

MEETING: Ordinary Meeting of Council
DATE: 20 October 2020

DEPARTMENT: GOVERNANCE
OFFICER: Executive Services Officer

REPORT ITEM	13.2
REPORT TITLE	World Heritage DRAFT Statement of Outstanding Universal Values
File Reference	3.85.1.9
Pillar & Objective	<i>Our Environment and Heritage is Valued and Protected – Increase awareness of the importance of our Cornish Mining Heritage and aim for World Heritage Status.</i>
Attachments	<i>Interim Progress Document</i>

EXECUTIVE SUMMARY:

For Noting

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At the 18 February 2020 Council resolved as follows;

018/20 *That Council engage Mr Barry Gamble to prepare the World Heritage DRAFT statement of Outstanding Universal Values.*

BACKGROUND

The Chief Executive Officer was approached by World Heritage Expert Barry Gamble in March 2019 and met with the Chief Executive Officer in March 2019 to discuss the World Heritage Listing potential for the 'Copper Triangle' with the Regional Council of Goyder taking the lead agency role in collaboration with Copper Coast and Light Regional Council's and on 21 May 2019 Council passed the following motions:

- 94/19**
- 1. That Council having considered the report tabled are of the view there is merit in evaluating the potential for World Heritage application; and that Council ask the Chief Executive Officer to commence discussions with Copper Coast Council and the Light Regional Council to ascertain their respective interests in cooperating together on a potential joint venture (Copper Triangle) World Heritage application; including that Council seek to be the lead agency in a potential bid given the respective cultural historic relevance Burra holds; and**
 - 2. That Council ask the Chief Executive Officer to commence discussions with potential stakeholders who may be able to assist Council in a World Heritage application and report to Council on his findings.**

On 12 October 2020, Mr Gamble provided Council with an 'interim progress' document, a first draft of statement of proposed Outstanding Universal Values (page 7 – 15).

Mr Gamble has continued to keep the Cornwall Council informed and the Chair of the Cornish Mining Partnership (also head of Cornwall Council) both of whom are extremely supportive.

The new 2020-25 Management Plan has recently completed its consultation phase and is due to be issued soon. It has a strategic action inserted to "develop transnational relationships with Cornish mining related sites overseas", with the Cornish Mining WHS Partnership acting in an enabling capacity to support a preferred approach by way of a transnational serial nomination. Mr Gamble has also liaised confidentially with the Department for Digital, Culture, Media and Sport (which deals with UK World Heritage) and the International Policy Adviser to the Government.

The document has been prepared in accordance with certain language and constraints required by UNESCO and Mr Gamble asks that the information be shared confidentially with Councillors so that he can share it with local experts and international peer review colleagues.

Further work is required with a comprehensive dossier expected by March 2021 with a compelling argument for National Tentative Listing and ultimate World Heritage Listing.

CONFIDENTIAL

Australian Cornish Mining Sites: Burra and Moonta
A proposal for Australia's UNESCO World Heritage
Tentative List

SUMMARY of work to date (end-September 2020)



Burra Burra Mine: Cornish technology (1858 right/1861 left), geology and grassland biodiversity in a cultural landscape set in open rolling country

Barry Gamble, October 2020

1 Background

At the 31st session of the UNESCO World Heritage Committee (2007) held in Christchurch, New Zealand, a concept was presented for a transnational serial nomination based on the acknowledged Outstanding Universal Value (OUV) of the *Cornwall and West Devon Mining Landscape* ('*Cornish Mining*') World Heritage Site inscribed in 2006.

Barry Gamble, as part of the UK State Party observer delegation and accompanied by Harry Reeves and Mandie Barrie (Deputy Director of Culture, and Head of Policy, respectively, for the Depart for Culture, Media and Sport, UK Government), delivered the presentation at a side event of the WHC. Gamble explained how the World Heritage values of *Cornish Mining*, and even a characteristic set of attributes, are expressed worldwide in certain culturally-significant mining landscapes, including in: Australia (South Australia); South Africa (Northern Cape); Mexico (Hidalgo); Spain (Jaén); and Ireland (Cork, Waterford, Wicklow). Such landscapes represent a shared heritage that reveals the transfer, adaptation and exchange of Cornish mining technology and culture between countries, colonies and communities, together with its transformational socio-economic and environmental effects.

The presentation was attended by, among others, Mechtild Rössler (current Director of the UNESCO World Heritage Centre), Susan Denyer (current World Heritage Adviser, ICOMOS), Peter Phillips (current Secretary General, ICOMOS), Birgitta Ringbeck (current World Heritage focal point, Germany), and others. The meeting concluded with unanimous endorsement for a proposal of collaboration between relevant interested States Parties to make a technical exploration of the concept and to potentially pursue an incremental transnational serial extension of *Cornish Mining*.

In Cornwall at the time, Barry Gamble, Nicholas Johnson (former Historic Environment Manager, Cornwall, now retired) and Deborah Boden (current WHS Coordinator *Cornish Mining*), took the concept forward and the project was adopted as a key action in the *Cornish Mining* Management Plan. Gamble was tasked with site visits to all of the above properties, and others, together with early discussion with regional and national heritage agencies, including those responsible for World Heritage. Key outcomes include the placement of *The Namaqualand Copper Mining Landscape* (South Africa) on the Tentative List (2009; removed in 2015), agreement to pursue a series of sites in Mexico and Spain, and support from South Australia state heritage (now Department for Environment and Water, especially Senior Heritage Officer Hamish Angas.), the National Trust, and Department of Mines and Energy (especially Greg Drew), the latter culminating in the successful National Listing process (2009-2017) for Burra and Moonta as a precursor to *Australian Cornish Mining Sites: Burra and Moonta* being listed as a World Heritage Site.



Moonta Mine, Hughes'

Support for a transnational extension of *Cornish Mining* remains a priority in the latest (2020-25) World Heritage Site Management Plan published by the *Cornish Mining* Partnership.

2 Brief from Regional Council of Goyder (BG annotation in *italics*)

1. Prepare a draft statement of Outstanding Universal Value (OUV) - the values of the serial property on a global level^{*(A)}. Select at least one of the World Heritage justification criteria ^{*(B)} as outlined in UNESCO's Operational Guidelines (OG).

^{*(A)} *The OG details a template with specific content, while word-length best-practice guidance has been adopted for each section.* ^{*(B)} *The Cornish Mining World Heritage Site was inscribed on the basis of criteria (ii), (iii) and (iv), therefore Australian Cornish Mining Sites: Burra and Moonta should be nominated on the basis of all three criteria, if possible.*

2. Define and tabulate the attributes ^{*(C)} embodied within 1 and conduct a Comparative Analysis (comparing with properties on the WH List, Tentative Lists, and similar properties not on either).

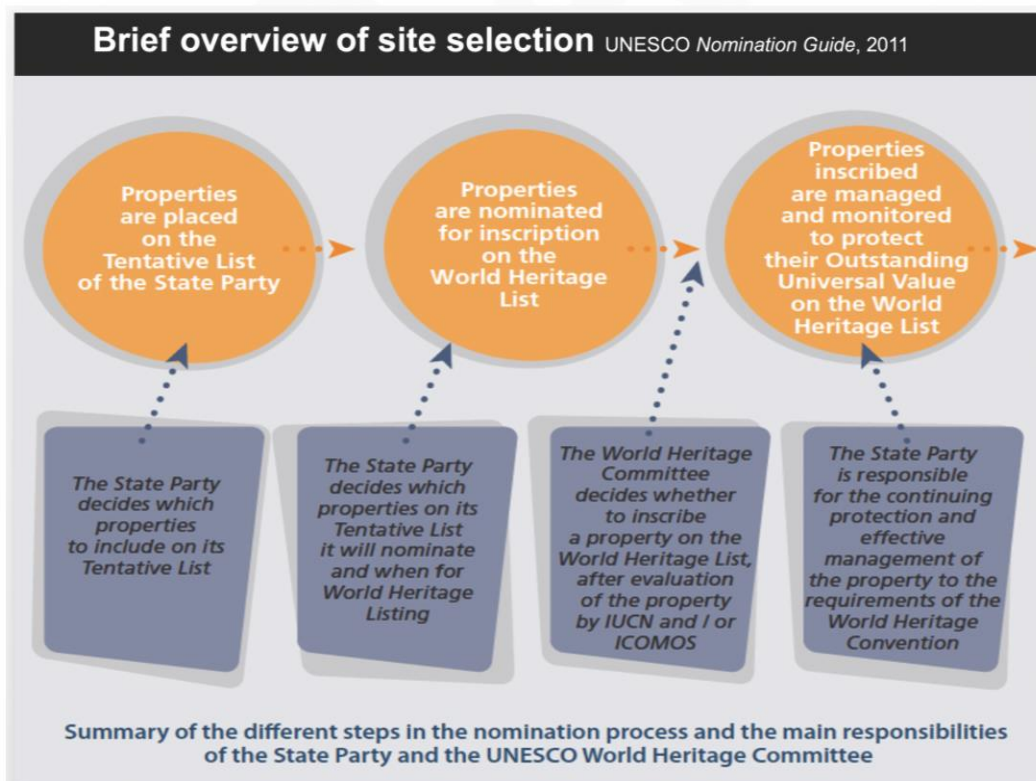
^{*(C)} *These attributes should be aligned with, and closely related to, those in the Cornish Mining World Heritage Site. Best-practice in 2020 is now to tabulate values and attributes separately.*

3. Refine 1 based on the outcome of 2 ^{*(D)}.

^{*(D)} *While considering these key lists and properties that are closely comparable, analysis helps to differentiate the exceptionality of the nominated property and the statement can be adjusted accordingly.*

4. Prepare descriptions of the property (Burra) and all its elements^{*(E)}. Prepare a History & Development chapter ^{*(F)} that is compliant with the OG.

^{*(E)} *As general guidance for Tentative List applications, this should be summarised in around 5 pages.* ^{*(F)} *As general guidance for Tentative List applications, this should be summarised in around 2 pages. Specific guidance received from the Australian Government in due course can modify this as and when required.*



3 Approach and methodology

As indicated in my original quotation (Gamble, 11 March 2020) and confirmed by order with a commencement date of 1 May 2020 and a completion date of 31 March 2021, my tasks are designed to meet the requirements of the Federal authorities in Canberra for a submission for World Heritage Tentative Listing, in readiness for when an opportunity to submit may arise.

This draft executive summary is a work-in-progress internal report for the Regional Council of Goyder for initial feedback, prior to wider discussion with experts and peer review. My approach is not to replicate the excellent material already produced by a number of authors spanning my 16 years contact with Burra and Moonta. I have rather concentrated on synthesis and succinct presentation, using key documentation such as the National Listing citations, existing maps and illustrations, supplemented by a few of my own photographs to break up the text for now. Importantly, text for the proposed Outstanding Universal Value (OUV), criteria, integrity, authenticity, protection and management, comparative analysis, description and history & development are drafted within the prescriptive framework of the following three principal UNESCO guidance documents:

Operational Guidelines for the Implementation of the World Heritage Convention (UNESCO, 2019 version); *Guidance on Developing and Revising World Heritage Tentative Lists* (UNESCO, 2020); *Nominations Resource Manual* (UNESCO, 2011).

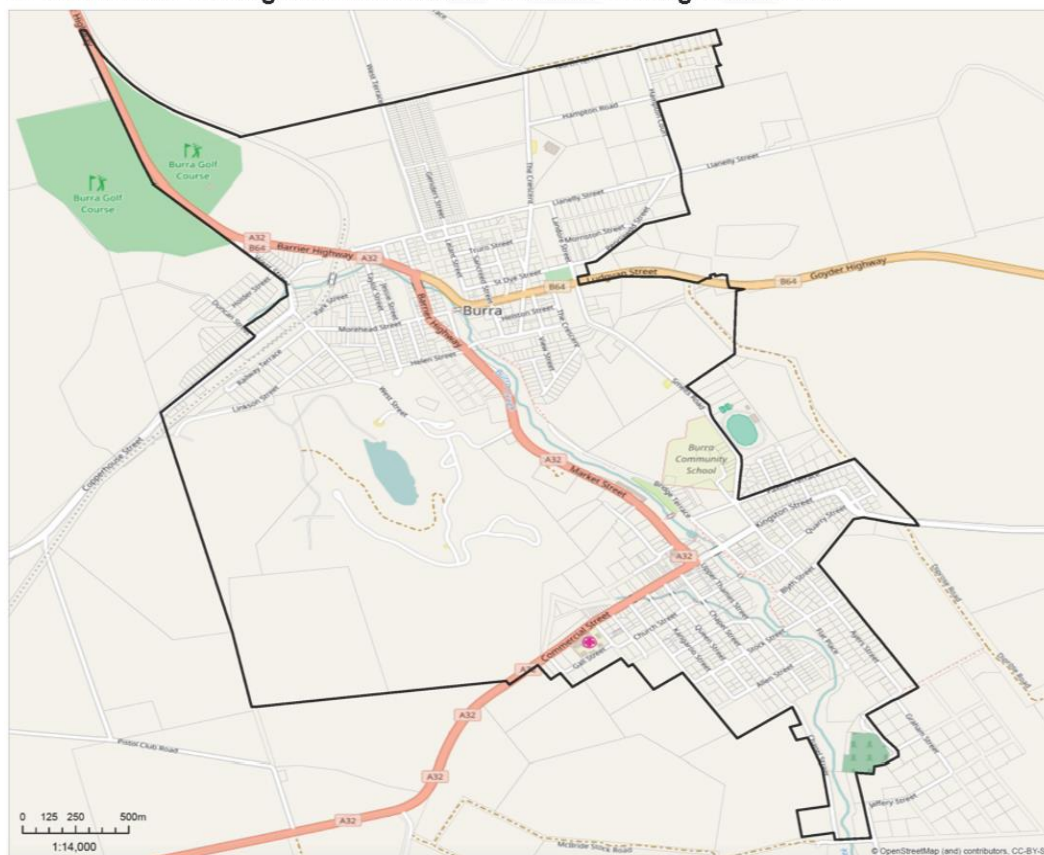
4 Name of property: Australian Cornish Mining Sites: Burra and Moonta



Id. No.	Name of the component part	Region/ District	Coordinates of the central point	Area of Nominated Component (ha)
01	Burra State Heritage Area	Goyder	33°40'31" S 138°55'48" E	640
02	Moonta Mines State Heritage Area	Goyder	34°04'27" S 137°36'24" E	320

5 Maps and Plans, showing the boundaries of the component parts of the nominated property (maps from National Listing must be used as a basis)

01 Burra State Heritage Area / Australia National Heritage Listed site



02 Moonta Mines State Heritage Area / Australia National Heritage Listed site



Moonta Mine: Richman's engine house, remains of ore-concentrating plant and tailings dump

6 Proposed statement of Outstanding Universal Value

Background – not part of the proposed statement of Outstanding Universal Value

The nominated property is presented in the context of a proposed transcontinental extension of the *Cornwall and West Devon Mining Landscape* World Heritage Site (UK), in the form of an incremental series. Potential participation includes Australia (South Australia), South Africa, Mexico, Spain and Ireland. As such, depending on participation and State Party agreement together with Advisory Body recommendation, a framework OUV *may* ultimately be proposed. In the meantime, the following brief synthesis and criteria, supported by comparative analysis, concentrates on the independent justification of *Australian Cornish Mining Sites: Burra and Moonta* (Australia) to be placed on the Australian Tentative List, and ultimately on the World Heritage List.

Outstanding Universal Value (OUV) means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.

The Brief Synthesis should be written as a continuous piece of prose and without bullet points. It should be roughly balanced between factual description of the property and a summary of its qualities.

Brief synthesis

Australian Cornish Mining Sites: Burra and Moonta is located in the mid-north of the federal state of South Australia. It comprises two historic 'Cornish' copper mining landscapes in comparatively remote country separated by a distance of 130 km: *Burra State Heritage Area* in the Mount Lofty Ranges (in the east), and *Moonta Mines State Heritage Area* on the Yorke Peninsula (in the west).

The nomination is part of a proposed transnational extension of the *Cornwall and West Devon Mining Landscape* World Heritage Site (UK), a cultural landscape that represents the origin and flourish of the Cornish metalliferous mining tradition. This was subsequently transferred globally to make a profound contribution to the technology and frontiers of international metal mining throughout much of the nineteenth century. *Australian Cornish Mining Sites: Burra and Moonta* represents the first transfer, in the 1840s, of Cornish mining technology to the Antipodes - to the British Crown colony of South Australia. This was accompanied by the pronounced migration of miners and their families, especially from 1846 to 1886, and which had, overall, a profound effect on mining progress and settlement both here and elsewhere in Australia, New Zealand, and in the wider expansion of the international mining frontier, including North America and South Africa. The Australian sites comprise the fullest, largest and distant transfer of this mining culture, its resilience in Australia, and places where Cornish mining technology, skills and culture are demonstrated to the highest degree in a surviving coherent cultural landscape.

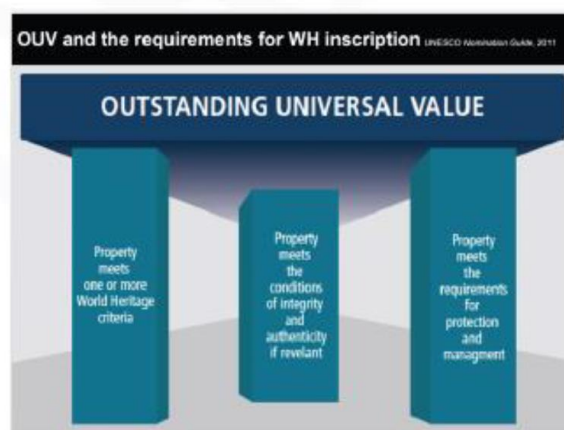
The pattern of Cornish migration to South Australia was linked directly to the relative fortunes of mining in Southwest England and, especially from 1846 to 1886, to the fortunes of mining in South Australia. Here, exceptionally rich and accessible copper ore combined with relatively close proximity to the sea for transport created a mining bonanza that was firmly founded on the 'prototype' Cornish system. This efficient form of hard-rock deep-mining and ore-processing was highly mechanised and pioneered the use of high-pressure steam as motive power. Geared to profitability, the revolutionary system was transplanted directly from Cornwall and west Devon.

The nominated property contains the most authentic and historically important surviving elements of the Burra (1845-77) and Moonta (1861-1923) mining landscapes from the period during which the most significant industrial and social impacts occurred. Social, economic, technological and environmental change is clearly demonstrated by mines that hosted the highest concentrations of Cornish miners – and, from the outset, their families - in Australian history. They were, at times, the largest copper mines in the world (Burra and Moonta successively) supplying around ten per cent of global production.

Attributes and their spatial patterns and interrelationships reflect the characteristic organisation of operations based on the Cornish system. The remains of the mines with their shafts, distinctive Cornish engine houses, tall chimneys, 'dressing floors', tramways and smelting works, together with mining 'new towns' and other social infrastructure, form a unified and coherent cultural landscape that is vivid testimony to the fundamental influence that Cornwall and west Devon asserted on the mining world. The export of South Australian copper supplied Britain and Europe with this crucial industrial metal and, ironically, contributed to a pronounced geographical shift in copper production away from Europe, and to the ultimate demise of the Cornish copper mining industry by 1870.

Settlements - from unique creek-bank 'dugout' homes to cottage rows in the oldest planned mining town in Australia - illustrate wide-ranging ownership and organisation; and the challenges of unfamiliar climate and terrain, distance and isolation, poverty and prosperity. Characteristic non-conformist (Methodist) chapels symbolise what was the most important social influence after the mine, part of wider recognisable Cornish cultural traits including music, sport, food and politics.

Overall, the combined tangible and intangible legacy of Cornish Mining's exceptional industrial culture of mobility - its 'Great Emigration' and technological and cultural diaspora - is more recognisable here than in any other destination, worldwide.



Criteria

Criteria, as for *Cornish Mining*: (ii), (iii) and (iv)

(ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design.

Australian Cornish Mining Sites: Burra and Moonta contribute the most vivid and comprehensive testimony to the transfer and interchange of the pioneering and revolutionary Cornish system of hard-rock mining and traditional mining culture from the 1840s to the early twentieth century, and its consequent landscape transformation. From Cornwall and West Devon, the first transfer of Cornish mining technology to the Antipodes in the 1840s - to the British Crown colony of South Australia – and the pronounced migration of miners and their families especially from 1846 to 1886, had a profound effect and influence on mining progress and settlement both here and elsewhere in Australia (e.g. Bendigo in Victoria, Broken Hill in New South Wales, Kalgoorlie in Western Australia and Charters Towers in Queensland), in New Zealand (e.g. Coromandel Peninsula), and in the wider expansion of the international mining frontier, including North America and South Africa.

The nominated property is directly associated with the *Cornwall and West Devon Mining Landscape* that is testimony to the prototype Cornish system that diffused across the world during the nineteenth century and into the early twentieth. The landscape character of this World Heritage Site (inscribed in 2006) is distinguished by the mines and their engine houses as icons of mining technology and industrial architecture, ore-processing and smelting sites, the tramways, railways and other transport infrastructure, foundries and other ancillary industry, and the mining towns and villages that were built to house the industrial workforce. This landscape content and character is broadly replicated in the Australian sites and is testimony to the success of this interchange. In Moonta Mine, especially, the Cornish mining system was improved in some aspects of mining and ore-processing (through continual innovation in machine technology), and in areas of labour organisation and labour relations. The development of industrialised mining in Cornwall and West Devon between 1700 and 1914, particularly the innovative use of the high-pressure steam beam engine, led to the evolution of an industrialised society in the region. This had a profound impact on the growth of industrialisation in the United Kingdom, and consequently on industrialised mining around the world. For a century, until World War I, the Cornish system of hard-rock mining (and its technological products) was transferred to newly-independent countries in Latin America, to colonies of the British Empire (especially Australia, New Zealand, South Africa, India and Canada) and to North America.

The Australian sites, historically and today, are the clearest manifestation of the fullest transfer of the Cornish mining system and its wider cultural traditions.



Moonta Mine: Paved ore floors and tailings heap.



Burra: Cornish street names in Redruth

(iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.

Australian Cornish Mining Sites: Burra and Moonta is unique and exceptional testimony as a characteristic landscape of traditional Cornish mining culture that is representative of its transcontinental spread across the world during the nineteenth and early twentieth centuries. The Australian sites represent the fullest and distant expression of combined tangible and intangible attributes that ever existed historically, and that also survive with high authenticity and integrity.

The extent and scope of the remains of metalliferous mining and the associated transformation of the urban and rural landscapes in the *Cornwall and West Devon Mining Landscape* present a vivid and legible testimony to the success of the Cornish system of industrialised mining as originally developed. The Australian sites represent unparalleled testimony to the successful transfer of this cultural tradition, and its full technological expression (engine houses and boiler houses, shafts and open-cuts, waste-tips, waterwheel pits, copper ore-crushers, buddles and ore-floors, tramways, smelter sites and settlements) together with the wider intangible cultural attributes of organisation (e.g. ore-floors for miners' ore to be valued for payment under the Cornish tribute system), religion (non-conformist Methodist chapels and attendant Sunday schools, Anglican churches), music (choirs and band halls and bandstands), sport (squares where Cornish wrestling and hand rock-drilling contests took place), food (Cornish pasties and saffron cake), the Cornish language, names and place-names, literature and labour politics.



Burra: Tiver's Row



Burra: Redruth Methodist Church

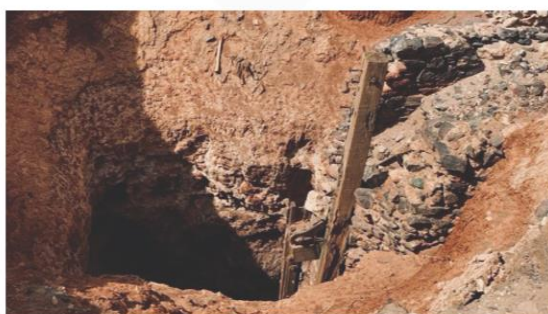
(iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history.

Australian Cornish Mining Sites: Burra and Moonta, and particularly its characteristic engine houses as a technological ensemble in a landscape, represent places where Cornish mining technology, skills and culture are demonstrated to the highest degree in a surviving coherent cultural landscape. The site reflects the formative changes that the Cornish system made to mining practices around the world, and the substantial contribution that South Australia made to global copper production.

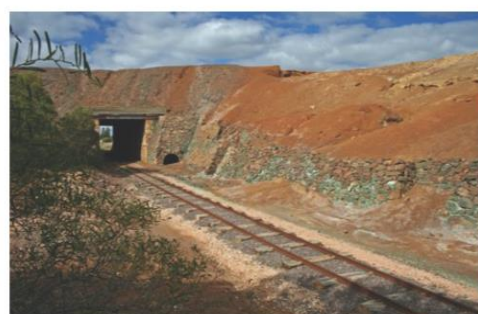
This took place during the period coinciding with the maturity of the First Industrial Revolution in Britain, Europe and North America, and occurred at a crucial formative period in the development of modern industrial society and the growth of a global capitalist economy. Australia benefitted rapidly from the enormous scientific, engineering, communications and transport advances occurring in Britain, including those in the far Southwest England (Cornwall and Devon).

Metal mining, especially for copper, transformed the landscape, economy and society of the sites in Cornwall and West Devon, and in South Australia. Together, they exemplify the evolution, development and diffusion of Cornish mining technology, especially the innovative application of steam power, arguably the greatest of the technical innovations developed during the Industrial Revolution.

Foundries that manufactured the famous beam engines that were powered by high-pressure steam survive in the *Cornwall and West Devon Mining Landscape*, including the great foundries that supplied the principal engines to South Australia: Perran Foundry of Perranarworthal (to Burra) and Harvey's Foundry of Hayle (to Moonta). Five Cornish engine houses survive in the nominated property, spanning the range of principal functions (three for pumping, one for winding, and one for ore-processing). Their context is supplemented by further important technical heritage, including flat-rod channels leading to a balance-bob in an open shaft, and substantial ore-processing structures and processing waste heaps that were re-worked by copper precipitation in the same manner and scale as evidenced in West Devon.



Moonta Mine: Taylor's Shaft balance-bob and pump-rod



Moonta Mine: Narrow-gauge mineral railway

Integrity

Australian Cornish Mining Sites: Burra and Moonta as a relict mining landscape provides an outstanding reflection of the way that prosperity derived from 'Cornish' mining operations transformed the landscape in these rural areas, including the introduction of new settlements, and encapsulates the extent of those changes.

All principal landscape attributes are included: mine sites including shafts and engine houses, ore dressing sites and waste dumps; mine transport including tramways and mine roadways; ancillary industry (e.g. smelter sites); and mining settlements and social infrastructure, including public buildings, hotels and public houses, Methodist chapels and Anglican churches. The mines, engine houses, associated buildings and other features, including ore-processing and smelting, demonstrate a high level of functional integrity. Together, the component parts of *Burra* and *Moonta* create a high level of compositional integrity with regard to both technological ensembles and settlement patterns.

The boundaries of component parts, one for each of *Burra* and *Moonta*, coincide precisely with entries in the Australian National Heritage List and the South Australian Heritage Register. The nominated property is of adequate size to ensure the complete representation of the attributes and processes which convey the property's significance, both component parts being designated as State Heritage Areas (cohesive, significant regions, areas or landscapes with outstanding natural or cultural elements including buildings, spaces, street patterns, developed landscape and natural features; *Burra* in 1993 and *Moonta Mines* in 1984).

Each of the principal mine sites and their technological infrastructure is included in their entirety. Regarding other attributes, *Burra* contains the range of all principal mine settlements built inside and outside of the South Australian Mining Association's rectangular lease area, including the company settlement (inside), and the government-surveyed settlements and unique creek-bank dugouts from the 1840s (outside). *Moonta*, in contrast, contains remains of characteristically haphazard mining settlements that were constructed as *ad-hoc* 'villages', mostly by Cornish miners with permission from the mining companies on the mine leases, adjacent to specific mine workings (a pattern observable in the *Cornwall and West Devon Mining Landscape* World Heritage Site, for example in Gunnislake). Only a relatively small number of scattered cottages survive from the large number originally built, as they were cheaply and hastily built, but those that remain are in good condition (one cottage and garden is preserved by the National Trust as a Museum). Significant archaeological potential remains on the *Moonta Mines* site.

Australian Cornish Mining Sites: Burra and Moonta includes relict mining landscapes with remnant mining infrastructure. Following mine closures (1877 and 1923, respectively) the

mines were decommissioned and much equipment and infrastructure was removed. The mines, engine houses, associated buildings and other features, including ore-processing and smelting sites, are in variable states of repair or ruin. A number have been conserved or consolidated, surviving in good condition or as stable archaeological remains. Much of the settlement and social infrastructure remains in living community use and is mostly in good condition. Overall, the nominated property does not suffer from adverse effects of development and/or neglect, and is not under threat.



*Burra: Malowen Lowarth
['hollyhock garden'] cottage
rows (1849-52), Paxton
Square*

Authenticity

Australian Cornish Mining Sites: Burra and Moonta fulfils the conditions of authenticity, its asserted values truthfully and credibly expressed through a range of attributes that closely parallel those identified in the *Cornwall and West Devon Mining Landscape* World Heritage Site. In terms of knowledge, the sites are extremely well documented in contemporary paintings, photographs, plans, reports etc., and in modern archaeological survey and literature, both in Australia and in the UK.

As a whole, the nominated property has high authenticity in terms of form, design and materials and, in general, the location and setting of surviving features. In one case, Burra Mine Morphet's pumping engine house, the principal structure that had suffered historical fire damage was partially reconstructed in 1986 with great respect for authenticity as a historic building and museum. Concerning settlements, Burra has the largest townships with the better-built and most architecturally significant (e.g. the Company settlement, originally Kooringa, and the Cornish miners' settlement Redruth) being living historic centres, while others (including for example Hampton in Burra, and the Moonta Mines settlement in Moonta, being substantially archaeological).

Regarding intangible heritage, the organisational expression of the Cornish mining system is highly legible in terms of the technological functional-spatial arrangement, of working systems (e.g. Cornish miners' tribute system and their ore floors – more extensive and better-preserved in Moonta, especially, than anywhere in the world), and of religious heritage (Methodist

chapels) whereby non-conformism was predominant among the managerial class (captains) and the miners. The Cornish language is evident in mining terms – first adopted in the Antipodes here in South Australia – and in place names, street names and surnames, and colloquial expression. Cemeteries, of course, provide a record of numerous Cornish pioneers. Attributes, and their location and setting, retain a palpable level of spirit and feeling.



Burra Burra Mine: 'Graves' engine house

Protection and Management

Australian Cornish Mining Sites: Burra and Moonta enjoys legal protection at the highest national level according to the Australian Environment Protection and Biodiversity Conservation Act of 1999, the two component parts being listed as cultural heritage sites on the National Heritage List of Australia in 2017. The boundary of the nominated property for each component part coincides precisely with the boundary of the Nationally Listed property - *and* the State Heritage Areas on the South Australian Heritage Register (Burra 1993 and Moonta Mines 1984). As two (of 17) State Heritage Areas in South Australia, this also gives them State-level protection, with further individual protection extending to listings in the South Australian Heritage Register (70 places in Burra and six in Moonta). Each area is also included in listings in development plans for the areas and regions in which they are located, affording a high-level of multi-layered protection.

The property is managed... (to be discussed).

7 Values and attributes

The best available description of the attributes of Outstanding Universal Value is set out in the Nominations Resource Manual:

Having considered what the potential outstanding universal value of a natural or cultural property might be, it is essential to consider the attributes, more commonly called features for natural properties, which convey the potential outstanding universal value and allow an understanding of that value.

These attributes will be the focus of protection and management actions, and institutional arrangements, and their disposition will inform the boundary of the property.

Attributes might be physical qualities or fabric but can also be processes associated with a property that impact on physical qualities, such as natural or agricultural processes, social arrangements or cultural practices that have shaped distinctive landscapes. For natural properties they can be specific landscape features, areas of habitat, aspects relating to environmental quality (such as intactness, high / pristine environmental quality), scale and naturalness of habitats, and size and viability of wildlife populations. (UNESCO 2011, 59)

Attributes are not specific to particular criteria of Outstanding Universal Value, but should refer to the whole property. The criteria justify the whole Outstanding Universal Value in terms of particular viewpoints set out in them. Reference can (and should) be made to the relevant attributes within each criterion citation, but they are not exclusive to that criterion. They relate to the whole Outstanding Universal Value

Attributes of Outstanding Universal Value are becoming of increasing importance in the World Heritage system as the tangible/ intangible carriers of OUV. ICOMOS now summarises the attributes of a property recommended for inscription in its evaluation.

Values and attributes flow from the proposed statement of Outstanding Universal Value and the justification criteria. If we refer to pages 7-12 we can broadly tabulate the following:

Values
1st transfer (1840s) of Cornish mining technology to the Antipodes (to South Australia)
Migration of Cornish miners and their families (especially 1846-86)
Influence on mining progress and settlement elsewhere in Australia, New Zealand and in the wider expansion of the international mining frontier
The fullest, largest and distant transfer of Cornish mining culture and its resilience in Australia.
Places where Cornish mining technology, skills and culture are demonstrated to the highest degree in a surviving coherent landscape.
Mines that hosted the highest concentrations of Cornish miners and their families in Australian history.
At times the largest copper mines in the world (Burra and Moonta successively), exploiting rich ore and supplying around 10% of global production. Copper exports to Britain and Europe.
Characteristic organisation of operations based on the prototype Cornish system of hard-rock deep shaft mining using steam engines for pumping, winding and crushing.
Innovation in mining, ore-processing, labour organisation and labour relations.
Oldest planned mining town in Australia.
Contribution to a pronounced geographical shift in copper production away from Europe, and to the ultimate demise of the Cornish copper mining industry by 1870.

Attributes
Surviving coherent cultural landscape. Landscape transformation by copper mining based on the Cornish system
Cornish engine houses in the range of principal function: pumping, winding and crushing
Cornish engine houses (technological ensemble in a landscape), boiler houses, shafts and associated technology, open-cuts, chimneys, waste dumps
Dressing floors, waterwheel pits, ore-processing remains, ore floors, tailings dumps
Tramways, railways and roads
Smelting works and foundries
Mining 'new towns' and settlements, creek-bank dugout homes
Methodist chapels and Sunday schools, Anglican churches
Progressive labour organisation and labour relations
Choir halls and bandstands, squares for wrestling and hand-drilling
Cornish language, names and place-names, literature
Cornish pasty, saffron cake, etc.

* An important aspect yet to be defined, described and evaluated is Traditional Owners such as the Ngadjuri people.

8 Comparative analysis

The purpose of the comparative study is to show that there is room on the World Heritage List (and hence, prior, on the Tentative List) for the proposed nomination, and also that there are no other better candidates. In the case of a serial nomination, the comparative study should also justify the selection of the component parts of the nomination.

It is important to demonstrate that there are no comparable properties in the same geo-cultural area (cultural properties) with similar values that might be nominated in the future. The geo-cultural area varies according to the values expressed by the property and might be defined at the regional level or worldwide – in this case, the diffusion of the Cornish mining system and its wider cultural attributes is global.

The starting point of the analysis is to define what combination of potential Outstanding Universal Value and the related features and attributes are being compared. That is, what is the particular significance of the property, and how is this manifested. Comparisons should be drawn with properties expressing the same values as the nominated property, therefore, the values and attributes need to be clearly defined.



Berry No 1 Mine on the so-called deep lead buried alluvial deposits of the Central Victorian Goldfields

The task of comparative analysis was approached in the following steps:

Framework for the comparative analysis

Values and attributes (pp 16/17) were used as the basis for comparison (comparators) in a qualitative manner at this stage. The typological and thematic framework was also defined, so too the chronological-regional framework, *and* the three criteria for justification of Outstanding Universal Value: (ii), (iii) and (iv) (see pp.10,11,12).

Assessment

Criteria for selection based on values and attributes guided systematic comparison with selected properties on the World Heritage List, Tentative Lists, and properties not on either list.

Conclusion – is there scope for *Australian Cornish Mining Sites: Burra and Moonta* on the World Heritage List?

A conclusion was drawn based on the evidence examined in the assessment. Quite simply, *Australian Cornish Mining Sites: Burra and Moonta* is an essential member of any transnational extension to the *Cornwall and West Devon Mining Landscape* World Heritage Site.



Namaqualand 'Cornish' copper mining landscape, South Africa, a transplanted Cornish mining cultural landscape that is the most closely comparable to the nominated property, representing a candidate complimentary member of a transcontinental series: O'okiep Mine and its Cornish engine house (lower right, with beam engine in situ), open pit and smelter remains, Methodist chapel (centre, far left) and mining town. Two other 'Cornish' mines, a bullock-cart track to Hondeklip Bay, and a 93-mile railway to the copper ore port of Port Nolloth represent South Africa's first large-scale industrial infrastructure – substantially built on the Cornish system and which became, for a time in the 1870s, the largest copper producer in the world

The UNESCO World Heritage Centre's Brief Description of the *Cornwall and West Devon Mining Landscape* World Heritage Site recognised:

"...Cornish technology embodied in engines, engine houses and mining equipment were exported around the world. Cornwall and West Devon were the heartland from which mining

technology rapidly spread. When Cornish and West Devon mining declined in the 1860s, large numbers of miners emigrated to work and live in mining communities based on Cornish traditions, in Central and South America, Australia, South Africa and others where Cornish engine houses still survive."

The contribution that Cornish Mining technology and culture made to mining across the globe, the irony of the corresponding impact upon mining back in Cornwall, and the way Cornish culture fused with host cultures is acknowledged as a key element of Outstanding Universal Value.



Cornish engine house, Virgin Gorda copper mine, British Virgin Islands, Caribbean, worked by Cornish miners in the 1840s and 1860s

Framework for the comparative analysis

Values and attributes of the nominated property are used as comparators in a qualitative manner at this stage. Some further classification is needed to assist in comparisons with similar properties on the World Heritage List, on State Party Tentative Lists, and with properties not on either list.

With reference to *The World Heritage List. Filling the Gaps – an Action Plan for the Future* (ICOMOS, 2005):

The typological framework for *Australian Cornish Mining Sites: Burra and Moonta* is defined as "Agricultural, industrial and technological properties: ...mines, mining landscapes, factories; bridges, canals, railways; industrial settlements, etc." (p.33).

The thematic framework for the nominated property is informed by its defining attributes of proposed Outstanding Universal Value, and the use of justification criteria (ii), (iii) and (iv) as justified by the inscription of *Cornish Mining* – see values and attributes listed as the basis for comparison (pp. 16/17). Criterion (ii) is about interchange and influence, criterion (iii) examines more the extent to which the nominated property is outstanding evidence for the cultural tradition of *Cornish Mining*, and criterion (iv) is more technical since it considers primarily the typology of the nominated property, alongside the exceptionality (or otherwise) of its construction as a system.

Key relevant themes should define issues of a universal nature. The thematic framework for *Australian Cornish Mining Sites: Burra and Moonta* is defined as Cultural Landscapes (f. Industrial landscapes), including Industrial architecture / Transport structures / Urban settlements (Towns established in the 19th and 20th centuries) (pp. 74-77).



Typical Cornish mining landscape, South Caradon copper mine, Liskeard, Cornwall

The chronological-regional framework is broadly the era of the Western industrial revolution (say 1750 to the 1920s) in a global context. The principal period of a shared international heritage commences after 1810, though mining phases that pre-date industrialisation are crucially important in understanding each site's history and development. 1810 marks the beginning of a period, which lasted over a decade, when South and Central American countries became newly independent; this was a time when Cornwall, famously commencing with mining engineer Richard Trevithick, began its long association with Latin America. New mining fields were also opened up in America, the Caribbean, South Africa and Australia between 1830 and 1860, and in India and South Africa between 1870 and 1900. 1914 is the time by which the Great Emigration, or Cornish Diaspora, had, essentially, run its course. This date is also a benchmark to signify the end of Britain's industrial revolution and the corresponding primary breakpoint in the principal date-range for the Cornish Mining World Heritage Site.

Assessment

The comparative study examined all World Heritage properties with Outstanding Universal Value relating to metal mining, and, to the extent that information is available, sites on national Tentative Lists. The study then examined the evidence for Cornish mining landscapes of the industrial era, worldwide, that are not on either list but that have significant remains.

Applying a screening process, the following were omitted from comparison:

Mines and mining landscapes of non-metallic raw materials such as salt, including *Wieliczka and Bochnia Royal Salt Mine* (Poland) and *Hallstatt-Dachstein/Salzkammergut Cultural Landscape* (Austria), and coal including *Zollverein Coal Mine Industrial Complex in Essen* (Germany), *Major Mining Sites of Wallonia* (Belgium), *Nord-Pas de Calais Mining Basin*, (France) and *Ombilin Coal Mining Heritage of Sawahlunto* (Indonesia);

Mines and mining landscapes which cover a completely different period of mining, including *Las Médulas* (Spain) an Imperial Roman alluvial gold mining landscape, and *Krzemionki Prehistoric Flint Mining Region* (Poland), a prehistoric cultural landscape;

Mining and processing of iron ores or the related industrial architecture, including *Ironbridge Gorge* (United Kingdom), *Engelsberg Ironworks* (Sweden), *Völklingen Ironworks* (Germany), and *Blaenavon Industrial Landscape* (United Kingdom).

Results

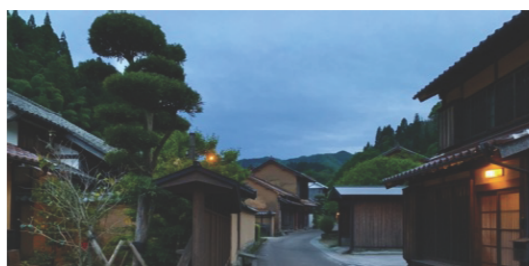
World Heritage List

World Heritage properties and comparability to *Australian Cornish Mining Sites: Burra and Moonta*

Country	Property	Incomparable	Partly	Closely	Summary
UK	<i>Cornwall and West Devon Mining Landscape</i> (2006)			x	A cultural landscape / polymetallic mining landscape inscribed on the basis of criteria (ii), (iii) and (iv) and focussing on the period of the Industrial Revolution (1700-1914) in this geographically peripheral region of Britain. Source of much of Britain's high-pressure steam engine technology and location where the Cornish Mining system originated.
Germany / Czechia	<i>Erzgebirge/Krušnohoří Mining Region</i> (2019)		x		A transboundary cultural landscape / polymetallic mining landscape inscribed on the basis of criteria (ii), (iii) and (iv). 12 th /16 th to 19 th centuries (silver/cobalt/tin) and again 2 nd half of 20 th c (uranium) most significant periods/minerals. No significant Cornish involvement (apart from studying in the Freiberg Mining Academy) and no use of Cornish engines. Not a transplanted Cornish mining landscape.
Germany	<i>Mines of Rammelsberg and Historic and Town of Goslar and Upper Harz Mining Water Management System</i> (1992/2010)		x		Industrial complex, mining town, polymetallic ore extraction and processing (including copper), water management, innovation. Including criteria (ii) and (iv). No significant Cornish involvement and no use of Cornish engines. Not a transplanted Cornish mining landscape.
Slovakia	<i>Historic Town of Banská Štiavnica and the Technical Monuments in its Vicinity</i> (1993)		x		Central European classic mining town, mining landscape, architecture, technology, water management, mining education. Use of criterion (iv). (and (v)). No significant Cornish involvement and no use of Cornish engines (although Newcomen engines (invented in Devon) were used from the 1720s to the 1780s.

				Not a transplanted Cornish mining landscape.
Norway	<i>Røros Mining Town and the Circumference (1980/2010)</i>		x	Copper mining landscape (17 th to 20 th c), mining town, ore-processing and smelting, with some innovations. Including criteria (ii) and (iv), but also (v). No significant Cornish involvement (miners from Saxony were brought in) and no use of Cornish engines. Not a transplanted Cornish mining landscape.
Sweden	<i>Mining Area of the Great Copper Mountain in Falun (2001)</i>		x	Copper mining landscape (13 th to 20 th c), mining town, extraction and ore-processing. Inscribed on the basis of criteria (ii), (iii) and (iv). No significant Cornish involvement and no use of Cornish engines. Not a transplanted Cornish mining landscape.
Spain / Slovenia	<i>Heritage of Mercury. Almadén and Idrija (2012)</i>		x	Mining landscape, mining town, mercury mining, mercury extraction, trade (Roman period to 20 th century). No significant Cornish involvement and no use of Cornish engines. Not a transplanted Cornish mining landscape.
Poland	<i>Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System (2017)</i>		x	Mining site (18 th /19 th /early 20 th c, substantially underground) located in Upper Silesia, one of Europe's classic lead-zinc-silver mining regions with a mining tradition of 700 years. Innovative underground water management system, including water supply. Use of criteria (ii) and (iv). No significant Cornish involvement and no use of Cornish engines. Not a transplanted Cornish mining landscape.
Bolivia	<i>City of Potosi (1987)</i>	x		The City of Potosi especially relates to architectural values of the urban ensembles. The site consists of the silver mines of the near 16,000 feet <i>Cerro Rico</i> [rich mountain], the Royal mine complex, an ore-processing water management system comprising an intricate system of aqueducts and artificial lakes, the colonial town with its Royal Mint (reconstructed in 1759) and no less than 22 parish or monastic churches and a cathedral, patrician houses and the barrios where the workers lived. During the second half of the 16 th century, the mine produced an

					estimated 60% of world silver output. Criteria (ii), (iv) and (vi). No significant Cornish involvement and no use of Cornish engines. Not a transplanted Cornish mining landscape.
Mexico	<i>Historic Town of Guanajuato and its Adjacent Mines</i> (1988)	x			Guanajuato especially relates to architectural values of the urban ensembles, although some important colonial mining remains including shafts and impressive ore-processing haciendas. Historic 16 th c silver boom town with adjacent mines. Including criteria (ii) and (iv). Some minor Cornish involvement but no use of Cornish engines. Not a transplanted Cornish mining landscape.
Mexico	<i>Historic Centre of Zacatecas</i> (1993)	x			Historic 16 th c silver boom town with adjacent mines. Including criteria (ii) and (iv). Some minor Cornish involvement but no use of Cornish engines. Not a transplanted Cornish mining landscape.
Chile	<i>Sewell Mining Town</i> (2006)		x		Predominantly an early 20 th c company town (15,000 population) of a large copper mine (highly mechanised and electrified production system, including extensive ore-processing). Criterion (ii). Not a transplanted Cornish mining landscape.
Japan	<i>Iwami Ginzan Silver Mine and its Cultural Landscape</i> (2007)	x			Silver mining cultural landscape, located on the west coast of SW Honshu. Greatest contribution to OUV in the 16 th /17 th centuries. Numerous small underground workings located in the mountains are included, together with scattered mountain housing sites, mining towns in the valleys and the mine road connection to three ports. Criteria (ii) and (iv), and (v). Not a transplanted Cornish mining landscape.



Typical street scene, Iwami Ginzan, Japan

Tentative Lists

Tentative List properties and comparability to *Australian Cornish Mining Sites: Burra and Moonta*

Country	Property	Incomparable	Partly	Closely	Summary
Japan	<i>Sado Island Gold-Silver Mines</i>	x			Gold-silver mining island (electrum was the principal mineral, and silver sulphides/chlorides) off the west coast of central Honshu. Operational from the late 16 th c/early 17 th c to the late 20 th c. Most important contribution to proposed OUV from the 1 st half of the 17 th c. Criteria (iii) and (iv). No Cornish engines, but a Cornish engineer hired to introduce stamping technology in the 1870s. Not a transplanted Cornish mining landscape.
Canada	<i>The Klondike</i>	x			The Klondike is located in a rugged subarctic environment centred on the Yukon and Klondike rivers in north-western Canada, near the Alaska border. The property includes a wide variety of heritage elements found along a 52-mile stretch of the Yukon River, in the historic goldrush-era town of Dawson City and in the Klondike goldfields. Alluvial mining, with Cornish involvement but not hard-rock mining or any use of Cornish engines. Not a transplanted Cornish mining landscape.
Romania	<i>Roşia Montană Roman Gold Mines</i>	x			Imperial Roman gold mines (opencast and underground) in Transylvania. Also, some 18 th -20 th c mining remains and associated settlement (importantly late-18 th to early 20 th c). No Cornish involvement or Cornish engines. Not a transplanted Cornish mining landscape.
Greece	<i>Ancient Lavrion</i>				Ancient mines which, from the 3 rd century CE, entered a period of decline. In the 6 th century CE the mines were abandoned, with substantial renewed activity only

				resuming in the 1860s and continuing through to the 20 th century. Extensive remains survive from this later phase, overprinting much of the earlier evidence, although substantial important early evidence survives. Not a transplanted Cornish mining landscape.
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Roşia Montană Roman Gold Mines, Romania

Properties not on either list



Kapunda copper mine, South Australia

Country	Property	Incomparable	Partly	Closely	Summary
Australia (South Australia)	<i>Kapunda copper mine</i>			x	Australia's first copper mine (1842), with impressive open pit, shafts, engine house foundations of the first Cornish beam engine in Australia (although at a second site; Bull engine) together with recently excavated boiler houses and other remains. Associated manager's house, cottages and the mining settlement of Kapunda, with Methodist churches, cemetery, public buildings, etc.
Australia (South Australia)	<i>Wallaroo mines</i>			x	Harvey's Cornish engine house (1873, 60" pumping engine), finely built in dressed local limestone, with flooded shaft and visible pump-rod section. The adjacent mining landscape is extensive and there are various remnants such as the collapsed bob-wall of another engine house (formerly there were four), ore-floors, dumps and shaft ventilation structures.
Australia (South Australia)	<i>North Rhine</i>		x		Situated in a shallow valley in open farmland near Keyneton is this rarity of technology, a Bull engine house (the 48" cylinder engine piston was inverted over the shaft where it connected directly to the pump rods). Little surrounding context apart from a small openwork on the lode.
Australia (South Australia)	<i>Worthing Mine</i>		x		Engine house (1851, the oldest standing in South Australia, 22" all-indoor engine) with chimney near Hallett Bay, south Adelaide. Surrounding landscape devoid of most mining remains and encroached on by development.
Australia (Victoria)	<i>Duke of Cornwall Mine</i>		x		Southeast of Castlemaine. Cornish engine house (1869, 25" rotative engine for pumping and stamps, recently consolidated and re-roofed) near Fryerstown, in a gold mining landscape (hard-rock) with alluvial workings adjacent. Cornish management/miners.

Australia (Victoria)	<i>Chalk's Mine</i>		x	On the Maryborough goldfields (deep leads): Chalk's No 1 Shaft engine house (1887, brick-built with bob-wall and partial wing walls), with adjacent mullock heaps clearly differentiated into quartz pebbles, shaft-sinking mullock and slimes, in an open agricultural setting. Chalk's No 3 North Shaft, with a blown-up fallen fragment of the engine house but an extant balance-bob in its pit, still linked to the pump-rod in the shaft with associated rising main.
Australia (Victoria)	<i>Berry Deep Leads</i>		x	Located near Smeaton (east of Clunes and north of Creswick). Berry No 1, near Smeaton, with brick-built engine house with bob-wall and substantial wing-walls surviving, with shaft and adjacent heaps of quartz pebbles from puddling the auriferous deep leads, in an open agricultural setting; Hepburn Estate brick-built engine house with bob-wall and partial wing-walls surviving, with shaft and adjacent large mullock heaps, including quartz pebbles from puddling the auriferous deep leads;
Australia (Victoria)	<i>Grand Duke Mine</i>		x	Grand Duke Mine, Timor. Engine house for an 80" Harvey's of Hayle engine - granite ashlar bob-wall with remnant brick wing-walls, but little other context in terms of a landscape.
Australia (Victoria)	<i>North Duke Mine</i>		x	North Duke Mine, Timor, with ashlar stone bob-wall standing amid mullock-heaps in lightly wooded agricultural setting.
UK	<i>Devon/Dartmoor 'Cornish' mining landscapes</i>		x	Several isolated Cornish engine houses, for example one at Wheal Betsy, Mary Tavy, which survives in a small but impressive mining landscape (lead-silver-zinc), with nearby mining settlement, Methodist chapel, etc.
UK	<i>Shropshire 'Cornish' mining landscapes</i>		x	Tankerville and Snailbeach mines with their Cornish engine houses. Tankerville (Watson's Engine Shaft, after a Director of Devon Great Consols) has a fine and quintessentially 'Cornish' engine house built in 1875-6 to contain a 40-inch pumping-engine, made by Harvey's of Hayle, Cornwall. The 60-

					feet high chimney, built in 1874, is more reminiscent of the type common to the mills of the North of England and Scotland from the second half of the nineteenth century onwards. Associated ore-floors, couthouse, smithy and miners' cottages in the adjacent village. A site more than a mining landscape. Shropshire Mines Trust, formed for the purpose of owning and conserving the site. Single and relatively small sites/mining landscapes.
UK	<i>Derbyshire Peak District 'Cornish' mining landscapes</i>			x	Magpie Mine and its Cornish chimney (1840), pumping engine house (1869, third-hand 70-inch Cornish pumping engine), shafts, openwork, couthouse, smithy, circular magazine/powder house, linked to the management of John Taylor. Well-conserved. In the care of the Peak District Mines Historical Society since 1962. Small mining landscape of a single lead mine.
UK	<i>Scottish 'Cornish' mining landscapes</i>			x	Pibble Mine, near Creetown, one of two Cornish engine houses in Scotland. The engine house (minus its recently collapsed bob-wall) dates from 1852-3 when the mine imported a Cornish pumping-engine from St Austell Foundry. A small and isolated lead mining landscape.
UK	<i>Welsh 'Cornish' mining landscapes</i>			x	Halkyn mines with their Cornish engine house. Frongoch lead and zinc mine (one of the richest in Wales), with remnants of Cornish engine houses and fine excavated buddle floors. First recorded in 1759, and worked by the Williams family of Scorrier, Cornwall, from 1824 to 1834, and by John Taylor & Sons thereafter. Apart from Frongoch, there is little left in the way of mining landscapes.
British Overseas territory, British Virgin Islands	<i>Virgin Gorda copper mine</i>			x	Single site of a 19 th c Cornish copper mine on the cliffs at Copper Mine Point. Remains include a remnant Cornish engine house and chimney, remains of crusher house, boiler remnant, cistern, site of cottages, open shafts, an opencut and extensive dumps. Two halves of the oldest known Cornish engine beam

					lie on the beach below (1836, Perran Foundry).
Ireland	<i>Allihies 'Cornish' copper mining landscape</i>			x	Modern copper mining began in the most western extremity of Cork, the Beara Peninsula, around 1810. The most famous Cornish engine house (built in 1862 to contain a 36-inch Cornish engine) is on Man-engine Shaft, Mountain Mine (Minach Mór) of the Bearhaven mines. It overlooks Ballydonegan Bay and the western tip of the Beara Peninsula. The sentinel engine house, with its adjoining lean-to for a single boiler, represents globally rare technological heritage and makes a striking contribution to the landscape on the western flank of the Slieve Miskish Mountains above the former mining village of Allihies, Ireland's furthest village from Dublin. Opencuts, mine dumps and various buildings survive at the site, while three other engine houses survive in the surrounding mining landscape.
Ireland	<i>Knockmahon Mine (Tankardstown) and the Copper Coast 'Cornish' mining landscape</i>			x	UNESCO-designated Geopark, southwest of Waterford, that contains one of Ireland's three great nineteenth century copper mining districts. Two Cornish engine houses built in the 1850s. The largest house contained a 50" pumping engine and the ruined house, next to the shared stack, a smaller whim – both made by Harvey's of Hayle, Cornwall, in the 1830s and relocated to this most easterly section of Knockmahon Mine from the earlier sett half a mile to the west. It was there, in 1829-30, that the Mining Company of Ireland had struck rich copper lodes, and where seven steam engines and six waterwheels eventually assisted operations. More a site than a mining landscape.
Ireland	<i>Avoca mines</i>			x	Copper mining landscape 18 th to 20 th c (the longest production record of any Irish mine). From 1811 associated with the Williams family of Scorrier, Cornwall. There are two Cornish engine houses in East Avoca in a relatively compact copper mining landscape with extensive ochrous-coloured dumps.

South Africa	<i>Namaqualand Copper Mining Landscape</i>		x	O'okiep mining landscape, Namaqualand, Northern Cape Province, is the place of origin of the modern Southern African mining industry as well as the beginnings of an industrial society in Southern Africa. This development was possible due to close connections established at an early stage with copper mining interests in Cornwall and West Devon and the resultant transfer of skills and technology from there and the migration of Cornishmen to Namaqualand. A Cornish engine house survives () with its pumping engine remarkably intact ins situ.
Spain	<i>Linares-La Carolina Mining Landscape</i>		x	Linares & La Carolina mining districts in the Jaen Province, an area of undulating hills and valleys in the Sierra Morena foothills of Andalusia around 173 miles south of Madrid. Around 35 Cornish engine houses survive; the largest concentration outside Cornwall. Harvey's of Hayle shipped the first Cornish engine (a whim) to Linares in 1844, and in 1849 The Linares Lead Mining Association installed the first Cornish pumping engine - at Pozo Ancho. A prominent pair of engine houses survive (built in 1849-50) and comprise a winding and roller-crusher-engine house (30" rotative beam engine,) and a pumping-engine house (60"). This was a time when Cornish engines began to be shipped to the concessions in large numbers, enabling mining to go deeper, bringing employment and prosperity to the area and making this the leading mining district in Spain. Apart from the engine houses, which are nonetheless sensational in these landscapes, this is otherwise not an especially Cornish mining landscape, either technologically or regarding the settlements and social infrastructure (although there is a small English cemetery in Linares).
USA	<i>Grass Valley</i>		x	California "Mother Lode" gold-quartz mining region in the Sierra Nevada Mountains. The Empire Mine State Park is the most relevant Cornish

				mining property and includes one of the oldest (1850), deepest and richest gold mines in California. The property is on the National Register of Historic Places, a federal Historic District, and a California Historical Landmark. The nearby town of Grass Valley has extensive Cornish connections.
USA	<i>Keweenaw copper mining landscape</i>		x	Located at the northernmost part of Michigan's Upper Peninsula on Lake Superior, this Cornish mining location famously worked pure native copper as the main ore and represents the first copper boom in the US. Cornish engines were not used (there are no Cornish engine houses), but man engines were introduced by the Cornish miners. There are extensive remains of mines (with massive enclosed shaft-head buildings over inclined shafts), waste dumps, copper smelting sites, railways, port infrastructure and towns (Houghton, Calumet and Eagle Harbour and Copper Harbour, for example) with deep connections to the Cornish people. Several cemeteries contain numerous Cornish headstones, many of miners.
New Zealand	<i>Kawau Island copper mine</i>		x	Cornish engine house dramatically located on the foreshore of a copper mining site in the Auckland region off North Island (19 th c, hard-rock lode mining by shafts). Kawau Island Historic Reserve contains the copper mine with some underground workings and adit, engine house, smelter and Mansion House which was extended under the ownership of Governor Grey.
New Zealand	<i>Coromandel Peninsula</i>		x	Gold mining (19 th /20 th c, quartz/reef, hard-rock deep mining). Several Cornish engine houses sites (but little trace remaining), some well-preserved quartz stamping batteries and townships at Thames and others.
New Zealand	<i>Otago</i>	x		Gold mining (19 th /20 th c, mostly alluvial but some quartz/reef, hard-rock mining)
New Zealand	<i>West Coast</i>	x		Gold mining (19 th /20 th c, mostly alluvial but some quartz/reef, hard-rock mining)

Mexico	<i>Real del Monte</i>			x	<p>Mining town in Hidalgo, east-central Mexico, northeast of Mexico City in the mountains at an altitude of nearly 9,000 feet. <i>El Real</i> hosted the first major Cornish mining community in the Americas, from the 1820s. Mina Dolores (75" pumping engine, Harvey's of Hayle) in its high-walled (and typically obsidian-topped) compound with employees' housing block, engineer's shop and smithy etc. Mina Acosta Cornish engine house and chimney (1874, 85" Harvey's of Hayle pumping engine, moved to Mina San Pedro la Rabia, Pachuca) survives in a compound with miners' accommodation, office and ore-dressing floor. Underground workings are accessed from an adit. Mining town with miners' housing and a Methodist church.</p> <p><i>Panteón de los Ingleses</i> [English Cemetery] with almost 700 graves, numerous Cornish.</p>
Mexico	<i>Pachuca</i>			x	<p>Mina Cortez (Cornish engine house at Purisima Shaft) in an encroached urban context, Mina San Pedro la Rabia engine house (1884, 85" Harvey's of Hayle pumping engine from Mina Acosta) with open shaft in a spectacular open hillside with other associated buildings such as cottages and a walled patio ore-processing yard.</p> <p><i>El Reloj Monumental</i> (1910, Monumental Clock Tower) in Pachuca's main square, nearby which is the Methodist Church, Sunday School, the "Rule House", 'Cornish' bank and other relevant buildings.</p>
Mexico	<i>Fresnillo</i>			x	<p>A pair of well-preserved rotative Cornish beam engines (Harvey's of Hayle, Cornwall, 1852) used for grinding silver ore survive in their roofed engine houses adjacent to a former patio (ore-processing/amalgamation floor <i>Hacienda Nueva</i>). The mine is nearby, a large-scale open-pit operation.</p>



Cornish engine House, Magpie Mine, Derbyshire Peak District, England



Cornish Man-Engine House, Mountain Mine, Allihies copper mines, Cork, Ireland



Cornish engine House, Mina San Pedro, Pachuca, Mexico

Research reveals the extent of this international transfer: over 175 international sites identified with known Cornish Mining connections. There are also an estimated 6 million people worldwide descended from migrant Cornish.



The comparative analysis, after screening the World Heritage List and Tentative Lists, concentrated on those non-listed mining landscapes with Cornish mining connections, especially those where the classic prototype Cornish mining system is evidenced by Cornish engine houses and other essential attributes.

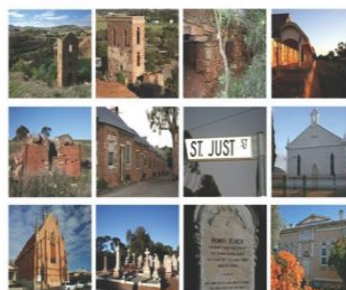
There are several sites that warrant consideration as a “technically retained candidate” and a potential partner in an incremental transnational serial nomination in which the State Party (Australia) bearing the nominated property leads. The key aspect here is that Outstanding Universal Value for the *Cornwall and West Devon Mining Landscape* World Heritage Site has already been acknowledged by inscription on the World Heritage List (in 2006). Any extension of the site by a new nomination, therefore, is to be evaluated in the context of the following guidelines: “provided the series as a whole – and not necessarily its individual component parts – is of Outstanding Universal Value.” *Operational Guidelines for the Implementation of the World Heritage Convention* (Para.137, p 39, UNESCO, 2019 version)



Cornish engine house, Kawau copper mine, New Zealand

Examples of candidate landscapes:

South Australia



New Zealand



South Africa



Ireland



Spain



Mexico



British Virgin Islands



Conclusion to the comparative analysis (provisional)

On the evidence examined in the assessment, quite simply, *Australian Cornish Mining Sites: Burra and Moonta* is an essential member of any transnational extension to the *Cornwall and West Devon Mining Landscape* World Heritage Site. There is, therefore, a strong indication for a place on the World Heritage List for the property.

Encouragement for a trans-national concept: The heart of the World Heritage Convention (1972) is about protection and international cooperation. In 1992 the category of cultural landscapes was integrated into *Operational Guidelines*, and in 1994 the Global Strategy, which encouraged and nurtured a thematic approach, was adopted by the World Heritage Committee. The concepts of transboundary, transnational and serial nominations followed and evolved over time. The World Heritage Committee, and advisory bodies, has acknowledged the value of these serial, transboundary and transnational World Heritage nominations to recognise some of the world's cultural 'mega-phenomena', a transnational issue involving countries across a wide geographical area. The WHC has the responsibility to encourage development of trans-national sites as a tool of international co-operation. All State Parties are encouraged to consider linking heritage properties representing a certain category inscribed on the World Heritage List on a national and international level, by preparing trans-national agreements and linking of existing sites into trans-national sites. Serial sites within a thematic framework have emerged, including *Frontiers of the Roman Empire* (UK, Germany, the Netherlands, Austria, Romania, Hungary, Bulgaria, Croatia and Serbia) and *Great Spas of Europe* (Czech Republic, UK, Germany, France, Belgium, Austria and Italy). The first serial property is being incrementally added to within a framework of Outstanding Universal Value, while the latter has been nominated (in 2019) in a single phase with, if inscribed, possible scope for an extension at a later date.

The following paragraphs from *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO, 2019 version) are relevant in any consideration (BG bold):

Para 137. Serial properties will include two or more **component parts related by clearly defined links**:

- a) Component parts should reflect **cultural, social or functional links over time** that provide, where relevant, **landscape**, ecological, evolutionary or habitat **connectivity**.
- b) Each component part should **contribute** to the Outstanding Universal Value of the property as a whole **in a substantial, scientific, readily defined and discernible way**, and may include, inter alia, **intangible attributes**. The resulting Outstanding Universal Value should be easily understood and communicated.
- c) Consistently, and in order to avoid an excessive fragmentation of component parts, the process of nomination of the property, including the selection of the component parts, should take fully into account the overall manageability and coherence of the property (see paragraph 114).

and provided **the series as a whole – and not necessarily its individual component parts – is of Outstanding Universal Value**.

Para 138. A serial nominated property may occur:

- a) on the territory of a single State Party (**serial national property**); or
- b) within the territory of different States Parties, which need not be contiguous and is nominated with the consent of all States Parties concerned (**serial transnational property**).

Para 139. Serial nominations, whether from one State Party or multiple States, **may be submitted for evaluation over several nomination cycles, provided that the first property nominated is of Outstanding Universal Value in its own right**. States Parties planning serial nominations phased over several nomination cycles are encouraged to inform the Committee of their intention in order to ensure better planning.

For each of the “closely comparable” Cornish mining landscapes identified, an outline statement of contribution to Outstanding Universal Value will be drafted in due course; something like the following for what is the closest comparable transplanted Cornish mining landscape to *Australian Cornish Mining Sites: Burra and Moonta*.

Namaqualand Copper Mining Landscape

Proposed outline Outstanding Universal Value (prepared by Andrew Hall/Barry Gamble for the South Africa Tentative List):

The *Namaqualand Copper Mining Landscape* is the place of origin of the modern Southern African mining industry as well as the beginnings of an industrial society in Southern Africa. This development was possible due to close connections established at an early stage with copper mining interests in Cornwall and West Devon and the resultant transfer of skills and technology from there and the migration of Cornishmen to Namaqualand.

Criterion (ii): The development of industrialised mining in Namaqualand from the mid 19th Century, based on the technology and other systems used in Cornwall and West Devon, represents the first evidence of the evolution of an industrialised society in Southern Africa manifest in the transformation of the landscape through the creation of company towns and villages, a railway and a port facility which laid the basis for the subsequent development of the Southern African mining complex through the use of the Cornish and West Devon model as its foundation.

Criterion (iii): The extent and scope of the remains of copper mining, and the associated development of urban areas in and its impact on the rural landscape of Namaqualand, presents a vivid and legible testimony to the success of the Namaqualand copper mines as a major successor to the mines of Cornwall and West Devon as a world leader in the production of copper.

Criterion (iv): The copper mining landscape of Namaqualand as a technological ensemble in a landscape, reflects the substantial contribution the area made to the establishment of a foundation for the industrial revolution in Southern Africa as part of the transfer of Cornish and West Devon mining practices around the world.

Statements of authenticity and/or integrity

The relative isolation of Namaqualand and the existence of the bulk of the places associated with the nomination for no other reason than the extraction of copper ensures that they are relatively undisturbed and unchanged. The only exceptions are the towns of Port Nolloth and Springbok which have developed beyond their original purpose, but both of which have sizeable historic districts with high levels of intactness.