

## Cornwall and West Devon Mining Landscape (United Kingdom)

No 1215

### 1. BASIC DATA

*State Party:* United Kingdom  
*Name of property:* Cornwall and West Devon Mining Landscape  
*Location:* Cornwall and Devon Counties  
*Date received by the World Heritage Centre:* 25 January 2005  
*Included in the Tentative List:* 21 June 1999  
*International Assistance from the World Heritage Fund for preparing the nomination:* No  
*Category of property:*

In terms of the categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a *site*. In terms of the *Operational Guidelines for the Implementation of the World Heritage Convention* (2 February 2005) paragraph 47, it is also a *cultural landscape*.

#### *Brief description:*

Much of the landscape of Cornwall and West Devon was transformed in the 18<sup>th</sup> and early 19<sup>th</sup> centuries as a result of the rapid growth of pioneering copper and tin mining. Its deep underground mines, engine houses, foundries, new towns, smallholdings, ports and harbours, and ancillary industries together reflect prolific innovation that drove this crucible of industrial development which in the early 19<sup>th</sup> century produced two thirds of the world's supply of copper. The substantial remains are a testimony to the contribution Cornwall and West Devon made to the industrial revolution in the rest of Britain and to the fundamental influence the area had on the mining world at large.

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 for instance South Africa, Australia, and Central and South America, where Cornish engine houses still survive.

### 2. ACTIONS

*Background:* This is a new nomination. On 31<sup>st</sup> March 2006, the State Party has sent information on a development project planned for the Centre of Hayle Harbour.

*Date of the Technical Evaluation Mission:* 19-24 September 2005

*Dates of request for additional information and of receipt from State Party:* ICOMOS has sent a letter on 9 November 2005 and the State Party has provided information on 23 December 2005.

*Consultations:* ICOMOS has consulted its International Scientific Committee on Historic Gardens – Cultural Landscapes and TICCIH. IUCN has provided an evaluation of the natural attributes of the site.

*Literature:* Extensive literature on Cornish mining, mining engines, mining processes, mining transport, mining settlements, mining social structures, the contribution of Cornwall to the industrial revolution, geology & mineralogy and the Cornish Diaspora, particularly in the *Journal of the Trevithick Society* (1973 -), from local publishers such as D Bradford Barton Ltd., Twelveheads Press, Landfall Publications, and Dyllansow Truran, by Prof Roger Burt between 1969 and 1987 on the organisation of Cornish mines; also unpublished thesis by G Burke, *The Cornish Miner and the Cornish Mining Industry 1870-1921*, 1981.

*Date of ICOMOS approval of this report:* 10 April 2006

### 3. THE PROPERTY

#### *Description*

The extensive nominated site consists of the most authentic and historically important surviving components of the Cornwall and West Devon mining landscape from around 1700 to 1914. The area covers 19,808 ha. There is no Buffer zone. There are ten areas representing the heartlands of former mining districts spread throughout Cornwall County and just over the border into West Devon County. These areas share a common identity in being part of the overall massive exploitation of minerals in the early 19<sup>th</sup> century. Having developed separately from one another, they also display distinct differences reflecting the location of mineral ores as well as the relative independence of the landowners and merchants who controlled mining, banking and ancillary industries. Together the areas form a unified cultural landscape that reflects all aspects of the mining industry – both technological and social– mine sites, mine transport, ancillary industries, mining settlements, smallholdings, great houses & estates and mineralogical sites. That landscape is in part relict, where mines and mine transport for instance, are no longer worked, and part evolving, where for example the agricultural landscape which supported the mining settlements are still working places, as are the rural settlements and towns.

The mines in Cornwall and West Devon produced copper, tin and arsenic. The combined output dominated the worlds' supply in the early 19<sup>th</sup> century. The success of the mining industry was based on technological innovation which made feasible deep-shaft mining. Local pioneers invented the steam engine for pumping water out of the mines and then in response to the expense of shipping coal into the region made the engines much more efficient through the development of high-pressure steam pumping technology. The safety fuse for blasting was also developed locally.

Subsidiary industries contributed to the overall prosperity. Much of the ore was dressed and smelted locally. The

steam engines and rail tracks, rail engines and barges needed for the growth of the industry were also produced locally in foundries such as Perran, Harvey's, Holman's, Sara's, Mount Tavy, Bedford and Charlestown.

Effective use of the technology demanded good transport and a tight social structure. A high-quality transport network involving canals, railways and tramways connecting mines to ports was constructed in the early 19<sup>th</sup> century. This included ports and quays at Hayle, Portreath, Devoran, Charlestown and Morwelham; tramways and railways at Poldice Plateway, Redruth & Chasewater Railway, Liskeard & Caradon Railway and the East Cornwall Mineral Railway.

The social structure that emerged was a dispersed one with no one central large town. This reflected the disposition of granite outcrops where minerals could be mined and the mobilisation of private capital. Large new settlements grew at Camborne, Carharrack and Minions and many smaller towns and villages were also built with rows of terraced houses clustered around groups of mines, developed by entrepreneurs.

To support the needs of these urban areas, large parts of the uplands (around 50,000 ha) were turned from grazing into smallholdings, patchworks of small fields demarcated by hedge banks, with small one-storey, usually self-built, cottages.

The mine owners lived in large houses, many developing horticulturally important ornamental gardens (some of which are outside the nominated area). The owners exercised power through their agents and stewards. Many of these men had their authority reinforced through their involvement in the non-Conformist Methodist chapels that were built in nearly all the mining settlements. The dominant outward manifestation of the industry were the large three storey engine houses with tall chimneys that rose above the mine workings, peppering the landscape particularly in the central area around Camborne and Redruth. Around three thousand were constructed across the region. Robustly constructed of local stone with slate roofs, almost two hundred have survived. Four still have beam engines in situ for winding or pumping.

The nominated areas are the following mining districts:

- St Just
- Port of Hayle
- Tregonning and Gwinear with Trewavas
- Wendron
- Camborne and Redruth with Wheal Peevor and Portreath Harbour
- Gwennap with Devoran and Kennall Vale
- St Agnes
- The Luxulyan Valley
- Caradon
- Tamar Valley with Tavistock

These are considered in turn:

#### *St Just*

The majority of the mines sites lie in a rugged and dramatic coastal belt 6km long by 2km wide. The area includes St Just town built to serve the local mines, mining hamlets, smallholdings and Portledden House, the home of a successful mine owner. Mineral processing sites such

Botallack and Levant mines demonstrate the use of steam power for ore-processing. The dramatically sited mines have attracted generations of writers and artists. The area has mineralogical significance. Noted individual sites are:

-Botallack mine, with mine shafts running under the ocean and on the cliffs a Crown's engines and at surviving arsenic-refining works.

-Levant mine, with the oldest surviving Cornish engine from 1840.

-Geevor mine, a 20<sup>th</sup> century tin mine with well preserved earlier remains including a Brunton calciner.

-Kenidjack valley, with remains of many water driven crushing mills

#### *Port of Hayle*

On the north Cornish coast, this was the main port for the Cornish mining industry. Large amounts of coal and timber were imported through the port, and copper ore exported. Extensive quays and wharves survive largely intact in a dramatic open estuarine setting flanked by villas for managerial classes and terraced housing for workers.

Hayle also includes the remains of two iron foundries, Harvey's, where the largest mine steam engines in the world were produced, and the Cornwall Copper company. Both generated substantial, distinguished urban buildings.

The port was served by a Copperhouse canal constructed in 1769/87, and a railway constructed from 1834 with a bridge of 1837 and a swinging bridge across the canal.

#### *Tregonning and Gwinear with Trewavas*

Some of the richest and deepest tin and copper mines are found in this area. Together with a very well preserved patchwork of miners' smallholdings around Tregonning Hill, the area has larger mining terraces built with large dressed granite block facades and examples of early mine adventurers' houses. Notable individual sites are:

-Wheal Vor mine, the richest mine in Cornwall employing at its height some 1,100 people.

-Extensive remains of steep, open cast mining in Great Wheal Fortune.

-Godolphin House dating from the 17<sup>th</sup> century, the home to the mines adventurer Sir Francis Godolphin, and Trevanno House home of the Wallis, and later Bickford-Smith, mining families.

#### *Wendron*

This sparsely populated upland area contains fine remains of extensive miners' smallholdings with single storey houses interspersed around the fields.

The area also includes several prominent engine houses and Porkellis Chapel, an early 19<sup>th</sup> century Chapel with larger adjacent 1866 chapel complete with original internal fittings.

#### *Camborne and Redruth with Wheal Peevor and Portreath Harbour*

In the centre of Cornwall the mineral resources of the granite ridge that dominates this area produced some of the richest and deepest copper and tin mines in the world and generated the wealth to build Camborne and Redruth as

virtual new towns. The wealth of the mines is reflected in the many substantial public buildings in Redruth such as the Mining Exchange, the School of Science and Art, Plain-an-Gwarry Chapel, St Andrew's Church and in Camborne the Wesleyan Chapel and the Passmore Edwards Library. Both towns still maintain their 19th century layout and have examples of speculatively built housing terraces; while Redruth also has large houses built for the middle classes.

Noted individual industrial buildings are the three large Cornish beam engines that survive in their mine contexts at East Pool & Agar mine, and South Crofty Mine, the last continuing to work until 1955.

#### *Gwennap with Devoran and Kennall Vale*

This somewhat desolate heathland landscape has extensive remains of copper mines and engine shafts and the railways that linked the mines to the ports, such as Devorran, developed in the 1820s and 1830s.

The area also includes smallholdings, well preserved mining villages next to the mines they served at St Day, Carharrack and Chacewater, and examples of houses built by mining industrialists such as Sorrier House, Treguillow and Burncoose.

On an inlet to the River Fal stands the remains of the Perran Foundry, one of the three largest in Cornwall.

#### *St Agnes*

Like St Just, this area exemplifies a coastal mining tradition including some sites worked since pre-historic times. Inland from the mines, the downland was taken under plough to feed the expanding urban mining populations.

Notable individual sites include Wheal Coates mine with three engine houses for winding, pumping and stamping.

#### *The Luxulyan Valley and Charlestown*

The Luxulyan valley reflects a concentration of industrial remains related to one man, Joseph Treffry. These include the Par Canal constructed in c1835 to take ore from his large Fowey Consols mine to the port he constructed at Par. The thickly wooded valley provided charcoal for smelting tin.

Charlestown is a very well preserved industrial harbour designed by the civil engineer John Smeaton at the end of the 18<sup>th</sup> century and built for a local industrialist. It was used to export copper ore and china-clay. It includes large terraced houses and a foundry.

#### *Caradon*

This open moorland site with its massive waste tips reflects intensive mining activity over around forty years from 1840 until its abandonment. Small mining settlements spread out across the moor and older villages expanded in the mining boom. There are several notable engine houses including Wheal Jenkin, South Phoenix mine and the large landmark Phoenix mine, a symbol of misplaced optimism, built as late as 1907 to house the last pumping engine built in Cornwall by Holman's Foundry in Camborne.

#### *Tamar Valley with Tavistock*

The mines in this West Devon site were clustered around the sinuous River Tamar valley which provided water power. Several contain impressive waterwheel pits. The river proved to be inadequate for all the traffic and the East Cornwall Mineral Railway was built in 1863 to link the mines with the developing ports of Calstock in Cornwall and Morwellham in Devon. Only parts of the track survive.

The largest mine is the Devon Great Consols which produced the greatest output of any mine in the nominated site. Remains of arsenic refining are spread across the landscape: its arsenic output dominated the world's supply.

Tavistock is a mediaeval town remodelled by its estate owner in the 19<sup>th</sup> century with the profits of copper mining, particularly from the Great Consols mine. The town contains many imposing and confident public buildings such as the Guildhall, Town Hall, Corn market and the large Fitzford Church, all built between 1835 and 1867. High quality 'model' short terraces of houses for workers, with gabled windows and hipped roofs, in distinct contrast to the simpler designs in Cornwall, were built between 1845 and 1866 by the Duke of Bedford.

The town contains three 19<sup>th</sup> century iron foundries, Mount Foundry, (which produced iron barges for the canal), Tavy Foundry and Bedford Iron Works. Tavistock was linked to the port of Morwellham by the Tavistock canal built for mineral traffic between 1803-17. It extends for 7.2km including a 2.4km tunnel and is still in good order.

#### *History*

Archaeological evidence suggests that the mineral resources of Cornwall and West Devon have been exploited for over 3,500 years. Until 1700, tin was the most important ore, its extractive production only being exceeded in Europe by Erzgebirge in the early 15<sup>th</sup> century. The Romans extracted the ore from tin streams to supply countries across northern Europe and extraction continued in early and later medieval times. In 1201 the importance of the tin industry was recognised by the establishment of a special legal framework that gave privileges to the tinners. It was administered through eight 'Stannary' areas and persisted until 1838.

By the early 16<sup>th</sup> century, many tin streams were becoming exhausted and miners turned to the exploitation of outcrops. At first the shallow ore was mined in an open cast process. Once this was exhausted, progressively deeper shafts needed to be sunk. These had to be drained of water, usually by water-powered pumps.

In the 1580s German miners began mining copper ore. The first mines were unsuccessful and it was not until the early 1700s that a successful mine was established at Chacewater. Around the same time, gunpowder was introduced into mines and this greatly increased the speed at which mines could be established and the depth to which channels could be sunk. The development of steam engines allowed water to be pumped from these deep mines.

It was Thomas Newcomen from Devon who developed the 'atmospheric' engine. The first to be installed in a metal mine was at Great Wheal Vor between 1710 and 1714.

This heralded the beginning of industrialisation of the mining process. The early engines were however expensive and inefficient to run and their number increased only slowly until the more efficient Boulton and Watt engines were brought to the region in 1778. By 1790, 45 engines were working, laying the foundations for the expansion of the industry. The technology was in place to exploit the plentiful deep seams of copper and tin ore.

The last great technological leap was the invention of the high-pressure steam engine by Richard Trevithick of Camborne, which was more powerful and efficient. His first machine was constructed in 1800. The early three decades of the 19<sup>th</sup> century saw much experimentation with engine design, promoting competition amongst engineers and mine owners. And Cornish foundries were developed to meet the growing demand for the engines.

The construction of a transport infrastructure and the development of subsidiary industries accelerated the pace of change; by the 1850s Cornish mines dominated the world's copper markets.

Of course the extraction of copper and tin as a profitable business was only possible because of the high demand for these minerals, tin for plating and cans and copper for the brass products needed for ships and engines.

The landscape was transformed by the mines, engine houses and spoil heaps, by new towns and mining settlements constructed to accommodate the rapidly increasing number of miners, and by ports, harbours, railways and canals. Wealth generated was used to create copious public buildings and fine houses and landscape gardens for the mine owners.

At the same time, the technology that allowed the development of the mines was exported around the world to countries which had appropriate mining deposits. As a result, there are important examples of the diagnostic beam-engine houses surviving from 19<sup>th</sup> century Spain, Mexico, South Africa and Australia.

The copper crash of 1866 caused by increasing competition from Chile, Lake Superior and South Australia, precipitated the rapid closure of many copper mines, leaving only the tin mines active. They survived for a few more years until competition from Australia and Malaya led to an unsustainable drop in price. Miners started to emigrate taking their knowledge and technology with them to develop 'Cornish' mines around the world. By the end of the 19<sup>th</sup> century, it was mainly arsenical workings that remained, exploiting the arsenical pyrites formerly discarded as waste.

A few mines survived, the last, South Crofty, closing in 1998.

### ***Protection and Management***

The nominated area is owned by both public and private organisations and charitable institutions. The largest percentage is collectively small private owners.

#### ***Legal provision:***

In the UK, World Heritage status is not recognised currently in planning law. Individual elements within World Heritage Sites are protected by a range of

designations and local policy plans. In the case of the nominated areas for cultural property, this means that those parts that are scheduled ancient monuments (not all the mines), listed buildings (only applies to a proportion of the buildings), registered parks and gardens, and conservation areas (not all settlements are designated) are protected but currently some large areas of landscape and some urban areas, such as Camborne and Redruth do not have specific protection (apart from that given for natural qualities of the landscapes – see below). However World Heritage status is a key material consideration when planning applications are considered.

Many of the mining landscapes are valued for their natural qualities – either coincidental or arising from the nature of the mineralised spoil heaps. 37.4% (7369 ha) of the nominated area is also designated as an area of Outstanding Natural Beauty, a landscape designation in UK law that is recognised as Category V protected area. There are 6 Candidate European Special Areas of Conservation (CSACs) in the area. These cover 1208ha or 6.1%. There are 26 Sites of Special Scientific Interest (SSSIs), covering 723 ha (3.6%), some listed for their geological interest. These designations provide indirect protection to the cultural qualities of the nominated site, through prohibiting certain types of development, but are not a substitute for protection for cultural attributes.

#### ***Management structure:***

A detailed and comprehensive management plan has been created which stresses the need for an integrated and holistic management of the large, fragmented and diverse nominated areas. It lists policies to address key issues. These are however in some places advisory.

The main strength of the plan is the effective network of stakeholders that underpins it. A Partnership consists of representatives from 73 stakeholder organisations. It established 6 area panels based on District Councils, and two thematic panels to guide the nomination and creation of the plan. A Working Group of officers from key governmental and non-governmental organisations was involved in the production of the nomination and plan. Both these structures will continue in place in the interim while a governance review is carried out to discuss whether successor bodies are needed to agree future shared investment and management procedures.

The main thrust of implementation lies with the Site office for the nominated property with staff responsible to the Partnership for the implementation of the Management Plan. This office consists of a full-time Site Co-ordinator and Research officer and part-time Historic Environment Record mapping and administrative staff. They have access to extensive planning and conservation advice from the County Council and English Heritage.

#### ***Resources:***

Resources for delivering the Management Plan will be drawn from a range of partners, such as English Heritage, the National Trust and funding streams including the European Regional Development Fund. The Site office has annual revenue of £200,000.

In the five years from 1998, capital expenditure on the nominated site by major public and charitable trust owners

totalled over £26 million. A further £7.7 million was projected for 2004/5.

#### ***Justification of the Outstanding Universal Value by the State Party (summary)***

The transformation of the Cornwall and West Devon Mining Landscape contributed substantially to the development of the Industrial Revolution in the rest of Britain

The Cornish mining industry was characterised by prolific technological innovation, such as the Cornish beam engine and boiler, and the involvement of local pioneers. The diffusion of this technology to mines overseas proved to be of international significance; Cornish engine houses are striking evidence of this world-wide impact.

Cooper production from West Cornwall during the first three decades of the 19<sup>th</sup> century amounted to two-thirds of the world's supply.

## **4. EVALUATION**

### ***Conservation***

#### ***Conservation history:***

The conservation of the historic remains of mining in Cornwall and West Devon has been undertaken since the 1930s, and thus represents one of the longest histories of industrial heritage conservation in the world. The nomination sets out in detail the preservation work carried out and the development of the various preservation societies that spurred action, such as the Cornish Engines Preservation Committee set up in 1933 that led to surveys of mines and engines and the establishment of the Cornish Engines Preservation Society in 1944, which over the next 20 years acquired and handed over to the National Trust (a conservation Charity) five key sites. In 1969 this society became the Trevithick Society and in 1993 the Trevithick Trust to develop the idea of a dispersed museum of mining.

The history set out demonstrates how interest in individual mines and engines broadened in the 1970s to the wider mining landscape. Surveys were undertaken by Cornwall County Council and in the late 1980s government funds became available for site conservation. A project by Kerrier District Council in 1987 around the Camborne - Redruth area brought about a change of attitude in highlighting the need to see mining areas as part of the region's identity.

In the past 16 years, nearly 100 engine houses, 40 chimneys and over 100 other significant mine buildings have been conserved. All the nominated area has been surveyed and recorded (see below) and there is in place a detailed inventory of sites needing consolidation and conservation.

#### ***State of conservation:***

The state of conservation of those mining remains that have been consolidated is good. Of the remainder, some need no more than minor consolidation: others are awaiting funding. Approximately half the engine houses have been consolidated. For instance in St Just 32 survive

and 19 have been consolidated; in Tregonning 3 have been consolidated and 11 need attention; at Camborne and Redruth of 41 surviving, 35 have been consolidated; at Gwennap 8 have been consolidated out of 26; at Caradon of 59, 34 have not been consolidated; while at Tamar 16 have been consolidated and 22 require work.

Many of the Foundry buildings have been abandoned and are in need of conservation or new uses. Domestic houses are generally in a good state of conservation (apart from joinery details –see below) as are harbours and ports, and the remains of transport such as canals, viaducts and railways.

Since 1995, National Trust (a land-owning charity) has acquired a substantial proportion of the coastal landscape where mines were constructed.

#### ***Protection and Management:***

The nomination acknowledges that statutory and other protection in place at present do not adequately reflect the importance of the nominated areas in all cases. This is the case in some of the urban areas, for instance Camborne and Redruth, where only a few of the buildings are protected, some of the mining areas such as Gwennap where the majority of the mining structures are neither listed nor scheduled, and also those parts of the landscape which are not part of Areas of Outstanding Natural Beauty or Conservation Areas. Many of the mining sites are being considered for statutory protection, but are not yet listed, and other areas are being considered as conservation areas.

As part of a heritage protection review, the UK government has announced its intention to put World Heritage sites on a new Register of Historic Sites and Buildings in England. This Register, it is said, will give World Heritage sites statutory recognition for the first time. This system will be introduced once legislation has been passed through parliament. Until this is introduced, however, there is no protection for many parts of the nominated site.

The Management Plan that has been developed is very thorough and comprehensive and has drawn in a large number of partners. The key challenge is to balance conservation and development across the very large areas nominated. The fragmentary nature of the boundaries and the several separate discrete sites will present challenges in terms of resources for monitoring.

The Plan and the compilation of the nomination have both been carried out with extensive local support and both demonstrate substantial local commitment.

#### ***- Boundaries***

The nomination is underpinned by an impressive GIS based documentation system that in turn reflects detailed surveys of all the key mining areas from which the nominated areas were chosen. The nominated areas are therefore based on detailed knowledge and rigorous analysis of what remains. The nominated areas reflect the disposition of mining activity rather than a random pattern of what has survived.

No buffer zone has been identified for any part of the nominated areas. Where nominated areas are set within land that is protected, for instance as an Area of Outstanding Natural Beauty that controls development, the

lack of a Buffer Zone could be said to be justified as the setting is protected. Where, however, there is no such designation, for examples around Camborne and Redruth, Hayle and Tavistock, protection is needed for the setting of the nominated areas and it is considered that a buffer zone should be in place.

#### *Risk analysis:*

The following threats are identified in the nomination:

##### - Development

In several urban areas where there is no specific or general protection, the erosion of architectural details in many mining terraces is acknowledged. Protection needs to come first in order to prevent further modifications that could affect the integrity of the property, and a positive action plan should also if possible be put in place to reverse some of the changes.

In all cases where development is planned within the nominated site, the archaeological evidence must be respected – both for the intrinsic evident and for the way it reflects former buildings and spatial arrangements.

Certain urban areas, Camborne, Redruth and Hayle Harbour, have been designed as priority areas for economic regeneration areas by the government, which has had the effect of rapid development of industrial areas around Redruth.

Given the lack of specific protection (see above) there is concern that in some cases the need for heritage led regeneration may give way to commercial pressures. There is a positive commitment to the former in the management plan, but as yet no case studies to show how unsuitable development will be turned down without added protection.

A major development planned for the centre of Hayle Harbour could be the test case. On 31<sup>st</sup> March 2006, the State Party submitted details of a £25 million scheme for 54,000 sq ft of industrial units, 23,000 sq ft of wavehub building, marina, over 800 residential units, shops, pubs, restaurant, two hotels, and leisure facilities. This planning application is apparently to be determined before the World Heritage Committee and has the support of English Heritage and the State Party. This very large development is justified on the grounds that it will bring much needed development. It does however go beyond the minimal development needed to support restoration and regeneration. The scale and scope of the project would mean that, if built, the new structures would dominate the harbour and compromise its integrity as the main port for the Cornish mining industry.

##### - Conversion

Funds to conserve unused mine buildings and foundries are not in all cases in place. In some instances development is offered as a way of funding conservation and achieving the right balance is acknowledged as being a challenge. It is essential that any new uses for mining remains respect the significances of the buildings in terms of the evidence embodied in them for industrial uses.

##### - Resumption of mining

While acknowledging the importance of the landmark pledge made by the International Council on Mining and Metals at

the Durban World Parks Congress to treat natural World Heritage sites as 'no go' areas for mining, the nomination considers that mining is such an important part of the tradition of the area - and indeed the *raison d'être* for the nomination - that "proposals for a resumption of mining will be supported where they do not adversely affect the outstanding universal values of the Site". Currently there is an active proposal for a mine outside the nominated areas which it is said could impact on setting. Any proposals for new mining activities that impact on the nominated areas or their setting will need to be subject to appropriate notification and debate under the terms of the *Operational Guidelines* paragraph 172.

##### - Waste heaps

Within Cornwall as a whole, there are nearly 4,900 ha of derelict land, including 3,900 ha of old metalliferous spoil heaps. Most of these occur within the nominated site.

A need to acknowledge the cultural value of old waste heaps (as well as their natural value) is highlighted in the face of active encouragement to re-use spoil heaps by certain tax regimes. This threat underlines the need for all the nominated areas to be protected.

Spoil heaps associated with the mines and particularly arsenic mines are toxic. There is a need to ensure that access to sites is kept away from potentially toxic areas. The wider issue of dealing with toxic water seepage from spoil heaps and mines is actively addressed by the National Environment Agency.

##### - Farming activities

In the face of potential changes in the viability of the farming industry in Europe, the threat from energy crops, new woodlands and lack of grazing is highlighted. This also points to the need for protection of the landscape areas for their cultural qualities.

### ***Authenticity and integrity***

#### *Authenticity:*

The nominated site as a whole has high authenticity in terms of what remains. The mines, engine houses and associated buildings have either been consolidated or await work. In the villages and towns there has been loss of architectural detail, particularly in the terraced houses, but it is considered that this is reversible. The main threat to authenticity is in terms of development that might compromise the spatial arrangements of areas such as Hayle harbour or the setting of Redruth and Camborne.

#### *Integrity:*

The integrity of what is nominated relates to the way it represents the scope and extent of the mining activity in the area in the 18<sup>th</sup> and 19<sup>th</sup> centuries. As has been noted, this activity was dispersed and based on the disposition of mineral veins. The nomination satisfactorily reflects the way the prosperity of mining transformed the landscape both in urban and rural areas and encapsulates the extent of those changes.

#### *IUCN:*

IUCN has evaluated the nominated site for its natural values. It considers that these are considerable, and notes in

particular that more than 37% of the nominated Site lies within a Category V protected area as a protected landscape (Area of Outstanding Natural Beauty). It also notes that several sites, including the highly unusual habitats and plant communities created by some of the former waste tips, have been nominated for inclusion as part of the European system of Special Areas of Conservation or designated as Sites of Scientific Interest. However these habitats and plant communities are distinctive precisely because they have adapted to some of the most polluted land in the UK, which has had and continues to have considerable impact, not only on the natural communities of the waste and spoil tips, but on the downstream aquatic and estuarine environments as well. Indeed the toxicity is a clear manifestation of the interaction of humans and nature in this special environment, and should be given more prominent recognition as an important element of the cultural landscape.

IUCN is pleased to note that these natural qualities and the associated designations have been taken fully into account in the nomination. It considers that nature conservation and landscape protection policies are important in delivering the objectives of the nominated site and should not be seen as in any way obstructive to them. In general, it welcomes the aims of the Management Plan, and advises that policies for biodiversity and protection of the natural elements of the landscape should be fully integrated into the future management of the site.

### ***Comparative evaluation***

A detailed comparative analysis is given in the nomination. The distinctive qualities of the site are related to industrialised non-ferrous metal mining and its dispersion around the world. In Europe the copper mines of Falun, Sweden, Roars, Norway, and Rimersburg, Germany, were active at an earlier period and did not involve industrialised processes. Further field comparisons are made with silver and gold mines in Mexico, Bolivia, and Brazil which again were earlier and non-industrialised. The analysis does not mention later industrialised mines such as those developed in the late 19<sup>th</sup> and early 20<sup>th</sup> century in the Americas and Australia. These to an extent built on the successes of the industrialised processes developed in Cornwall and West Devon and were its successors. It was the growth of mines in Chile, (such as Sewell, also nominated), North America and South Australia, that precipitated the demise of those in South-West England.

The value of the Cornish and West Devon mines is related to their role as the first proponents of an industrialised process at a time when copper and tin were in great demand. And this value is enhanced by the amount surviving of the 18<sup>th</sup> and 19<sup>th</sup> century landscapes created by the industry. This landscape is, moreover, highly legible, susceptible to detailed interpretation, and *in toto* a valuable, evidential source.

### ***Outstanding universal value***

#### ***General statement:***

The outstanding universal value of the Cornish and West Devon mining landscape nominated areas is based on a combination of the following qualities:

- Between 1700 and 1814, the industrialisation of non-ferrous mining in Cornwall and West Devon transformed the landscape and the structure of society and contributed substantially to the development of an industrialised economy in Britain and around the world.
- The mines of Cornwall and West Devon, through the development and use of steam technology, became proponents of industrialised mining processes that had a profound effect on mining around the world.
- The remains of mines, engines houses foundries, new planned towns, villages, smallholdings, ports, harbours, railways, canals, and tramways together are testimony, in an inter-linked and highly legible way the energy, to the sophistication and success of early, large-scale, industrialised, non-ferrous mining.
- The survival of Cornish engine houses in Spain, Mexico, South Africa and Australia reflects the migration of Cornish miners from the 1820s, and particularly in the 1860s and 1870s, to mines around the world.

#### ***Evaluation of criteria:***

The site is nominated on the basis of criteria ii, iii and iv:

***Criterion ii:*** The development of industrialised mining in Cornwall and West Devon between 1700 and 1914, and particularly the innovative use of the beam engine, led to the evolution of an industrialised society manifest in the transformation of the landscape through the creation of new towns and villages, smallholdings, railways, canals, docks and ports, and this had a profound impact on the growth of industrialisation in the United Kingdom and then on industrialised mining around the world. ICOMOS considers that the property meets this criterion.

***Criterion iii:*** The extent and scope of the remains of copper and tin mining, and the associated transformation of the urban and rural landscapes, including the now distinctive plant communities of waste and spoil heaps and estuarine areas, presents a vivid and legible testimony to the success of Cornish and West Devon industrialised mining when the area dominated the world's output of copper, tin and arsenic. ICOMOS considers that the property meets this criterion.

***Criterion iv:*** The mining landscape of Cornwall and West Devon, and particularly its characteristic engine houses and beam engines, as a technological ensemble in a landscape, reflect the substantial contribution the area made to the industrial revolution and formative changes in mining practices around the world. ICOMOS considers that the property meets this criterion.

## **5. RECOMMENDATIONS**

### ***Recommendations***

The nominated site is extensive and complex. ICOMOS commends the State Party for putting forward a property that demonstrates nearly all the facets of the mining revolution that transformed Cornwall and West Devon's

landscape in the 19<sup>th</sup> century and displays their social as well as economic and natural impacts.

As acknowledged in the nomination, there are developmental threats to part of the nominated site and currently protective designations do not adequately reflect the value of all the remains. Some parts of the nominated site are unprotected. The State Party has indicated that in the near future it is anticipated that World Heritage sites will be given status in planning law. The size and complexity of the proposed nomination, the comparatively large proportion of the property currently not protected and the degree of developmental pressure in certain areas raises cause for concern. ICOMOS considers that the nominated areas should be given legal protection.

The management plan stresses the need for heritage-led regeneration and the challenge of balancing development with conservation, both of which ICOMOS strongly support. However there is a need to define the extent and scope of regeneration projects within the nominated area and where they could impinge on it. Development that dominates the landscape, is incompatible with its industrial patterns, or is out of balance with conservation of existing settlements could compromise the integrity of what has been nominated.

ICOMOS considers that the proposed development at Hayle harbour would not be consistent with the importance of Hayle as the main port of the mining industry and thus a key part of the nominated cultural landscape.

Though some of the rural areas of the nomination are set within protected landscapes, some areas are not and are also within development zones. ICOMOS considers that these areas should be provided with buffer zones.

Although the re-opening of mines in the nominated areas could be considered as re-invigorating the cultural landscape, great care would be needed with any such proposals to ensure that the values associated with early steam technologies are not harmed. It is therefore recommended that any such proposals, within the nominated areas, or their setting, are forwarded to the World Heritage Committee for debate and scrutiny.

In line with IUCN's recommendations, ICOMOS recommends that the natural values of the cultural landscape should be fully integrated into the future management of the site in a way that demonstrates the link between biodiversity and landscape protection and that policies should be developed for biodiversity, the protection of natural landscapes and contamination control.

- Create buffer zones around those areas not set within protected landscapes;
- Put in place policies for the protection of distinctive habitats and plant communities related to mining, and also for contamination control.

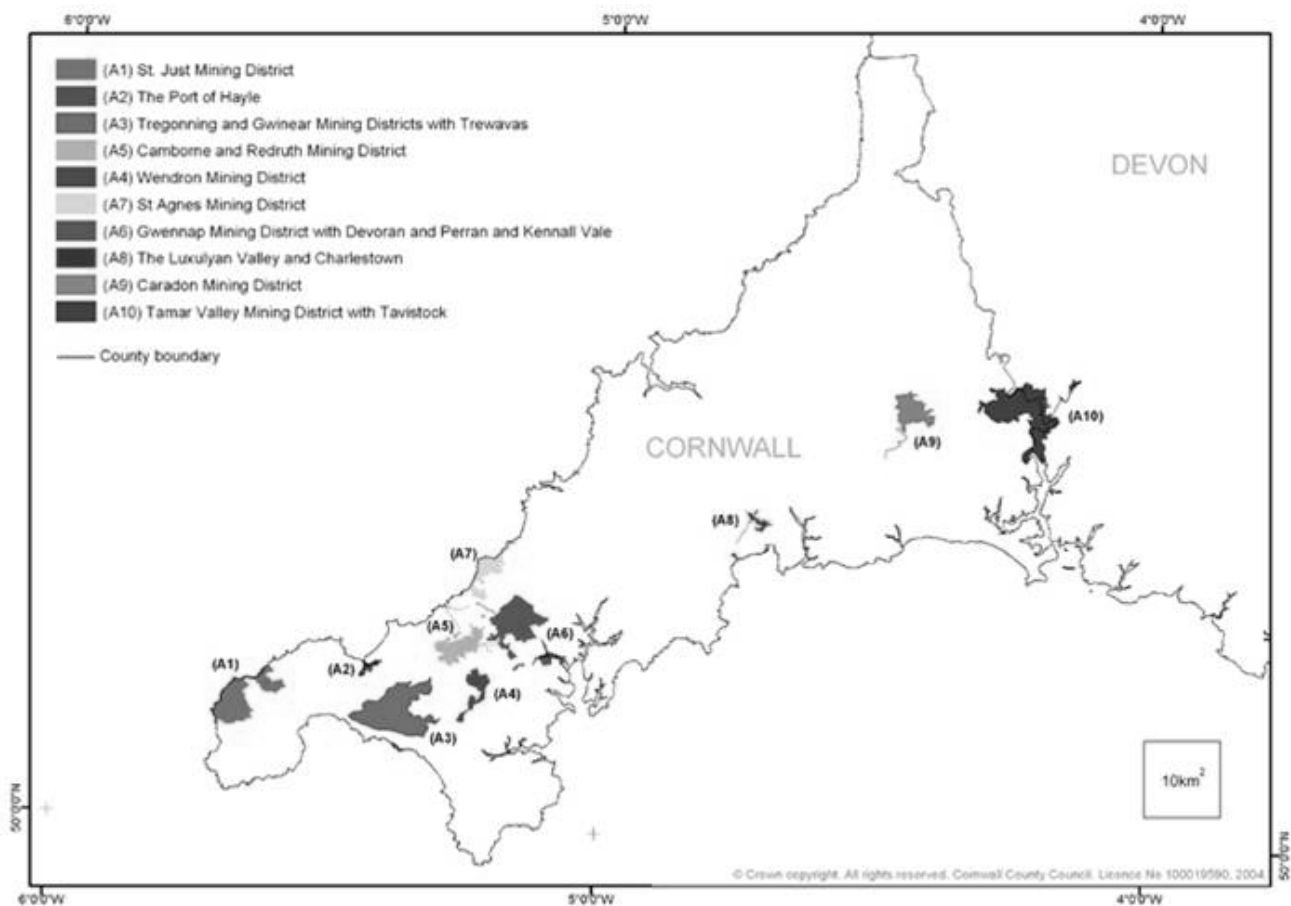
ICOMOS, April 2006

#### ***Recommendation with respect to inscription***

ICOMOS recommends that the nomination of Cornwall and West Devon Mining Landscape be ***referred*** back to the State Party of the United Kingdom to allow them to:

- Re-define the nominated areas to reflect the key assets of the Cornwall and west Devon mining cultural landscape, consistent with their history, and surviving testimonies to industrialised mining processes, where they can be given protection from large-scale development that might impinge on their integrity and value;
- Put in place appropriate legal protection;





Map showing the boundaries of the ten nominated areas



**Botallack Mine**



**Charlestown Harbour**



**British and Colonial Explosives Company works**



**Union Street, Camborne**