high degree. Burra represents the Cornish mining system's successful transplantation in Australia. Features which express these values include an outstanding collection of nineteenth century civic, residential, church and Cornish mining built structures, all located within the former villages (Kooringa, New Aberdeen, Aberdeen, Llwchwr, Hampton) and mine at Burra. In relation to the demonstration of Cornish mining technology, skills and practice the following items in or near to the Burra Mine Area are significant including but not limited to the former Winding House, the former Ore Sorting Floor, the former Crusher Chimney (Cornish), the former Morphett's

Criterion	**Values**
(a) Burra cont.	Pump House, the former Engine/Crusher House, the former Mine Manager's Dwelling and Office, the former Graves Pump House, the former Haulage Engine Chimney (Welsh), the former Powder Magazine, Peacock's Chimney (Cornish), the former SA Mining Association Store Room, Yard and Walls (Market Street) and the former SA Mining Association Storeman's Dwelling (Market Street). The Burra Mines Historic Site as a whole is also significant as a place which on the surface and underground demonstrates the layout of surface and underground mining operations. The remnant underground shafts including but not limited to Morphetts shaft, Hector shaft and Waterhouse Shaft with their connecting horizontal levels are significant for their ability to demonstrate underground mining practice in association with the arrangement of surface mining structures. In relation to the demonstration of smelting technology used to improve the economic viability of the mine, the following items in the Smelter area to the east of the Burra Mine Area are significant including but not limited to the Former Burra Smeltsyard and Storehouse, the former Burra Smelts Historic Site (including Smelter Ruins, Smelter Furnace Ruins, Smelts Manager's Residence and Office) and the former Smelts Superintendent's Dwelling and Wall. In relation to the demonstration of the Cornish miner's living conditions and ways of life which enabled them to mine, the following items are significant including but not limited to the former Miner's Dugouts (tributary of Burra Creek), the former Dugout Sites (Burra Creek), the small, attached dwellings on Truro Street in Redruth (street numbers 8, 9, 10, 11, 12, 13, 14, 16 and 18), the stone cottages and dwellings on Upper Thames Street in old Kooringa (street numbers 2, 4, 6, 8, 10, 12, 16), the former Burra Primitive Church (9 Upper Thames Street), the Paxton Square cottages (33), the former Burra Bible Christian Chapel (Kingston Street), the former Smelter's Home Hotel (SAHR 10419 ' Market Street), the Burra Hotel (SAHR 10404 ' Market Street), the former Burra Salvation Army Citadel (11 Kingston Street) and a 1840s timber dwelling (39 Commercial Street ' SAHR 10434) and Burra Town Hall (original Miners' and Mechanics' Institute). While the Cornish miners were mostly Methodist in faith the following early Anglican Churches are significant for their representative demonstration of the importance of religion in these miner communities including St Mary's Anglican Church and St Mary's Anglican Church Hall. In relation to the demonstration of the speculative nature of mining operations, the former Bon Accord Mine Buildings (SAHR10023) are significant including but not limited to the 1859 mine offices, blacksmith's forge, carpenter's shop and a manager's residence. The following additional features also reflect the Cornish influence within the town of Burra including but not limited to the stone wall located on the east side of Commercial Street and Ware Street, Burra (SAHR 10435) and the stone wall located on the west side of Commercial Street (SAHR 10436) in Burra. Burra is distinctive in its development from a group of smaller townships including Kooringa (Company town), Redruth (Government surveyed town), Aberdeen (Scottish speculators), New Aberdeen (Scottish association), Llwwchwr (Welsh Smelter workers) and Hampton (new mining settlement named after the assayer at the smelting works). The names of these townships reflect the mining history of Burra and the haphazard nature of its

	Criterion	**Values**
(a) Burra cont.		development as a mining settlement. The Hampton Township Precinct (SAHR 10359) represents the impact of the decline of the mine and the consequent loss of population when the Burra Mine closed in 1877. The features of significance include but are not limited to Jacka House, the remnant street and allotment layout, fences, walls and remnant stone domestic buildings and introduced trees such as almond, pine, olive and pepper trees and the remains of the quarries that provided stone for the dwellings. Burra Cemetery (SAHR 10432 Spring Street, Burra) is also significant as a place which, through the headstones within the cemetery, chronicles the lives and misfortunes of the mining community up to 1877. These stories are valued as an important complementary record of the life of Cornish miners in Burra.
(f)	the place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.	At Burra, Cornish miners established a system of mining on a 'greenfield' site, transplanting from Cornwall - one of the world's most advanced centres of machine innovation - an emergent form of industry which was being shaped by a new revolutionary machine, the steam engine. Welsh smelting technology was also successfully established at the mine soon after its establishment. This achievement created a 'prototype' system which could then be repeated and applied in other later significant mining ventures such as Broken Hill in NSW, Bendigo in Victoria, Kalgoorlie in WA and Charters Towers in Queensland. Cornish mining traditions continued to be used and improved as Cornish miners moved from one mine to another across the country. This achievement also demonstrates the important role technology played in the evolution of Australia's industrialised modern economy. Features which express these values include the remnant mining structures within the Burra Mines Historic Site (SAHR 10970) and all of the significant features listed under criterion (a).

NAME: Australian Cornish Mining Sites: Moonta

BOUNDARY:
Approximately 320ha at Moonta comprising the Moonta Mines State Heritage Area (Heritage Number 27551 and State Heritage ID 13975) designated as a state heritage area in 1984.

	Criterion	**Values**
(a)	the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.	The Moonta copper mine in South Australia operated for sixty one years from c1862 to 1923. In the late nineteenth century it was one of the world's largest producers and exporters of copper; evidence of Australia's emerging international position in an increasingly industrialised global economy. This achievement was made possible by the successful transfer of Cornish mining technology and skills from Cornwall to Australia. The copper mine at Moonta demonstrates the resilience of the Cornish mining system in Australia following its earlier transfer in other smaller mines in South Australia. At Moonta the Cornish mining system was able to be repeated and applied at a larger scale. Improvements to the system were also progressed in the areas of labour organisation, labour relations (advocacy for a minimum wage through the 'down' times) and in a number of improvements made to mining and ore processing technology. The Hancock Jig is noted in particular. A generation of Cornish miners, engineers and tradespeople worked in the copper mines of South Australia, including at Moonta. The cumulative impact of their contribution to Australia's wealth production, nation building and development of Australia's mining industry was substantial. The Cornish way of mining started in South Australia and dispersed to many of Australia's other key mining regions like Broken Hill, Bendigo, Kalgoorlie and Charters Towers. While Cornish miners were the main work force Welsh smelter technology and skills are also noted for their contribution to the mining system's profitability and success. The Moonta copper mine is of outstanding importance because the remnant mining structures and their layout on the surface and underground can demonstrate to a very high degree the Cornish mining system. The Cornish way of working developed over generations in the mines of Cornwall. The mining system generally includes the knowledge applied to identify the ore body in the first instance. Then the labour force was organised in a specific way to develop a system of vertical shafts and horizontal levels organised in the efficient exploitation of the ore body. Teams of underground miners were organised into tut-work or tribute teams. Young boys were employed on the surface to sort the ore prior to further processing. The mine's Captain (superintendent) acted to manage the mine for the mine's owners. This was a critical and powerful position. Mine owners kept the Captain accountable for the profitability of the mine. The Cornish practice of applying levies to miner wages for the support of families and miners in times of illness or death is also noted as an early form of worker's insurance. Mining for copper required the development of deep hard rock mining techniques. In the process of extracting the ore large underground rooms or stopes were created. The use of explosives formed part of the underground mining process. Various technologies were then applied to process the ore once hauled to the surface. Critically Cornish steam engines were used in
(a)		

Criterion	**Values**
Moonta cont.	various roles but mainly in the work to keep the mines free of water. In Australia, until the 1890s all work underground at the Moonta mine was done by manual labour. To get from one level to another miners climbed up and down step ladders (a double decker man skip was introduced after 1880). Some shafts went as deep as 750m. The ore was hauled to the surface by horse whims and the engine houses were built to pump water from the mine. An estimated 80 miles of shaft and levels were constructed in the mining area. The mine Captain, Henry Richard Hancock, made numerous improvements. An enthusiast for machinery he introduced a steam-engine to replace hand worked pumps, winches and ore crushers; by 1865 tramways had reduced barrow work and by 1866 a railway replaced wagon teams for carrying ore to the smelters at Wallaroo. The mine's engineering shops were the largest in the southern hemisphere. These workshops enabled Hancock to experiment in replacing the slow and arduous labour of drilling holes by sledge hammer in the hard Moonta rock. He designed and patented a percussion drill driven by compressed air and capable of boring forty feet of shot holes in an eight hour shift. For separating sulphides from the ores he made and patented a jigger which was also used later at Broken Hill. He also introduced wire rope and skips in place of chain and kibbles. Hancock, a devout Wesleyan, also worked to establish minimum wages for miners, established a brass band, library and reading room and compulsory night school for boys from the mine's sorting tables. He also encouraged cricket, football, chess and glee clubs and many mutual improvement societies (Australian Dictionary of Biography ' Hancock, H. R.). This 'tinkering' with machines and the introduction of benevolent activity is reflective of a 'Cornish' approach. Religion played a strong part in holding the mining community together through the hardships of work, illness and difficult living conditions. In Moonta fresh water was scarce and epidemics of typhoid, cholera and diphtheria were decimating. At one time there were 6,000 people living on the Moonta mining leases surrounded by the industrial workings of the mine; a mining settlement pattern typical of the nineteenth century. In the leased mining areas at Moonta the Moonta Mines Methodist Church (1865) was the focus of the settlement. Features which express these values include the physical evidence of nineteenth and early twentieth century Cornish mining in the area known as the Moonta Mine. The remnant surface and underground mining structures are significant where they demonstrate Cornish mining practice and technology. Specific features of significance include but are not limited to the following features and items. The layout of the mine on the surface demonstrates the way the ore body was mined. The shafts, engine houses, processing areas, supporting functions and administrative facilities are all located in a pattern which is oriented to the underground lines of lode (Fergussons Lode, Greens Lode, Beddomes Lode, Trevers Lode, Elders Lode). This arrangement and pattern of mining infrastructure also demonstrates the focus of mining operations on efficiency and function. As a demonstration feature therefore the remnant arrangement and pattern of surface mining infrastructure is significant. In more detail the features which demonstrate Moonta's mining significance include but are not limited to the Hughes enginehouse and stack, the Hughes engine pool, the ruins of Elders enginehouse, Richmans enginehouse and

Criterion	**Values**
(a) Moonta cont.	nearby tailings dumps, Hancocks tailings dump (including the tailings and the form and shape of the heap, nearby former mining shafts, remnant ore floors and the foundations of Hancocks enginehouse and crusher house), Ryans tailings heap, Ryans shaft, Taylors shaft, Treuers shaft, ruins of precipitation works, site of the mine workshops, site of mine offices, site of General Manager's residence, site of the assayers residence, the ruins of the powder magazine, the remnant water reservoir (Ryan Road), site and remnant structures of the Hamley mine, the remnant route of the Hamley tramline and the Moonta Railway Station (including disused railway line within the Moonta Mines State Heritage Area). Churches are also important because they demonstrate the importance of religion in these mining communities and the Cornish influence more generally. Items of significance include but are not limited to the site of the Bible Christian church, site of the Primitive Methodist church, the Moonta Mines Methodist Church (1865) and the Moonta Mines Model Sunday School. The historic miner's cottage and garden (Verco Street) is significant as a place which demonstrates the way miners and their families lived on the mining lease.