

**Røros Mining Town and the Circumference**  
**Norwegian Nomination 2009 for extension of WHS Røros Mining Town**

**Nomination dossier**

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# Introduction

This dossier contains a proposal for an extension of the Norwegian World Heritage Site Røros Mining Town, entailing a change of the name of the Property to Røros Mining Town and the Circumference.

Røros Mining Town was inscribed on the World Heritage list in 1980. Since then conservation ideology has changed, and this is also reflected in changes in the Operational Guidelines to the World Heritage Convention. Today we want to protect not only monuments and historic towns but also the surrounding landscape in order to place cultural heritage in a broader functional, historic and environmental context. For this reason work on a proposal for a major extension of Røros Mining Town was initiated several years ago. The purpose of the extension is to include cultural landscapes that show why the town was established and how it functioned under the particular geographic and climatic conditions prevailing in the region.

At the time of the inscription the requirements for the nomination document were unclear. The original document, therefore, was very basic and had some shortcomings in relation to today's requirements. It did not contain any specific delimitation of the world heritage area, but in practise, the group of old wooden houses in the town centre has been regarded as the World Heritage Site. This was not formally confirmed until 2006 in connection with the Periodic Reporting. At the same time the name was changed from «Røros» to «Røros Mining Town». Besides lacking a specific delimitation of the Property, the original nomination document did not provide any specification of the criteria. To amend the shortcomings of the original document, this dossier contains documentation and a justification for the inscription of the existing World Heritage Site together with the proposed extension as a whole.

The World Heritage Convention was ratified by Norway in 1977. The very first World Heritage Sites were inscribed on the World Heritage List in 1978, and in the following year the first two Norwegian sites, Bryggen in Bergen and Urnes Stave Church, were inscribed on the List. Then Røros followed as the third Norwegian Site. At present Norway possesses seven World Heritage Sites – five cultural sites, one natural site and one trans-national cultural site.

For the last 30 years or so, conservation work has continued steadily in Røros. The state of conservation of the Mining Town is much improved since the time of the inscription on the World Heritage List. Norway is now prepared to take on new responsibilities for the proposed extended World Heritage Site Røros Mining Town and the Circumference.



MILJØVERNDEPARTEMENTET

Oslo, January 2009  
Miljøverndepartementet  
Norwegian Ministry of the Environment

# 1 Identification of the Property

Røros Mining Town was inscribed on the World Heritage List in 1980. Norway hereby submits a proposal for an extension of the world heritage area and the determination of a buffer zone.

With a letter of 12<sup>th</sup> March 2008 the World Heritage Centre informed the Norwegian Ministry of the Environment that the proposal for the extension had been added to the Tentative List.

## 1a Country

Norway

## 1b Region

The nominated extension to the World Heritage Site	The nominated buffer zone
County of Sør-Trøndelag - Røros municipality - Holtålen municipality	County of Sør-Trøndelag - Røros municipality - Holtålen municipality - Midtre Gauldal municipality
County of Hedmark - Engerdal municipality - Os municipality	- County of Hedmark - Engerdal municipality - Os municipality - Tolga municipality - Tynset municipality

## 1c Name of the Property

Røros Mining Town and the Circumference

## 1d Geographical coordinates

The Property is a serial nomination and consists of two areas and a transport route:

Town and Cultural Landscapes. North: 6943400. East: 314500

Femundshytta. North: 6913400. East: 336900

Winter Transport Route. North: 6917700. East: 322900

Coordinate System: WGS\_1984\_UTM\_Zone\_33N

## 1e Maps

Cf. Annex 1: 11 maps

- The Property in Europe
- Administrative borders

- The World Heritage Sites and the Buffer Zone
- The Town and Cultural Landscapes – Proposed extension
- The Winter Transport Route and the Femundshytta Smelter – Proposed extension
- The present World Heritage Site
- Bedrock map
- Mines and smelters
- Protected Sites according to the Cultural Heritage Act
- Protected areas according to the Nature Conservation Act
- Areas in the Buffer Zone particularly influenced by Røros Copper Works

## 1f Area of the Property and proposed buffer zone

The present World Heritage Site, Røros Mining Town: 51,4 ha

### The proposed extension:

Town and Cultural Landscapes including the present World Heritage Site	14 000 ha
Femundshytta	950 ha
Winter Transport Route	1 560 ha
Buffer Zone	481 240 ha
Total	497 750 ha

### Description of the boundaries

The three above-mentioned areas are located in the Circumference, i.e. the area of privileges awarded by the Danish-Norwegian King to Røros Copper Works in 1646. The circular area of privileges has a radius of 45.2 kilometres, with its centre at the first workable mine, «Old Storwartz».

#### Town and Cultural Landscapes

These cover a large continuous area that includes the entire sweep of landscape surrounding the previously inscribed mining town as well as the urban agriculture and the most important mining landscapes, Storwartz and the Nordgruvefeltet field.

#### Femundshytta

This includes the industrial cultural landscape with traces of a smelter and the community that grew up around it.

#### Winter Transport Route

The nominated part of the winter transport route starts at the outer limit of the Circumference in Tufsingdal and continues over Lake Korssjøen to Røros.

#### Buffer Zone

The outer limit of the Buffer Zone follows the rim of the Circumference, with the exception of the areas that are located in Tydal municipality and on the other side of the border with Sweden.

## 2 Description

In the preparations for the extension, the boundary of the investigated area has been determined as the Circumference of Røros Copper Works, i.e. the area of privileges granted to Røros Copper Works by the Danish-Norwegian King Christian IV at its start-up in 1646. The area forms a circle with a 45.2 km radius with the first workable mine, Old Storwartz, at its centre. At the time, it was common that the King granted areas of privilege in the form of a circumference for all types of mining enterprises. Traces left by the mining activities and by other industries required to sustain the mining communities are found throughout the Circumference. The activities of the copper works gradually extended to areas far beyond the Circumference, but the cultural heritage sites and cultural landscapes found inside this boundary provide a sufficiently representative impression of these.

The Property «Røros Mining Town and the Circumference» comprises three areas: The Town and Cultural Landscapes, the Femundshytta smelter and the Winter Transport Route. The two last-mentioned areas represent particular characteristics of the mining activities at Røros, and contribute to the Outstanding Universal Value of the Property. However, we cannot fully understand how the mining town functioned without considering the area of privileges, the Circumference. The Circumference is proposed as a buffer zone. The buffer zone thereby has a value in addition to protecting the Property visually. It is a key instrument for understanding the Property, and places it in a wider historical and functional context. This is in accordance with the role of a buffer zone as described in the Operational Guidelines: «*areas or attributes that are functionally important as a support to the property and its protection*» (Operational Guidelines for the Implementation of the World Heritage Convention, Section 104). The proposal for an extension of the world heritage site Røros Mining Town and the delimitation of a buffer zone shows the value of the Property in an overall context.

### 2a Description of the Property

#### Natural resources, climate and landscape in the Circumference

The establishment of Røros Mining Town was based on the discovery of copper ore in 1644. The specific operating practices and the culture that developed were closely associated with the existing natural features – the mountain plains, the cold climate and the remote location with no passable roads for most of the year. These factors came to characterize all activities in the region.

The primary resources of the copper works were ore, forests, water power and human labour and skills. The population's need for food could not be covered locally, but had to be met through a combination of local agriculture, mainly hay production for animal husbandry, and import of grain and other required products. All available resources in the area were put to use, and the total pressure on the natural resources inside the Circumference was consequently high. The landscape was altered completely over a short period of time due to exploitation for pasture and haymaking, felling of timber and wood for the mining activities, production of charcoal in the forests, regulation of the waterways for transport and power supply, rock piles outside the mines and sulphuric fumes from the smelters.

Parts of the natural environment in the area are still characterized by this intense exploitation of resources. «The polluted landscape» close to the abandoned mines and smelters is currently part of the proposal for an extension of the World Heritage Site.

#### **Climate**

The Røros region has a typical inland climate with little precipitation and cold winters. With its location far north and more than 600 metres above sea level, the summers are generally short and cool.

Average annual temperature (1961-1990) is just above 0 degrees C.

January is the coldest month, with an average temperature of -11.4 degrees C. The warmest month is July, with an average temperature of +11.5 degrees C. However, there are large variations within these averages. During the period from 1959 to 1989, the lowest temperature recorded in January was -45.8 degrees C and the highest was +10.4 degrees C. In the same period, the highest temperature recorded in July was +28.6 degrees C, while the lowest was -2 degrees C. It is not uncommon to have night frost during summer. The lowest temperature ever recorded dates from 13 January 1914, with -50 degrees C. All measurements were taken in Røros Mining Town.

We know that temperatures were lower from the 1300s until the end of the 19<sup>th</sup> century than what could be observed during the 20<sup>th</sup> century and up to the present time, and the period is referred to as «the little ice age». During this period all transport of importance took place in winter, on sledges pulled by horses and bullocks across frozen rivers and lakes, and over the mountains. This activity was not without its hazards, and transport in frosty and cold weather is a key element in the literature, narratives and myths about life at Røros.

Temperature is decisive for the growing of crops. In the Røros district, summer was too short and the temperature too low to allow crops to ripen. The only crop that could be cultivated in some volume was hay, and agriculture therefore mainly comprised animal husbandry and the production of hay to be used as fodder. This is still the main form of agriculture in the region.

### **Rock geology**

In terms of rock geology, the Circumference is divided into two main parts. The northern and western parts belong to the Trondheim Cover, which forms part of the Caledonian Range. In general, this part consists of calcite-rich phyllite, mica schist, slate and gneiss. The mining activities in the Circumference were mainly associated with this area. The Trondheim Cover has played a key role with regard to mining in Norway also beyond the Circumference, with copper mines established at Kvikne in 1632, Løkken in 1654, Selbu in 1717 and Folldal in 1748 as well as at other places. This type of rock gives rise to fertile soils and a varied and rich flora.

Close to the border with Sweden lie a number of mountains composed of granite. To the south and east, the rock is mostly composed of arkose and feldspar-rich quartzite, giving rise to poor soils and vegetation with few species. The large stretches of low-growing pine around Lake Femunden grow on this type of rock.

### **Quaternary geology**

Some 9000 years ago, most of the inland ice from the last ice age, the Weichsel, had melted. Moraine material deposited by the glaciers forms the main type of deposit inside the entire Circumference, and is found as high up as the highest peaks. The Røros district contains many traces from the melting of the last ice-age ice cover. This has resulted in distinctive landscape forms, such as long ridges, eskers, formed by the sediments left by glacial rivers, and dead-ice hollows formed by ice trapped under a cover of deposits after the disappearance of the glaciers themselves. Today, these appear as lakes or hollows in the landscape. Kvitsanden («white sands»), one of the characteristic features of the landscape in Røros Mining Town, has been formed by well-sorted material from glacial rivers subsequently exposed to wind erosion. Today this has the appearance of white «sand dunes».

In the eastern parts of the Circumference, in the forests around Lake Femunden and in the Rogen district on the Swedish side of the border, we find a special type of variable moraine ridges that are transverse to the flow of the ice, known as the Rogen moraines.

In terms of quaternary geology, the areas inside the Circumference are of major importance for our understanding of the development of the ice age in Europe and in Scandinavia.

### **Watercourses**

Inside the Circumference we can find the sources of two of Scandinavia's largest watercourses: Lake Aursunden with the Glomma river and Lake Femunden with the Trysil/Klara and Gøta rivers. Lake Femunden is Norway's third largest lake, and the largest unregulated one. Lake Femunden is considered to be unregulated in spite of the regulation undertaken by the copper works in the 18th century. In addition, the entire Circumference is criss-crossed by large and small rivers and lakes.

### **Forests**

At the time when the copper works was established, fairly sparse pine forests grew over large parts of the Circumference. After a short period (approximately 50 years) the forests around Røros had been depleted. Pollution from the mines and smelters in combination with grazing by domestic animals and the cold climate prevented the forests from growing back, and Røros Mining Town was left in a deforested landscape.

Today, the landscape is undergoing another process of change. A milder climate, no more pollution from mines and smelters and fewer grazing animals have provided favourable conditions for a re-establishment of the forests. The regeneration of birch is evident around Røros and in large parts of the Circumference. To the north there are also some spruce forests, while sparse pine forests have been established east of the Glomma river and around Lake Femunden.

### **Fauna**

In the north-western part of the Circumference lies Forollhogna National Park, which was established with a view to preserving the habitat of the large population of wild reindeer living in the area. Norway is home to the only remaining wild reindeer populations in Europe. In the south-eastern part of the Circumference lies Femundsmarka National Park, where we can find threatened species like bears, wolverines and lynxes, as well as golden eagles, ospreys and great horned owls.

## The Property

This section describes the Property as it appears today. The existing urban environment and cultural landscapes represent physical traces of a long history. This description should therefore be seen in conjunction with the next chapter, *2b History*, which provides a chronological description of the development and a closer explanation of the features that are visible in the landscape at the present time.

The Property comprises three areas. An extension of the existing world heritage site Røros Mining Town is proposed to include agrarian and industrial cultural landscapes in one large combined area (the Town and Cultural Landscapes). The two areas added – the Femundshytta smelter and the Winter Transport Route – represent functions that were particularly characteristic of the mining activities at Røros.

As the forest resources around the mining town were gradually exhausted, new smelters were established in areas where the availability of timber was better. When these resources were also depleted, the smelter was moved again. The smelters therefore came to be located further and further from Røros town and the mines. The Femundshytta smelting house as an industrial cultural landscape typifies these remote smelters. The mining activities and the mining communities generated an enormous need for transport. Until construction of the railway, most of the transport was undertaken during the winter season, and many winter transport routes can therefore be found within the Circumference. The Winter Transport Route from Tufsingdal valley to Røros has been selected to exemplify these.

The Femundshytta smelter and the Winter Transport Route have been selected to represent activities of which other examples can be found within the Circumference. These have been selected because they are found in settings that are relatively untouched by recent technical encroachments, and thereby have preserved a large degree of integrity.

## The Town and Cultural Landscapes

The world heritage site comprises the entire sweep of landscape in which Røros Mining Town is situated, in addition to a continuous area comprising the main mining fields, the Storwartz and Nordgruvefeltet fields. Inside this area we find the old mining town, the industrial cultural landscape of the mines, the cultural landscape of the urban agriculture with small land plots, the outlying fields in the vicinity of the town with the summer grazing farms, as well as a number of farms, roads, the railway and a power station.

### **The landscape**

The landscape is dominated by traces from the ice age. Røros Mining Town is located on deposits from glacial rivers. The hillsides consist of moraine material, and the lakes and tarns have been formed by the movement of the glacier. The area is crossed by a system of ridges. The upper part of Norway's longest river, the Glomma, runs through the area. In addition, the regulated watercourses, including the Hitterelva and Håelva rivers, constitute important tributaries to the Glomma river.

### **Røros Mining Town**

Røros Mining Town is located at approximately 600 to 700 metres above sea level, surrounded by deforested mountain plains that form the visible periphery of the town's landscape. The landscape is formed as a bowl-shaped oval with a flat bottom. The old mining town is located on a slope facing south along the Hitterelva river. The town was established in the mid-17<sup>th</sup> century in association with the oldest smelting house, which was erected on the western side of the waterfall in the Hitterelva river. In 1678 and again in 1679, the town was torched by Swedish troops. It was soon rebuilt, and there have been no fires in the town since.

The houses in the old mining town are situated east of the Åsengården farm, which is one of the few farms that were found in the area prior to the establishment of the copper works. The farm is still located as an independent unit with plots of land inside the area of the current Røros town centre.

Røros Mining Town is a planned town. It was established around the smelter, with two parallel main street that follow the course of the river. Small alleys connect the main streets. The Bergmannsgata street widens in its lower part and narrows further up the slope to create a «false» perspective. The oldest director's residence acted as a focal point at the lower end of the street. At the top of Kjerkgata street, the church originally served as a focal point, but the new church which was constructed in 1784 was moved further west, and the street was continued directly through the former cemetery. The town plan is shown on a planning draft from 1658, and in more detail on a map of the town from 1711, in which the «false» perspective clearly emerges to indicate a connection with Central European town planning of the Baroque period.

Some years later, the town also developed on the other side of the river, at Flanderborg, with a less restricted and more organic structure. With the exception of the location of the church, the original town plan as pictured on a map of the town from 1711 has been preserved.

The Malmplassen square with the smelting house formed the core of the town, and it still functions as a centre of activity and as a meeting-place. The town has no other market square or central square apart from this. On one side of the Malmplassen square we find the large white church, called «Bergstadens Ziir» («Pride of the Mining Town») and on the other the stark, black slagheaps. Together they dominate the townscape.

### The Smelting House and the Malmplassen square

Even though Røros Mining Town has escaped conflagrations since 1679, the smelting house has burned on several occasions. The last smelting house from 1888 burned down in 1953, and this fire caused Røros Copper Works to stop smelting ore after more than 300 years of continuous operation. The remains of the smelting house burned again in 1975. Today, the smelting house has been reconstructed as a museum. In the foundations of the museum we can find the walls of several generations of smelting houses, with cultural layers several metres deep. In association with the smelting house we find the machinery shed, with an intact cylinder air compressor from 1887.

### The Slagheaps

Slag from the smelting house was transported on horse-drawn carts across the Sleggbrua bridge and deposited on the other side of the river. Gradually, the slagheaps grew into major features of the landscape. Towards the end of the 19<sup>th</sup> century a separate train line for slag transport was constructed, and the slagheaps acquired their present shape. The slag was waste, and was used as filling material when the need arose. Large amounts were removed from the eastern part of the slagheaps for use in the construction of roads, railways and the airport. From the town side, the slagheaps appear almost as they did during the time when the copper works were in operation.

### The Church

The first church at Røros was consecrated in the 1650s. Following a long period of prosperity in the second part of the 18<sup>th</sup> century, the director of the copper works, Peder Hiort, decided to build a new church. The church became an impressive edifice, with lime-washed masonry walls in late-Baroque style. The church has approximately 1600 seats. Its location at the top of the street, its high bell tower and its white colour make it visible from the entire town area, contrasting sharply with the black slag heaps and the low wooden houses. At the end of the 18th century the contrast was even more marked, as most of the timbered houses had dark, unpainted walls.

The church has an octangular floor plan. The pulpit is suspended over the altar, and the organ from the original church has been placed above it, which is a rarity in the Norwegian context. The church has two storeys of galleries. Over the entrance we find the royal gallery, flanked by the curtained galleries of the management of the copper works. The church is well preserved, including the interior paintwork. The architecture of the church influenced the construction of churches in the nearby regions.

### The Town Houses

The built-up area of the mining town has changed gradually over time, but the structure of the properties has changed only little. Some buildings have received extensions and an added floor. At the outset, the houses were timbered and without any panelling, but during the 19<sup>th</sup> and 20<sup>th</sup> centuries most residential houses received an exterior cladding. In reality, the town houses are closely clustered farming properties, where the main building faces the street. A gate leads into the courtyard where we find all the outbuildings required for animal husbandry. It was common for all social classes, from the miners to the managers of the copper works, to undertake agriculture in addition to the work for the company. Their farming properties are found side by side along the streets. The largest buildings are found in the Bergmannsgata street, but even here we can find properties belonging to ordinary miners' families. At Røros we can find no workers' quarters or clearly delineated workers' districts, as is common in other large mining environments.

### «Catharina Borchgrevink's house» - mansion of the bourgeoisie.

This site is found in the wider of the two main streets, the Bergmannsgata street. The house was built by Miss Catharina Borchgrevink in the 1790s. Like all the other buildings, the longest façade of the two-storey residential house faces the street, with a gate leading into the southern part of the courtyard. The building is a cog-jointed log construction with a vertical exterior panelling, and is adorned with Louis XVI-type architectural details that clearly demonstrate its connection with the buildings of the upper bourgeoisie in

Trondheim. The courtyard has a cowshed, stables and all other types of essential outbuildings. When Miss Catharina Borchgrevink died, unmarried, in 1804, she was one of the richest inhabitants of Røros. She left several properties and three horses, seventeen cows, two draught bullocks and two sheep. In addition, she owned reindeer that were included in the herds of two Sámi. After her death, the house was used as the director's residence until 1939, when it was purchased by Røros municipality and taken into use as the town hall.

#### «Rasmusgården» – a miner's house

This site is located far down in Bergmannsgata street, at its widest point. The buildings on this property have many features that are characteristic of Røros. The residential house is a cog-jointed log construction with vertical exterior panelling towards the street, and bare timber walls facing the courtyard. The house has one room, an outer passage with stairs leading up to the first floor, and a gateway leading to the courtyard. At an angle to the courtyard a kitchen with an open hearth has been added. The courtyard has a cowshed and a stable for the miner's own use, as well as a livery stable with places for ten horses. Many of the properties in the mining town accepted lodgers and had separate stables for travellers. The Rasmusgården house is currently owned by the nationwide Society for the Preservation of Norwegian Ancient Monuments, which rents it to its members as overnight accommodation.

#### The Flanderborg District

The Flanderborg district, located across the Hitterelva river, was part of the first extension of the town. This district has a more unplanned character than the old town centre. A characteristic feature is that the houses turn their «backs» to the river, because of the cold and the pollution. The same feature is observed on the other side of the river. The façades facing the river thereby clearly stand out in the town environment as the rear of the buildings.

Above Flanderborg we find Sleggveien road, leading directly to the slagheaps. To some extent slag from the slagheaps slides down towards the rear of the houses. Here, we find no cowsheds or stables for animals. The small cottages were occupied by those who were badly off, such as day labourers, craftsmen, widows or unmarried women.

#### The «Tyristuggu» house – living quarters for the landless.

This house is the second house from the top of Sleggveien road. The slagheaps tower up behind the house, and slag keeps sliding down towards its rear wall. The house was first inhabited by a cobbler's family and later by a spinster, Miss Tyri Jensdatter Myren, until her death in 1937. The house originally dates from the end of the 18<sup>th</sup> century, and was moved to its present location in Sleggveien road before the mid-19<sup>th</sup> century. It has a tiny dwelling room in joined timber, with an outer passage and a small kitchen with an open hearth. A small woodshed has been added on the northern gable wall. The building is currently owned by Røros Historical Society and is run by the Røros Museum.

At the bottom of the bowl-shaped landscape of Røros Mining Town, the districts of Stormoen and Øra grew up as suburbs of the town. The Stormoen district has kept its own identity until our times, but gradually became a suburb of Røros Mining Town. The Øra district was the least attractive and the last to be developed. Here, new farms were established as late as 1935.

#### Urban development in the 20<sup>th</sup> century

The town developed slowly until World War II. In 1944, a new national road was built and a new railway line was added in a loop towards the town. New buildings grew up on the small plots and along the access roads. During the 1960s, people started to move out of the town centre and into newly established residential areas on the outskirts of the town. These areas continue the tradition of wood construction, and have been placed in the terrain in a manner which does not detract from the impact of the old town in the landscape but acts as a natural continuation of the old town.

The extension of the railway to Røros in 1877 spurred the establishment of industries that were unrelated to the copper works, and this trend continued as the activities of the copper works diminished. Røros is still a living town, with manufacturing as a main industry. Inside the proposed World Heritage Site, at the bottom of the bowl-shaped landscape, we find commercial and industrial areas, as well as an airport that was opened in 1957.

### **The cultural landscape of urban agriculture**

The urban agriculture is described in section *2b History*. It comprises the production of hay for animal fodder, grazing on summer pastures and the gathering of wild grass and moss. Almost all employees of Røros Copper Works kept domestic animals in the courtyards inside the town, and the town centre was surrounded on all sides by a green belt of small plots of land. Much of this has been preserved. In 1836, these plots were entered into the land register and divided into six main areas. East of the town centre are the districts Småsetran, Østerhaga and Djupdalshaga, while the Stormohaga and Kvitsandshaga districts are located west of the town, with Kjerkgårdshaga to the north. At the end of the 19<sup>th</sup> century a total of 700 such plots had been cleared, surrounding the town on all sides. Parts of these have in recent years been used for the purpose of town development, and some of the hay sheds have been demolished. The outer edges of the areas are partly overgrown, but on the east and west sides of the town we find areas where the plots of land have been preserved and the hay sheds dominate the open landscape.

The Småsetran district, northeast of the town centre, was initially an area with small plots of land linked to the urban agriculture, and summer grazing farms were gradually established. The plots are separated by stone walls and ditches marking their boundaries. Both old summer grazing farms and plots with hay sheds have been preserved in this area. Several buildings bear traces of extensive reuse of materials, and thereby serve to show how all resources were exploited to the maximum extent. The area is maintained through annual mowing to prevent overgrowth.

The Østerhaga and Djupdalshaga districts, east of the town centre, border on the Småsetran district in the north. In combination, these constitute an unbroken belt of cultivated land on the east side of the town. The clear subdivision into plots has mostly disappeared, but many hay sheds remain. The area is still used for the production of hay, and is cultivated using modern methods. This serves to maintain this area as open land and prevent overgrowth. In recent years some of the plots have been built on, with a modern healthcare institution as one example. Although the impression of green fields leading into the dense town and the slagheaps is therefore somewhat weakened at this spot, the main features have been preserved.

The Stormohaga and Kvitsandshaga districts on the west side of town have retained large areas of plots and hay sheds. The delimitation of the small plots with ditches as boundary markings has been somewhat weakened, and the unity of the landscape has been broken by a road, the railway and some development. However, the area still demonstrates how the urban agriculture functioned.

The Kjerkgårdshaga district to the north of the town stretches along the Hittersjøen lake. The area is largely overgrown with birch shrub and thickets. A number of summer grazing farms were established in this area, and in the 20<sup>th</sup> century a few holiday cabins were built. Because of overgrowth and some recently added houses this district does not form a very distinct element in the townscape.

### **The summer grazing farms of miners and town citizens**

As part of the urban agriculture, the people of Røros had often cleared summer pastures further afield. Several of these areas are found inside the World Heritage Site. Stikkjilen to the northeast of Røros is a group of summer grazing farms used by ordinary miners' families for animal husbandry in the summer season. The Rasmusgården house in the mining town, with the Rasmusvollen grazing farm in Stikkjildalen, exemplify this.

The upper bourgeoisie and the «participants» of the copper works kept summer grazing farms in the same manner as the miners' families. These were often built in the form of summer residences, with gardens, pavilions and even skittle alleys and tennis courts. Several of these summer residences are found inside the nominated world heritage area.

### **Other agricultural landscapes**

Besides the miner/farmers in the town there were many «full-time» farmers in the Røros area. Today there are 21 active farms within the Property and a number of redundant farms. However, the fields of the redundant farms are cultivated by the active farmers within the Property as well as by 15-20 farmers from the Buffer Zone. The mowing of these fields within the Property contribute to the preservation of the cultural landscape. This is a «continuous landscape» that will follow the general development within agriculture in Norway. The Outstanding Universal Value of the world heritage site will not be affected by such general development, and the State Party does not find it necessary to give further legal protection to these cultural landscapes. (Cf. 5b Protective designation, ANR-areas).

### **The mines**

#### The Storwartz Field

The Storwartz area is located approximately ten kilometres northeast of Røros town centre. The area lies 800 metres above sea level in a deforested mountain landscape. The entire area appears as an industrial cultural landscape with many layers of historic remains from more than 300 years of mining activities. The area shows good examples of mining activities from all stages of the history of Røros Copper Works. An almost unbroken 2.6 kilometre long belt of mines stretches from the Upper Storwartz mine in the west to the Olavsgruva mine in the east. Scattered around in the area we find mine shafts, rock piles, remains of aqueducts, dams, footpaths and cart tracks between the mines and Røros, power transmission lines, cableways and mine openings, and some walled enclosures for the horses. There are also a number of preserved buildings and technical installations to be found in the area, as well as the Olavsgruva mine, which is open to visitors.

#### Old Storwartz

Immediately south of the buildings at Upper Storwartz we find the oldest mine, which was also the site of the first claim established in 1645. This mine is at the centre of the Circumference, the area of privileges granted by the King in 1646. The area contains many old mine shafts, most of which have been filled in.

#### Upper Storwartz

Clearly visible on high ground we find the housing complex at Upper Storwartz. The deposit was discovered in 1708, and was considered to be promising. The houses there comprise six buildings and several remains of buildings, most of which are considered to date from the early part of the 19<sup>th</sup> century. A number of them, like the main stables, the cowshed and parts of a wheelmaker's cottage, are constructed in stone with clay mortar. Next to these buildings we find the extensive ruins of the «Great Barracks» that measured 14 x 52 metres and was built in 1803, also in stone. The barracks could provide shelter for up to 300 men. The building burned down in 1939.

In the terrain between Upper and Lower Storwartz there are numerous remains of mining shafts from the 18<sup>th</sup> century, as well as traces of aqueducts and dams. All available water had to be used to supply power for hoists and pumps, and even the marshes were drained to provide more water. The water was led onto waterwheels near the mining shafts, and the power was transmitted with the aid of power transmission rods. No waterwheels have been preserved in this area, but some traces remain in the form of troughs dug out in the riverbeds. Wherever waterwheels could not be used, horses provided the driving power for pumps and hoists, and several traces of horse-driven mechanisms can be found.

### Walled enclosures

At Storwartz, there are also traces of walled enclosures. In areas with tillable soil, plots of land were cleared for the horses that were used in the mines. These plots were enclosed with stone walls, and were used as pasture as well as for hay production. Several of these enclosures have been preserved, some of which also comprise stables and houses.

### Lower Storwartz

Lower Storwartz was in operation from the early 18<sup>th</sup> century onwards. For a long period it was the copper works' main mine. Today, nine buildings are left at Lower Storwartz, of which five date from the 19<sup>th</sup> century. In 1926 a flotation plant was established there. This plant burned down in 1946, but a new, modern flotation plant was built within a year, and it remained in use until 1972. The complex comprises several buildings which have been preserved complete with an entire cableway station and a silo, a grinding house, a sifting house, a bridge, a further silo, a flotation plant, a storehouse and a building for shipment of ore concentrate. The ore from the Olavsgruva mine in the eastern part of the Storwartz area was transported by cableway to the flotation plant at Lower Storwartz. The machinery was originally located at the Muggruva mine, where it was erected in 1899 as part of the country's first electric cableway. The machinery was moved to Storwartz in 1941. The cableway has been restored, and is currently operable in its entire length of 1400 metres.

From Lower Storwartz a further cableway, built in 1903, led to the smelter in Røros town. Today, this cableway has been dismantled, but the scorch marks in the terrain and some pylons clearly indicate its path.

The introduction of the flotation technique allowed for exploitation of the copper left in the old rock piles in the area. During the final years of mining operations, the rock masses were therefore considerably disturbed and large sections of the old cultural landscape changed.

### The Olavsgruva mine

The Olavsgruva mine is located at the eastern end of the Storwartz area. The mine, which was in operation from 1937 to 1972, was opened as a demonstration mine for visitors in 1976, and in 1981 a museum building erected over the mine entrance was opened. In the present demonstration mine, visitors first enter through the Nyberget - or Neu-Berg - mine, which was opened in 1650 and remained in operation until 1713. This part shows the fire-setting techniques of the 17<sup>th</sup> century. Visitors then continue for another 500 metres into the Olavsgruva mine. Here, ore was broken with the aid of pneumatic drills and blasting with dynamite. Some technical equipment, such as electrically driven scrapers and a locomotive with a set of carriages, as well as a mine lift up to the surface have been preserved. Thus on the same tour visitors can be shown the old techniques as well as the mechanical mining operations of the 20<sup>th</sup> century. Outside the mine is a cableway station with a silo, and nearby there are a number of other buildings that stem from the final phase of operations.

### The Nordgruvefeltet field

In this area we find several mines, the most important of which is the Arvedalsbruddet mine, which later was joined to the King's Mine, as well as the Christianus Sextus mine and the Muggruva mine in the northern part of the area. In addition to these, we find a number of other mines, including the last mine to be operated by Røros Copper Works, the Lergruvbakken mine. Today, this area bears traces of the 300 years of mining operations. However, the oldest traces have been disturbed, because during the final years of the copper works' operations, methods were developed to enable profitable exploitation of ores that previously were considered to be too low-grade. Following the bankruptcy of the copper works in 1977, some clean-up measures and other efforts were undertaken to limit/prevent polluted run-off from the area.

### The Arvedalsbruddet mine and the King's Mine

The first mine at Arvedal was established in 1657. Operations at the King's Mine started in 1736, and in 1886 a breakthrough between the two mines was opened. The King's Mine was the first among the copper works' mines to be equipped with a waterwheel and power transmission rods to drive the drainage pumps and hoist ore out of the mine (1769). The other mines at Røros were so shallow that mechanical devices previously had been considered unnecessary. Following more than 70 years of operations based on water power, a steam engine was purchased in 1841.

The high content of sulphur in the ore from the Arvedalbruddet mine and the King's Mine caused problems for smelting. However, towards the end of the 19<sup>th</sup> century a market developed for iron pyrite (FeS<sub>2</sub>). At the same time transport was made easier following the construction of a sidetrack to the main railroad (the Arvedalslina railroad) in 1886, and this facilitated the delivery of iron pyrite. A telephone line was installed along the railroad barely ten years after the invention of the telephone. The introduction of electric power (1897) allowed for the construction of a cableway from the King's Mine through the Christianus Sextus mine to Harborg railway station, and the Arvedalslina sidetrack was subsequently dismantled in 1910.

The activities related to the exploitation of iron pyrite were sufficiently large to establish a family community at the King's Mine, including a school, a shop and a post office.

Today, few traces are left from the golden age at the end of the 19<sup>th</sup> century. All buildings have been demolished or have burned, with the exception of the flotation plant. The tailing ponds and the entire old production site, including the loading ramps, railroad and cableway station have been covered by new masses. However, some traces of the activities still remain in the landscape in the form of dams, foundations, shafts, ore transport roads etc.

### The Christianus Sextus mine

The Christianus Sextus mine was established in 1723 and remained in operation for forty years until 1763. When the mining of iron pyrite at the King's Mine commenced in the 1880s a survey was also conducted at the Sextus mine, and new operations were started. The mine was supplied with electricity and connected in 1909 to the King's Mine with a cableway which was extended down to the Røros railroad the next year. At the peak of operations sixty men were working in the mine, which remained in operation until spring 1940.

Today, the cableway station is left as a fragile, but remarkably enduring ruin. The building stands on highly polluted ground. The stable, with stalls for eleven horses, has been preserved and has recently been restored. In addition we find the foundations of other buildings from the first period of operations as well as from the most recent, traces of the trolley line used to transport the ore to the silos next to the cableway and rock piles left from 200 years of mining operations.

### The Muggruva mine

Operations in the Muggruva mine started in 1770. The ore was low in iron pyrite, and the copper pyrite was very pure. The ore lode was relatively large, and ran almost horizontally. At first, water could therefore be left to run out by itself, or be transported out through the main gallery. As the length of the gallery increased, the lode sloped downwards, and water became a problem. Horse-driven pumps were constructed, followed by a waterwheel in 1823. The wheel had a diameter of ten metres, and power was transmitted with the aid of a simple set of rods. Several dams were dug out to provide sufficient water for the waterwheel and for washing out the ore.

In 1899 the mine was supplied with electricity, and Norway's first electric cableway was constructed down to Tyvoll station on the Røros railroad. At that time, the innermost part of the mine was located 1200

metres from the gallery opening. The horses that had been used in the mine were replaced by an electric locomotive to transport the ore. In 1904, the train was in turn replaced by a cable-driven conveyor.

The mine was closed in 1919. After the closure, the buildings were demolished or moved. The cableway machinery was moved to Storwartz in 1941. Today, the only building left on the site is the forge. The axle and parts of the waterwheel are left inside the mineshaft, and these are the only preserved remains of waterwheels used by the copper works. In addition, we can find a number of ruins and foundations of houses. The rock piles have remained untouched since the closure of the mine. Even though most buildings and constructions have disappeared, the traces of the activities in the area are more prominent and readable than in similar sites near the other mines.

### **Kuråsfossen power station**

Together with the railroad, the introduction of electricity represented a major turning point in the modernization of Røros Copper Works. In the 1890s copper prices were low, and the company searched for methods for more economical operations. It was estimated that the construction of one power station could save the work of 191 men and 58 horses.

The power station was built at Kuråsfossen at the outlet of Lake Aursunden and was completed in 1896, with power transmission lines to the King's Mine, the Muggruva mine and the Storwartz mines. A dam was built in the Glomma river directly below the outlet of Lake Aursunden. From the dam, water was diverted in a 190-metre long wooden aqueduct to the distribution pool, and further through 30-metre long iron pipelines to the power station. The station was equipped with two Swedish-made turbines and two German-made generators. Power was transferred by high-voltage lines with a total length of 24 kilometres. In 1931 the power station was expanded, and in 1952 a new station was constructed inside the mountain itself. The old power station fell into disuse as late as 1965.

Today, the power station looks small and inconspicuous, but during a short period following its construction it was a major and technically advanced installation, not only in the Norwegian context, but also in Scandinavia and Europe. The power station «Kuråsfossen 1» was the first in Norway to have high-voltage transmission lines.

The original power station, including most of its technical equipment, has been preserved. The building, the turbines and the generators were restored in 1982, and a small exhibition has been established in the newest part.

## Femundshytta

### **Industrial cultural landscape**

After 50 years of smelting activities at Røros most of the timber around the town had been consumed. The continuous emission of sulphur dioxide from the smelter combined with heavy grazing prevented regeneration, and the area thus remained treeless. The smelter was still in operation, and firewood and charcoal were transported to Røros, but gradually it became clear that it was also profitable to establish new smelters in densely forested areas. The ore was then transported to the new smelters and small communities grew up around these. Altogether twelve smelters associated with Røros copper works have been registered, although they were not all in use at the same time. They were in operation as long as resources were available, but as these resources were depleted, the distance between the mines and the smelters steadily increased. Finally several of the smelters were located outside the Circumference. The remoteness of the smelters and the long distance between the mines and smelters constitute one of the main characteristics of mining operations at Røros. Femundshytta has been chosen to exemplify these smelters.

Lake Femunden lies 662 metres above sea level and is Norway's third largest lake with a length of 62 kilometres. Most of the area consists of bare mountainside above the tree line with scanty pine forests along the waterways and around the lake. The area was uninhabited when the smelter was built and it is also sparsely populated today.

The Femundshytta smelter was located on the west side of the lake. The area comprises the industrial cultural landscape with the ruins of the smelter and the settlements established there. The smelter was in use between 1743 and 1822 and produced black copper. The next stage in the process – refining – was carried out in the smelter at Røros (cf. 2b History).

The ore was transported from the mines in the Nordgruvefeltet field and the Storwartz mine by sledge on the winter snow to Nordvika, and then by barge over Lake Femunden in the summer. Transport by barge was considered to be so unsafe that the valuable copper was returned to Røros overland or on the winter snow.

When the forests were depleted, the copper works established a new smelter at Drevsjø even further away from the mines and outside the Circumference. The people who moved on either settled at Drevsjø or cleared land for farms in other places around Femunden, in areas that had earlier been used as summer grazing farms. Buildings made of cog-jointed logs are easy to move, and the houses were transported to the new site.

Today one farm is still situated at Femundshytta. The area had no road connection from the start of the operations right up to the 1990s. Most of the buildings from the settlement around the smelter have disappeared but the ruins and sites in the area bear witness to the activities of bygone days. Here we find slag heaps, the foundations of two furnaces, a trough for the water wheel, a turning chamber with several bins and a jetty for transporting the ore. Along the Butjønnbekken stream the remains of several dams can be seen. Moreover, the ruins of houses mark the sites of the farms of the smelter workers.

An unusual historic relic is the so-called «play town». The children at Femundshytta built a small miniature town of stone slabs. The town has a large church and a long street – rather similar to Røros. It is uncertain when it was built but it indicates that Røros had a position of some importance in the awareness of the youngsters. This is the only clear trace of the presence of children in the mining community.

## The Winter Transport Route

### **The Winter Transport Route from Tufsingsdal to Røros**

Mining operations and the mining communities created an enormous need for transport (Cf. 2b History). Everything had to be transported over long distances, and for a considerable period of time there were no roads. Up to the 1880s most of the transport took place using horses or bullocks, and sledges in the wintertime. Frozen rivers and lakes were used as long as this was possible but often mountain passes had to be crossed between the waterways. The main transport routes followed the rivers along the valleys leading to Røros from the south and from Røros towards Trondheim in the north. In the course of time, roads were built through these valleys, as well as the railway. However, there were also a number of winter transport routes that linked the mines and smelters in the Circumference. There are few physical traces of this all-important winter transport, but the winter routes are shown by the large farms that provided stables and overnight accommodation for travellers along the routes. The Winter Transport Route from Tufsingsdal valley over Holla and Lake Korssjøen to Røros represents this form of transport. It has been chosen because it traverses a natural landscape that is almost untouched and that therefore provides a clear picture of what it was like to take part in transport for the copper works.

This route was primarily used to transport goods to Røros. The farmers along the route transported charcoal and other timber to the mining town, starting around the New Year when the ice on the lakes was thick and there was enough snow. The route was not cleared of snow but it was marked, and routes over the lakes were marked with branches. Lake Femunden was often particularly difficult to cross because of surface water on top of the ice. Parts of the route are located 900 metres over sea level, and with temperatures down to minus 40 degrees Celsius it is clear that the trips could often be very strenuous. The farmers also travelled together so that they could help each other when difficulties arose. The route continued on to Sweden and was used to transport goods from Härjedalen, from the northern part of Dalarna and from Falun in the south (a Swedish World Heritage Site with copper mines). Iron, gunpowder and ordinary trading goods were imported from Sweden. On the return journey the Swedes took goods from Norway with them, for example herring and stockfish as well as sheepskin and reindeer products. Holla and Korssjøgårdene are farms which provided stables and overnight accommodation for travellers on their way to Røros.

Røros Copper Works had a monopoly on all trade up to the beginning of the 1800s, but markets for trading between farmers had existed prior to this. The Røros Fair was officially established in 1854 and still takes place every year starting on the second last Tuesday of February. The tradition of transporting goods from Sweden has been revived, and every year a large group of drivers with horse and sledge follow the same winter transport route to get to the fair. In 2003 a group of people made the long journey all the way from Falun (Cf. photographs in Annex 2).

## The Buffer Zone

Røros Mining Town and Cultural Landscapes, Femundshytta and the Winter Transport Route are all situated in the Circumference. They comprise historic environments and cultural landscapes that show how the mining town came into existence and how it developed and functioned. However, the mining town cannot be fully portrayed without the rest of the Circumference. Norway therefore proposes that the entire Circumference, the historical area of privileges, should be awarded status as a buffer zone. An evaluation has been made of whether the entire Circumference should be included in the Property, but modern built-up areas and the like that do not meet the requirements regarding integrity set out in the Operational Guidelines (Paragraph 87-89) form part of it. The buffer zone helps to protect the outstanding universal value of the Property. It gives a clear indication of wider historical and functionally important attributes, and thereby provides vital protection of the outstanding universal value in the three parts of the Property.

The perimeter of the Circumference passes through the border with Sweden. In 1648 the border between Norway and Sweden ran through the middle of Lake Femunden and the copper works did not therefore have access to this part of the Circumference. The border was moved to its present position further east of the lake in 1751, but naturally enough the Danish-Norwegian King could not grant privileges that encompassed Swedish territory. Consequently it is not appropriate to include the Swedish sector in the buffer zone.

Today the circumference comprises eight municipalities including Røros. All municipalities, with the exception of Tydal in the northeast, wish their part of the Circumference to be included in the buffer zone (Cf. Annex 1, Maps).

### **Important cultural landscapes in the Buffer Zone**

#### **Mining areas**

The most important mines, Stortvart and Nordgruvefeltet, are proposed as part of the Property. These have been chosen to exemplify much more extensive mining operation within the Circumference. In the northern parts of the Buffer Zone traces of claims and mines can be found that represent a range of

categories – from exploratory operations to more long-term operations. Many of them were closed and reopened several times. Some of the more important are:

#### Raudhåmmåren, Røros municipality

The first mine, «Freies Glück», was established here in 1644. The mine entrance is still visible and there are some smaller claims from this period. The area was rapidly abandoned since it was not commercially exploitable. Today the area shows traces of operations from different periods of mining for both copper and chrome, and a commemorative plaque has been placed at the site of the first mine.

#### Gruvåsen, Os municipality

Deposits of ore were found in 1708 and operations lasted until 1727. Later, operations were resumed for several short periods of time. The ore was transported to the smelter at Tolga. There are altogether 19 mine openings on the steep hillside. Today all the mines are flooded and the buildings have been removed but the industrial cultural landscape remains otherwise intact. The area is characterized by the regrowth of birch scrub.

#### Killingdal – Bjørgåsen, Holtålen municipality

The mine was in operation from 1677 to 1692. In the 1800s Røros Copper Works lost its rights to run the mine and it was purchased by another company. The Bede Metal & Chemical Co. Ltd. invested in advanced technical mining operations from 1895 to 1945. This technology was developed independently of Røros Copper Works and had therefore little direct impact on the community at Røros. Mining operations continued after this up to 1986. When the mine was closed, wide-ranging measures were implemented to prevent run-off from the rock piles at Killingdal. Most of the buildings were demolished but one barracks remains with a well-preserved interior.

At Bjørgåsen, where the administration was based, the buildings and workshop are preserved and large parts of the interior are intact, while the railway's loading plant is preserved at Stolvollen. The plant documents modern mining history in the area.

Moreover, in Holtålen there are many traces of mines and deposits that were operated by other companies after the privileges of the Røros Copper Works ceased to exist.

### **The industrial landscape around smelters in the Buffer Zone**

#### Dragås and Eidet smelter, Holtålen municipality

Dragås smelter was established in 1727 at Storfossen and was in operation until a new smelter was built further south on the river. Few traces of this can be found today. On account of lack of space in the narrow valley at Dragås, it was decided in 1832 to build a new smelter at Eidet. While the other smelters were closed almost immediately on the arrival of the railway in 1877, operations continued at Eidet for ten more years. Today the ruins of the furnace remain and the surrounding landscape contains many traces of the smelting operations. The ruin started to tilt due to unstable ground conditions and for a long period of time there was a danger that it would collapse. It has now been shored up by a slab of concrete and it is the most important furnace ruin in the Circumference. Eidet is also of interest in relation to transport. The main road to Trondheim passes through the valley. The valley with the river and waterfall at the end is extremely narrow and it has always been difficult to pass this point on the road. This is shown for example by the traces of three to four generations of roads and two different railway lines.

#### Tolga

Prior to the building of the smelter, Tolga was almost unpopulated. Røros Copper Works set up a smelter in 1670 beside the waterfall in the River Tolja, a tributary of the River Glomma. The smelter was in operation until the railway line was built to Røros. It was demolished the same year as the railway opened and today only the remains of slag heaps along the river banks bear witness to the existence of the smelter

and the old ore site. However, the mining settlement that was established is still located there, and many of the buildings are well preserved. The housing shows that the community functioned in the same way as the Røros Mining Town where the workers were also engaged in agriculture. The buildings with their courtyards lie close to each other along two streets. For the most part the farms are still in operation. The church is in many ways similar to the church at Røros and shows the dominating position of Røros in the area.

### Feragen

The smelter at Feragen was established as early as 1661 and was in operation until 1692. Ore from Storwartz was transported here for smelting, showing that even then there was a shortage of timber around the smelter at Røros. The chief engineer's farm remains, as well as a slag heap that appears to be completely untouched since the closure. Feragen had the status of a free mining settlement, and the workers could consequently clear land for farms in the area (cf. *2b History*). Farming continued after the closure of the smelter and a number of farms are still in operation and have buildings preserved from the 1700s and 1800s.

In the mountains west of Feragen lies an area of chrome mines. Operations at this field were commenced by Røros Copper Works in 1824.

### **Agrarian cultural landscapes**

The activities of the copper works were of importance for the farmers in the entire Circumference. Mining operations at Røros signified a near «revolution» for the farmers in the surrounding area. «Everyone» worked for the copper works in connection with transport, felling timber and the production of charcoal. Although people were obliged to work for the copper works, the mining activities also opened up opportunities for them. Farms that were already established in the main valleys north and south of Røros Mining Town acquired extra income and this also made it possible to clear land for new farms in marginal areas where previously there had only been summer grazing farms. New communities grew up at places such as Narjordet, Nørdalen and Tufsingdal.

All the farms in the region were dependent on utilising uncultivated land. The farmers had summer grazing farms in order to exploit rough grazing resources in outlying areas. In this way the widespread cultural landscapes with summer grazing farms and pastures were formed inside the Circumference.

### Harvesting uncultivated land

In order to tide people and animals over the winter, all resources were exploited. Therefore the uncultivated areas were harvested, and reindeer lichen was gathered to serve as animal fodder. The hay and lichen were stored temporarily and transported home on the winter snow.

Sølendet at Brekken was one of the most fertile uncultivated marshes and was harvested for several hundred years up to the 1950s. All these years of harvesting have resulted in a wealth of different species and in 1974 Sølendet was listed as a nature reserve because of its flora (for instance its 29 species of orchid), and a reference area for the harvesting of uncultivated meadows in Scandinavia's central mountain areas. Today the area is tended in the traditional manner, with state funding. The botany, cultural landscape, fauna and hydrology are documented in several doctoral dissertations, theses and scientific articles. The area is of international interest and is referred to as Telmamarsh and Biogenetic Reserve. It has also been associated with climate research.

### Traces of charcoal production

Large amounts of preserved charcoal pits (burned out charcoal kilns) bear witness to Røros Copper Works' enormous need for charcoal. The farmers burnt charcoal in the forest, and traces of this can be found in the form of charcoal burning pits usually measuring 10-12 metres in diameter. In Nørdalen, a cultural heritage

trail and path has been established, passing through an area with many charcoal burning pits and with a reconstructed charcoal kiln and a charcoal burners' hut.

### **Sámi cultural landscape**

Traces of Sámi activities can be detected in large parts of the Circumference (cf. *2b History*). The greatest density of registered Sámi monuments and sites is to be found in the northeast. This tells us more about where registration has taken place than about what areas have been used by the Sámi. Most of the sites stem from the period of reindeer husbandry that began at almost the same time as the founding of the copper works. Traces of Sámi activities are revealed in the form of round-up places for reindeer, underground storage pits, foundations of storehouses, settlements and mountain farms where the Sami settled in the course of time, as well as sacrificial sites and burial places. These traces are often seen in the same landscape as that used by the farmers. A physical sign of the collaboration between the Sámi and the farmers can be found in the storehouses that the Sámi were allowed to build at farms that were strategically situated on the route between the seasonal grazing grounds. Here they kept food and equipment, and the farmer looked after the storehouses so that the Sámi avoided the risk of having their possessions stolen. The Sámi still carry out reindeer husbandry in the areas to the north and east in the Circumference.

### **Transport routes: Roads and canals**

The entire Circumference is criss-crossed by old paths and roads used for transport. The main roads to Røros followed the largest valleys at approximately the same place as today's roads and railway. In addition there are a number of connections of varying standard - from riding tracks to paths. These are currently being registered. However, the bulk of the transport took place on the winter snow and on frozen rivers and lakes.

As early as the end of the 1600s the copper works had plans to establish a canal connecting the waterways in order to float timber between Femunden and Feragen and down to Hådalsvassdraget and on to Røros. The system was completed with a canal and three timber slides in 1764. This was restored between 1992 and 1996 (cf. *2b History*).

## **2b History and Development**

### **The Røros region prior to the establishment of Røros Copper Works**

In the Røros district, archaeologists have unearthed archaeological sites from the Stone Age and subsequent periods. The oldest traces of settlement, hunting and fishing date from the around 5000 AD. Along the rivers, such traces are found even on the surface, because of the meagre soils. Findings have been made that indicate production of iron based on marsh ore over a prolonged period from several centuries BC up to the 19<sup>th</sup> century.

The oldest definite traces of agriculture have been dated to 900 AD, but the Black Death in the mid-14<sup>th</sup> century left the region close to depopulated.

In the mid-17<sup>th</sup> century, farms were established in low-lying fringes of the Circumference at Holtålen, Os and Tolga, but the area in which the present Røros Mining Town is located was very sparsely populated. There were a few recently established farms, for example Åsen and Rørosgård, which lent its name to the town. The Bailiff's Accounts for 1645 list six farms with a total of 16 persons over the age of 15 in the region. The farmers also used the Røros region for summer grazing farms, hay-making, hunting and fishing. The region was also home to a Sámi population, and around the year 1600 these Sámi shifted from hunting and fishing to nomadic reindeer husbandry. This change took place almost simultaneously with the establishment of mining activities in the region.

## The mining industry in Norway in the 16<sup>th</sup> and 17<sup>th</sup> centuries

Mining of ore deposits in Norway had started in the form of some short-lived attempts during the 16<sup>th</sup> century, but it was not until the reign of the Danish-Norwegian King Christian IV (1588-1648) that mining on a major scale and of a lasting character was established. The king needed the income and the metals in order to wage his wars of expansion, and he therefore strongly encouraged prospecting for ores to uncover the riches that were hidden in the Norwegian mountains. Kongsberg Silver Works was established in 1623, followed by a dozen iron works and the copper works at Kvikne in 1630, Røros in 1644, Løkken in 1654, Selbu in 1717 and Folldal in 1748.

Similar developments were simultaneously underway in large parts of Europe. The Germans were at the forefront in mining, and German miners came to Norway bringing their language and their skills with them. At Røros, the German influence remains visible even today in the names of people as well as mines.

### Røros Copper Works

According to tradition, the ore was discovered in 1644 by the farmer Hans Aasen, who had just cleared a farm by the Hitterelva river. The farm is still located in the old mining town, and is still owned by the same family. The first mine at Rauhamåren, to the northeast of present-day Røros, proved to be not commercially viable, but mining activities started up at Storwartz in 1645. The name is a German approximation of the local name Storvola. A smelting house was built near Hans Aasen's farm at a waterfall in the Hitterelva river, and Røros mining town grew up around it.

#### **The Circumference and the privileges**

In 1646, the Danish-Norwegian King Christian IV signed a letter of privileges for a circumference of four miles with the Storwartz mine at its centre, the mine which today is referred to as «Old Storwartz». At the time, several units of measurement were in use in the Danish-Norwegian kingdom, and the length of King Christian IV's mile is therefore very uncertain. The delimitation of the area of privileges enjoyed by Røros Copper Works was therefore not entirely clear, but this was of little importance in the initial years of the works. Towards the end of the 17<sup>th</sup> century the measurement unit was determined, and a Norwegian mile was defined as equal to 11.3 kilometres. The copper works later used this measurement unit. However, there was still uncertainty as to where the border was located due to the inadequacy of the map base at the time, and this led to continual discussions. The circumference of Røros Copper Works was the largest ever granted within the joint Danish-Norwegian kingdom. This was due to the marginal conditions prevailing over most of the area, with bare mountains and sparse forests.

With the setting of the Circumference, Røros Copper Works gained considerable rights. Inside the Circumference, the company had a monopoly on exploitation of all mineral, forest and water resources, and the farmers living inside the area were required to work for the company, although they received some payment. As compensation for the privileges, the king was entitled to a tithe of all copper that was produced. In addition, he imposed a duty on all copper that was exported.

Røros Copper Works was organized as a «participantship», meaning that the copper produced was distributed among the participants (owners) according to the size of their ownership share, and they had to arrange for the sale of the copper themselves. Operating capital had to be advanced every year by the participants. The copper works was obliged to arrange for food supplies to the mining town and the other mining communities that gradually sprung up, and was therefore required to keep a stockpile of provisions. The company paid for the school and the doctor, and had to look after workers who were injured in accidents and their widows and children if they perished. A separate court of law was established – the Mining Court – where the director presided in the case of minor offences, and the company had its own jail.

The profitability of the mining activities was very variable, depending on international prices for copper, and in periods of recession the participants sometimes failed to fulfil their obligations. This resulted in misery and destitution in the population, but it is nevertheless assumed that the living conditions among the working families of Røros were better than in many other places in Norway.

The privileges granted by the Danish-Norwegian king were annulled in 1814 when Norway became independent, although under the same king as Sweden. In 1818, a separate act on Røros Copper Works was passed, and this act maintained some of the privileges, but put an end to the company's trade monopoly.

Røros Copper Works and Kongsberg Silver Works grew into the most prominent mining corporations in pre-industrial Norway, i.e. until the end of the 19<sup>th</sup> century. The period from the 1740s and until the turn of the century was the golden age of Røros Copper Works. At that time, 600-700 men were permanently employed in the mining and smelting activities, in addition to all those who were engaged in logging, transport and production of charcoal. During this period, approximately 70 per cent of the operating costs were incurred by these activities, and only 30 per cent went into running the mines and smelting houses. The figures bear witness to the importance of the farmers for the mining activities, and they also indicate the financial resource that the copper works represented for the population in the entire district.

During the 18<sup>th</sup> century and the first half of the 19<sup>th</sup> century no major changes were introduced to the operations, although some improvements were made, including a transition from fire-setting to the use of gunpowder, improved transport, introduction of better methods for sorting and better equipment for forcing air into the furnaces.

The operation of the copper works remained mostly profitable until the 1860s, when copper prices gradually fell and operating costs grew. Around 1870, the situation had become precarious. Towards the end of the century this spurred major efforts to identify new technology that could make production cheaper, and the copper works was consequently among the first to introduce new methods that recently had been developed in England, France and the United States.

World War I led to a final period of prosperity. The production subsequently declined as more modern mines based on other types of ores were established elsewhere in Norway, and Røros gradually became a small mine in the Norwegian context. Røros Copper Works finally went bankrupt in 1977.

Total production over 333 years:

Raw ore: 6 000 000 tonnes

Copper: 120 000 tonnes

In the 18<sup>th</sup> century, Røros Copper Works was the leading source of export revenues for the Danish-Norwegian state.

### **Mining and smelting techniques until the 1880s**

Norwegians had little competence in mining in the 16<sup>th</sup> and 17<sup>th</sup> centuries, and German miners from Harz/Saxony were therefore hired by the Danish-Norwegian king. Miners arrived at Røros directly from Germany, but there were also second-generation miners from the first wave of immigration earlier in the century. The technology underwent few and only gradual changes until the end of the 19<sup>th</sup> century. The ore was extracted by heating the rock face with firewood, later gunpowder was also used. Initially all work was manual, only aided by horses. Later on, the ore was transported out of the mines with hoists, and water was pumped out of the mines with the aid of waterwheels with power transmission rods.

The ore was sorted into three classes: Ore with a five per cent copper content, lower-grade ore and rock. The two last-mentioned were left in large rock piles outside the mines.

The ore went through a five-step roasting and smelting process that separated the sulphur and iron before the final product, raw copper, could be transported to Trondheim.

#### 1) Cold roasting - in the beginning this was often done next to the mine.

Ore in fist-sized pieces was layered in piles together with the roastwood, logs two to three metres in length. Roasting would normally take 12-15 weeks.

Final product: Roasted ore.

Traces in the landscape: Red patches of precipitated iron on the ground.

#### 2) The first smelting: Matte smelting

The roasted ore was transported to a smelting house.

Smelting was carried out in a furnace constructed of stones, approximately one metre in diameter and 6-7 metres high. The furnace was stacked from the top with layers of roasted ore and charcoal. The smelting process took approximately one week, with continuous refilling and tapping.

Final product: Round slabs of copper matte, with approximately 20 per cent copper content.

Residue: Slag. The slagheap at Røros contains approximately 0.4 per cent copper.

#### 3) Turn roasting

This was done in the open air in roasting chambers made of stone. Roastwood and copper matte were stacked in the chambers, and the matte slabs were transferred from one chamber to another. This process removed most of the remaining sulphur.

Final product: Turn-roasted plates.

Traces in the landscape: The walls of the roast chambers are often preserved, e.g. at Femundshytta.

#### 4) The second smelting: Black-copper smelting

This smelting round was done in a furnace of the same type as used for the copper matte. Charcoal and turn-roasted plates were added in layers.

Final product: Black copper. This copper was not suitable for forging.

#### 5) Refining

Smelting of the plates of black copper was done in large iron vats heated with charcoal.

Final product: Raw copper. This was the end product that was transported to Trondheim.

#### Core roasting

Core roasting was a method suitable for ore which was high in sulphur and with a low copper content, the so-called second-grade ore containing approximately two per cent copper. During the roasting, the high sulphur content caused the copper to concentrate in a core surrounded by iron, and this core could subsequently be hammered out by hand. This was often the children's work. This method had been invented in the 18<sup>th</sup> century and was used for the high-sulphur, low-copper ore from the King's Mine.

### **Use of natural resources by the copper works**

#### Ore

In the Røros field, copper ore is typically found in a number of small deposits. The ore from the different deposits had widely differing copper content. For example, the ore from the King's Mine had a high content of pyrite. Towards the end of the 19<sup>th</sup> century demand for sulphur rose, and the rock piles near the mine could be exploited. The copper ore from the Muggruva mine was very pure, and was sometimes added to ore from other mines during smelting.

During the 19<sup>th</sup> century, Røros Copper Works also operated chromium mines at Feragen, and in the final years of the works' operations also some zinc mines at the Nordgruvefeltet mining field.

### Timber

From the start and up to the time of modernization at the end of the 19<sup>th</sup> century, finding a sufficient supply of timber was the main challenge for the copper works. Large amounts of timber were required for the operations of the works. The mines used wood for heating the rock face, and the five-step smelting process required roastwood and charcoal. In addition, timber and planks were needed for all kinds of construction. Estimates indicate that the volume of charcoal and firewood was fifteen times higher than the volume of ore needed to produce raw copper. This explains why new smelting houses were built in wooded areas, and also why ore was transported to these instead of transporting timber to the main smelter at Røros.

Estimates indicate that during the 250 years of operations using the old method, a total of 12 million cubic metres of timber were felled in the region  
This corresponds to approximately 50,000 cubic metres per year on average.

After approximately fifty years of operations, the timber resources in the area around the smelter at Røros had been exhausted. Gradually, this also became the situation in the entire Circumference, and timber had to be fetched from distant regions. The unsheltered location and pollution caused by the mines and smelters, in combination with heavy grazing by domestic animals prevented the forests from growing back. Only in recent years have birch scrub and other types of woodland again been seen on the exposed hillsides around Røros.

The importance of Røros Copper Works in the Norwegian context can be clearly seen in the border negotiations that were conducted with Sweden in 1751. Primarily, these negotiations concerned the northern border between the two countries, but the director of the copper works succeeded in changing the course of the border in the vicinity of Røros. The Swedes wanted the border to run through the middle of Lake Femunden, but it was now finally settled in its present position east of the lake. With this move, the copper works gained access to the forests also on the far side of Lake Femunden.

### Water power

The copper works needed water power to operate waterwheels, which in turn supplied power to pumps and hoists in the mines, and to bellows for the smelters. The area is rich in lakes and rivers, so in general this did not represent much of a problem, although it could be difficult to locate sources of water on the mountain tops near the mines. There was also a need to regulate the flow of water, and systems of dams and aqueducts are found near all mines and smelters.

### **Transport up to the 1880s**

The mines, smelters and settlements generated an enormous need for transport. Ore, charcoal, firewood, roastwood and construction material had to be transported to the smelters and mines, and the copper had to be transported to Trondheim. The mining communities were not self-sufficient in foodstuffs, and the area's potential for agricultural production was limited. The copper works was required to supply provisions, grain in particular, to the workers. The bulk of the transport took place during the winter season with the aid of horses or bullocks, as often as possible across frozen rivers and lakes. Today, the winter transport routes are barely visible in the terrain. Some marking sticks can still be found, along with some access ramps along the rivers. However, traces of the transport routes can be seen in the large posting stations and farms that were built along the routes, where drivers and traders could find lodging for the night. The farms supplied stables for horses and accommodation for the drivers. Even in Røros itself, people put drivers up for the night, and nearly every house in the mining town accepted lodgers and had stables for their horses.

The summer routes consisted of longer paths and tracks which were only passable by pack-horse. Gradually, roads suitable for horse-drawn carts were built. Many of the old main routes into and out of the area followed the same routes as the present national roads. In addition, we find a wealth of smaller paths and routes for local traffic between the mines, the smelters, the town of Røros, the farms and summer grazing farms inside the entire Circumference.

During the years 1756-1759, a new smelter and a dam was built at the southern end of Lake Femunden (outside the Circumference), and this dam raised the water level in the lake by more than three metres. Its purpose was to enable timber to be floated from Lake Femunden to the smelter at Røros. The dam gave rise to protests from several quarters, and even from the Swedish side of the border, because the river flowing out of the lake enters Sweden further south. The copper works was finally forced to demolish the dam and the smelter. It was never completely demolished, however, and the water level in Lake Femunden is therefore still 70 centimetres higher than its natural level. Instead of the large dam, a canal and three timber slides were constructed between partly dammed tarns linking the Femunden and Feragen lakes. The installation was completed in 1764, allowing timber from the Femunden district to be floated through the canals and further down the Hådalsvassdraget river system to Røros during the summer months. When the lakes froze during winter, the transport of ore from the Storz mine to the Femundshytta smelter followed the same route.

Farmers and others from far and wide, also from well outside the Circumference, worked as drivers for the copper works. The farms in the area kept far more horses than what was usual in other parts of the country to be able to take part in this work. Following the opening of the railway line to Røros in 1877 this transport pattern quickly changed, and the locally based transport for the copper works ceased almost completely.

### **The export of copper**

Copper was an important metal in the 17<sup>th</sup> and 18<sup>th</sup> centuries. It was used for sheathing of ships' hulls and for production of pans, containers and coins. It was also a key ingredient in the production of bronze and brass.

The finished raw copper from Røros was transported to Trondheim by sledge on the winter snow, and distributed among the participants according to their ownership share in the copper works. Several of the participants belonged to families who had immigrated from Schleswig-Holstein and had established large trading houses in Trondheim. The participants had to arrange for the sale of the copper themselves, but in the 18<sup>th</sup> century this trade was coordinated. Most of the raw copper was exported, and it has been estimated that 80-85 per cent of it was shipped to Amsterdam. Some was also shipped to Copenhagen, Altona, Hamburg and to Spain. In the 18<sup>th</sup> century, Røros Copper Works constituted the single largest source of export revenues for the Danish-Norwegian state.

### **People and society in Røros mining town**

At the time when the ore was discovered, the area which today makes up Røros municipality was nearly unpopulated. Consequently, the labour force had to be brought in from elsewhere. The owners, the so-called participants, were originally of Dutch, German and Danish descent, but their shares in Røros Copper Works were quickly acquired by wealthy merchants from Trondheim. These were rarely seen at Røros, but their representative, the director, as well as his officers, constituted the upper classes of the town.

The mining specialists came from Germany or were descendants of Germans who had been recruited to other mines in Norway earlier, and they brought with them the German technology. Other workers came from the regions to the north and south of Røros, as well as from Jämtland and Härjedalen in Sweden. There were clear class divisions, but there was no separate workers' district at Røros. The miners had their houses right next to those of the director and the other members of the upper classes.

## **Urban agriculture**

The upper classes and the miners alike kept domestic animals and owned several plots of land and summer grazing farms outside the town area. The combination of agriculture and work for the mining company evolved over time into a complicated and finely tuned system, in which all resources had to be exploited to bring people and animals through the long and harsh winter.

From the start, the copper works encouraged their employees to clear land and keep animals to contribute to the production of their own food. Inside «the free mining town» the employees of the copper works could clear themselves plots of land and cultivate them without having to pay any leasehold rent. They became land owners. Houses in the town often had several plots measuring from half an acre to three or four acres, spread in strips around the town area. These plots were not used as pastures, but rather for growing grass for winter fodder for animals. Manure from the stables and cowsheds was spread on the plots, keeping them green and fertile in spite of the sulphuric fumes from the smelter. All the plots had a hay shed in the middle where the hay was collected in the autumn to be transported to town by sledge in the winter.

At Røros, agriculture was mainly an occupation for women. While the men worked in the mines and smelters, the women and children were left to take care of the livestock. Near the mines, barracks were built for the miners to stay for shorter periods. The copper works had introduced a five-day working week to allow the workers to take part in the family agricultural activities, and operations were closed down for a month during summer, so that the workers could bring in the hay and harvest other natural resources.

The miners as well as the upper classes had one or more summer grazing farms for their livestock in addition to the plots of land surrounding the town. In summer, women and children moved out of the town, which was left almost deserted. Hay was also cut on uncultivated meadows and marshes, and animals were sometimes kept on the summer grazing farms until Christmas, to avoid having to transport the hay from there into town.

In addition to the wild hay, large loads of leaves and moss (reindeer lichen, *cladonia stellaris*) were gathered to be used as fodder. One of the reasons for the use of bullocks as beasts of burden was that these could digest the moss and most other types of fodder, while horses depended on hay. Nature also allowed for hunting, fishing and berry-picking. Wood was scarce, and the copper works needed whatever timber was available. Peat bogs were therefore opened as a source of fuel and heating of houses.

Because of the town's remote location and periodic fluctuations in the copper works' stockpile of provisions, agriculture and subsistence farming constituted a more prominent element in the work of the employees of the copper works than what we can observe in other mining communities. The founder of Norwegian sociology, Eilert Sundt, wrote about Røros in 1858 that some of the workers considered their employment at the copper works as almost secondary to their farming. The workers who owned some land also had a more independent position in relation to the copper works. They were less dependent on the company, but this also meant that the copper works could cut their wages whenever they found this expedient.

Modernization of the mining operations and the reorganization of agriculture entailed a higher degree of specialization from the end of the 19<sup>th</sup> century. The miners' double status as both miner and farmer gradually disappeared. Urban agriculture continued, but was now undertaken by full-time farmers.

Gradually, landless people arrived in the town. They settled in small cottages on the outskirts of the mining town, often living in appalling conditions.

### «The Røros cow»

In present-day Røros, we can find an old breed of cattle commonly called «the Røros cow», representing genetic material from the time when the copper works was established. The cow contributed to nutrition, and the bullock was used as a draught animal for transport. This breed is small, sturdy and hardy, and can easily find its way through rough grazing land. The cowsheds in the townhouses are adapted to the size of this breed, and it thereby set the standards for the outbuildings in the mining town. However, the breed went into decline following the rationalization of agriculture in the 1960s, and a special association has recently been established to ensure its preservation. Today, «the Røros cow» is a living testimony to mountain farming in general and to the miners' farming activities in particular.

### The farmers of the Røros district

In addition to the fairly modest agriculture undertaken by the miners there were also full-time farmers living inside the Circumference. The farmers' activities were essential for the supply of firewood, roastwood, construction material and charcoal, as well as for transport. All these activities became part of the economic basis for the local farmers. The settlements grew, and the activities allowed for the establishment of farms even in marginal mountainous areas. The fact that the farmers had access to extra income can be clearly seen on the farms, which have unusually large houses in view of the fact that they are found in such a remote location. Some of the houses bear witness to the considerable wealth of the owners.

### The Sámi of the Røros district

The Sámi lived in the Røros district even before the start of the mining activities. Around 1600, they were in the process of shifting from hunting and fishing to nomadic reindeer husbandry. The Sámi clung to their culture and way of life, which gradually developed as a consequence of changes occurring in reindeer husbandry practices. As far as we can ascertain today, the Sámi did not take up employment in the mines or the smelters, but they accepted transport assignments for the copper works and engaged in trade in reindeer products, such as meat, cheese, leather and horn products. Even among the settled population there were some who owned reindeer which were tended by the Sámi and were left to graze with their herds. Reindeer husbandry requires large areas as pastures, and as the farmers cleared land and mountain meadows some conflicts could occur between the farmers and the Sámi, but it is also known that the farmers and the Sámi could benefit from each other.

Around 1900, the Sámi started to settle on mountain farms and to live there permanently. They also stopped milking their reindeer, and based their incomes on the production of meat for sale in the marketplace. On the farm they often kept a few domestic animals. While the men followed the annual migration of the reindeer, the women and children were left in charge of the farm.

Reindeer husbandry has gradually been modernized with technical aids like binoculars, snowmobiles and new means of communication. Today, modern reindeer husbandry still remains a prominent economic activity in parts of the area inside the Circumference.

## Mining activity since the 1880s

Total modernization and reorganization of the operations over a period of 20 years:  
1877: Railway from Oslo via Røros to Trondheim  
1887: The smelter at Røros adopts the Bessemer method  
1897: Electric power

When a railway connection, which was to become Norway's first mountain railroad, was established between Oslo and Trondheim, Røros was included on the line. The first trains started running in 1877, and ushered in the first major change in the mining activities at Røros. Shortly after, the old transport system

had been dismantled in its entirety. This change also meant that the quest for timber could be abandoned, as coke was introduced as fuel for the furnaces. At the same time, the remote smelters were closed, and all smelting would henceforth take place at the main smelter at Røros. The railway also allowed for exploitation of the pyrite in the rock piles near the King's Mine.

New smelting technology was introduced in 1887, when the first Bessemer furnace was fired up at Røros. The method had been developed by Henry Bessemer and Sydney Gilchrist Thomas in England for use in iron production, and had been adapted to copper metallurgy by Pierre Manhès in France around 1880. Manhès' method was adopted at the Røros smelter, and three converters were purchased from France. One of Manhès' foremen travelled to Røros to assist during the start-up, and the technique proved successful from the very beginning.

In June 1888 the smelting house burned down, but a new house was built by October the same year. The new complex comprised two matte furnaces, a Bessemer converter and a refinery furnace. One of the matte furnaces was a so-called water-jacket furnace purchased from Chicago. The introduction of the Bessemer process still involved cold roasting and matte smelting, but now the molten matte could be poured directly into a converter. A process that previously took one and a half months could now be undertaken in one and a half hours. The process had to operate continuously, and all ore was collected to the central smelter in the town of Røros, leading to the closure of all the other smelters.

Electric power represented a final, major technological innovation. With the construction of the Kuråsfossen hydropower station in 1897, conditions in the mines changed immeasurably, introducing electric light inside the mines, electric power to drive the pumps and lifts, and an electric locomotive to transport ore and rock out of the mine. A cableway was constructed from the mines down to the railway for onward transport, and from the Olavsgruva mine a cableway was built by way of the Storwartz mine all the way down to the smelter in the town of Røros. A power transmission line was extended to the mining town, which was supplied with streetlights. The imminent crisis observed during the 1860s had been turned into a success story. During this period Røros Copper Works was technologically advanced, and for some years it remained the largest mining corporation in Norway.

Further improvements of the production process were introduced in the form of a flotation plant that came into operation at the Storwartz mine in 1926. The plant supplied copper pyrite concentrate to the main smelter, and this also spelled the end for cold roasting of ore there.

During the 20<sup>th</sup> century Røros Copper Works slowly lost importance and declined until it finally went bankrupt in 1977.

## The development of Røros Mining Town as a centre for trade and industry and as a tourist destination

From the start, the copper works enjoyed a monopoly of all trade. The monopoly involved an obligation to supply food for the townsfolk and all visitors who were engaged in transport. This could be difficult during hard times, but was also quite profitable. However, other trade also took place, which was a source of constant complaints by the company. Following the 1818 act on Røros Copper Works, the monopoly was abolished and a limited number of merchants were allowed to establish businesses. From the mid-1800s all restrictions were abolished, and in 1854 the Røros Fair was officially introduced. The fair took place every year in February, attracting buyers and sellers from a wide area on both sides of the national border. The tradition still exists in the form of a large, annual five-day event with stalls and outdoor activities over the entire town area.

The gradual modernization of the copper works led to a decreasing demand for labour. A readjustment process was launched, and it gained in strength following World War II. New industries were established, such as sawmills, wood products, textiles, a large factory for office furniture, pre-fabricated houses, pottery, ventilators etc. When Røros Copper Works went bankrupt in 1977 a sufficient number of other businesses had been established to allow the town to continue developing. The effects of the bankruptcy were therefore less grave than anticipated.

After World War II, the qualities of Røros as a cultural heritage site were recognized, and tourism has since become a key industry.

## The history of the mining town as cultural heritage

Around 1910, the first major local debate started over the protection of buildings at Røros, following the sale and removal of one of the local stately buildings, the Aspaasgården house, to Trøndelag Folk Museum.

Through his historical novels, the Norwegian author Johan Falkberget (1879-1967) contributed strongly to raising the national interest in Røros. In a period of difficult times for the copper works, and thus also for the population of Røros in general, he worked to promote an understanding of the mining town as a cultural heritage site through his novels as well as in his role as a journalist and politician.

As a consequence, the authorities responsible for cultural heritage increased their commitment to Røros. Since the end of the 1930s, the Directorate for Cultural Heritage has given high priority to repair work and conservation in the mining town. The result of this close to eighty-year period of restoration bears witness to shifting ideologies of conservation, and has made Røros into an interesting object of study as a cultural heritage site.

In 1920, Norway's first legislative act on the protection of old buildings was enacted, and Røros was included in the first round of buildings listed for protection. A further round of listings was carried out during the 1940s.

During the first thirty years a number of restorations of individual buildings were undertaken, and some buildings were made to appear older than they really were. This decision was based on a desire to restore the general character, the «townscape». In particular, the panelling and details of the «Swiss style» from the late 19<sup>th</sup> century were replaced by details that belonged to an earlier period. Along the two main streets, many buildings were clad with an exterior panelling - a feature that some of these houses had never had before. In the areas beyond the main streets, like Flanderborg on the eastern side of the river, more of the original panelling and details of the Swiss style have been preserved.

During the 1970s and 80s efforts were made to «beautify» the town in the case of street signs and streetlights, and a colour profile was established for the most important streets. The colour profile was based on traditional colours for houses in inland Norway, but with the aim of achieving an aesthetic unity. House owners were supplied with paint at no cost, in return for a pledge to follow the colour profile. This arrangement is still in effect.

During the «European Architectural Year 1975», Røros was selected as one of four Norwegian pilot projects, and Røros was added to the World Heritage List in 1980. Thereby, the cultural heritage values of Røros have been perceived and recognized by the international community at the highest possible level.

### **The establishment of Røros Museum at Malmplassen square**

When the copper works went bankrupt in 1977, there was a clear perception in Norway of the value of the town of Røros and Røros Copper Works as cultural heritage. The Government allocated a grant to purchase parts of the Copper Works' former property, with a view to safeguard them as cultural heritage.

Thereby, the Government came to own the Malmplassen square and the slagheaps in the town area, as well as the Storwartz mine. A decision was made to rebuild the smelting house that had burned down on the ruins, and use this building as a museum in combination with the other buildings on Malmplassen square. The Røros Museum Foundation was established on the basis of two pre-existing associations. The museum is currently responsible for the Malmplassen square, which is the main square of the town, as well as the adjacent buildings, the slagheaps and the museum buildings at the top of Sleggveien street, in addition to the Storwartz area with the Olavsgruva mine, which is open to visitors.

### **Småsetran**

Even prior to inscription on the World Heritage List, the small plots of land previously used for the production of hay set against the densely built town with its wooden houses were acknowledged as areas of historic value.

Throughout the 1970s, the cultural-heritage authorities had taken a stronger interest in complete cultural environments and cultural landscapes. At the same time, the municipal authorities wished to designate an area east of the town, called Småsetran, as an area for residential housing. The area was well suited for this purpose, because it was close to the town and located on a slope facing south. Following an evaluation of its historic value the Ministry of the Environment found this unacceptable. After ten years, the Ministry of the Environment finally took the opportunity to establish a governmental plan for the preservation of the old cultural landscape. This became Norway's first zoning plan of its kind, and it reconfirms the position that Røros by that time had gained as a cultural heritage site.

## Descriptions of the Røros district by early visitors

During the 18<sup>th</sup> century Røros attracted a number of visitors who described the mining town and the surrounding area. At the time, most of these visitors assumed a scientific perspective in their observations of mining and agriculture. These contemporary descriptions provide interesting information on a number of issues. A selection of these is given below.

Carl von Linné, Swedish botanist, visited Røros in 1734 after crossing into Norway on the eastern side of Lake Femunden with his entourage of ten persons and ten horses. His description was one of the first to be made of the town of Røros and the surrounding district. The mining town is described as a small cluster of one-storey houses, with few merchants and no gardens. He found no tilled fields in the district, only pastures used by the draught animals required for the transportation needs of the copper works.

Major Peter Schnitler, of German-Danish descent, grew up in Copenhagen. In 1742 he visited Røros to carry out investigations to serve as a basis for a final settlement of the Norwegian-Swedish border, including the area along Lake Femunden. He observed that the forests around the mining town had almost been completely razed, and appeared not to be growing back. He also described the Sámi living in the region and their way of life, as well as the conflicts between the Sámi and the farmers.

Erik Pontoppidan, Danish theologian, Royal Chaplain of the Danish court and Bishop of Bergen. In his book «The Natural History of Norway» from 1752-53, he described Røros Copper Works as a prominent enterprise, possibly the largest copper works in Europe, because the copper mines at Falun in Sweden were reported to be exhausted. He also described the deforestation around the main smelter at Røros and the establishment of new smelters in locations where timber for charcoal production could still be found.

Gerhard Schøning, geographer and one of the founders of the Academy of Sciences in Trondheim. In the years 1773-75 he travelled around in Norway. He described the Røros district as deforested, with arid, stony and infertile fields. However, he noted as an exception the green grasslands surrounding the mining

town, which had been cultivated with great effort by the mine workers. He also described the bogs where the workers cut and dried peat. The town itself is described as fairly large, with stately houses and several streets. He was impressed by director Peder Hiort's summer residence Engan (also called Hiortengan), with its gardens and fountain.

Johann Christian Fabricius, Danish entomologist, student of Linné in Uppsala and later professor in Copenhagen and Kiel. In 1779 he published his book «Reise nach Norwegen mit Bemerkungen aus der Naturhistorie und Oekonomie». He described the situation at Røros as unfavourable in comparison to other mining towns, because the mining operations and the food were costly due to the long transport routes involved, and also because of the harsh climate. His descriptions of agriculture and life on the summer grazing farms were quite comprehensive, and he also described director Peder Hiort's summer residence. Fabricius was critical of the copper works, and claimed that the deforestation partly was caused by senseless use of timber in the first years of the copper production. The town was not very densely built, and the church was small and dilapidated. (The new church was completed in 1784). Furthermore, he described the Sámi as a proud people, but as a people living in poverty and misery.

Peder Hiort, director of Røros Copper Works, wrote his «Description of Røros Copper Works» around 1780. This was the first in a series of books that described the history of the copper works. He also considered the plans for further development, and his main concern is the scarcity of timber. Scarcity of labour was made up for by fetching new workers. In good times population in the area grew, but people were dependent on working for the company even if they had their own farms. When the company met with bad times, misery resulted, Hiort wrote.

Cornelius de Jong, a Dutch captain who had to seek a port of refuge and stay for a winter in Trondheim in 1795-96. He travelled to Røros in February, and described his impressions in a letter that later was published. Røros is described as a town with around 3,000 inhabitants, with 120 men working in the smelter. They were all emaciated and pale from the sulphuric smoke, the constant shifts between heat and cold by the furnaces and a poor diet. In his opinion, all the employees of the copper works, even the director, were poorly paid, and he felt pity for all those who had to live in this cold and infertile part of the country, where there was a risk of snow all year round, no tilled fields, no horticulture and a scarcity of grassland so that the animals had to be fed leaves, moss or horse manure.

Thomas Robert Malthus, English economist and clergyman, and Edward Daniel Clarke, English mineralogist, travelled to Røros in 1799. They both described the Røros district as desolate and the miners as unhealthy because of the sulphuric fumes. They encountered the Sámi and described their reindeer husbandry and their relationship to the farmers in the region. Clarke is positively surprised by the town of Røros.

In the 19<sup>th</sup> century several reports were made by travellers on scientific or official trips. Their descriptions are basically similar to those noted above. In the course of time, some pure travelogues were also published, nearly all of which mentioned the deforestation and the unhealthy appearance of the miners. Here we will only refer from the description made by Eilert Sundt.

Eilert Sundt, founder of Norwegian sociology, travelled the length and width of Norway to describe the conditions and ways of life of the population. He spent more than three weeks at Røros, and prepared a detailed report which was published in 1858. Like the others, he expressed his concern for the timber resources. The relationship between the Sámi and the farmers was described as having the character of peaceful coexistence as well as being conflict-ridden. His main topic was the diverse elements of the urban agriculture undertaken by the copper workers – the plots of land close to the town, the summer grazing farms, and the gathering of wild hay and moss. He was the first to point out the role of women in these activities. The green plots of land are described as positive elements in an otherwise bleak landscape. He emphasized the necessity of fertilizing the plots to counteract the destructive effects of the sulphuric

fumes from the smelter, and claimed that the animals found in the town did not supply sufficient manure, so that fertilizer had to be purchased or collected from what was left by the visitors' horses. Røros is also described as a centre of trade «with a busy market from New Year and well into March».

## Røros and the artists

### **Johan Falkberget (1879-1967), writer**

Falkberget was born at Røros. He had worked for the Copper Works in his youth, and returned to Røros as an adult. He was also active as a journalist and politician and is considered to be one of the most prominent Norwegian writers of the first half of the 20<sup>th</sup> century. His home, Ratvolden, is preserved as a museum, located just below the Muggruva Mine. This house is situated within the proposed extension of the World Heritage Site. Falkberget's novels describe life at Røros in various periods, and contributed strongly to making Røros come alive in the Norwegian imagination, and to awakening interest in its preservation.

### **Harald Solberg (1869-1935), painter**

Solberg was one of the most prominent Norwegian painters in the first decades of the 20<sup>th</sup> century, which was a golden age of Norwegian pictorial art. He painted symbolic landscapes and developed a characteristic style with sharp contours. Some of his paintings have become immensely popular, and form part of the Norwegian cultural identity. In the period 1902-05, Solberg lived near Røros, and painted subjects from the town. One of his paintings depicts the church and the buildings towards the top of Kjerkgata street, and this row of houses has since become known as «the Solberg row». The painting became so well known that it spurred protection of the entire row of houses (cf. annex 2 Photographs).

## Some distinctive cultural features of the Røros district

The people who settled at Røros and were employed by the copper works came from Germany, Sweden, Denmark, Trondheim and neighbouring districts. They brought with them their different cultures, which gradually amalgamated to assume a character specific to Røros. The culture was strongly influenced by the mining activities. These characteristics are still evident in a number of phenomena, for example the local dialect, dance and the tradition of the Røros Fair.

### **The dialect**

The dialect was originally based on the local dialects from the settlements around Røros. However, the German mining experts brought with them their language and their mining terminology, and the Swedish workers also had some influence on the dialect. As a result of these influences, the Røros dialect is distinct from other Norwegian dialects. Many families at Røros have German-sounding names, and the German influence is also evident in a number of place names, for example Storwartz, which is a Germanized version of the original Norwegian name Storvola.

### **The Røros Pols Dance**

In the 18<sup>th</sup> century, Røros Copper Works had its own band of musicians to entertain the bourgeoisie. The music of the lower classes was the Røros Pols Dance, the oldest couple dance in the Nordic countries. This form of dance has remained one of the most colourful and distinctive characteristics of the popular culture of the region. The designation «pols» stems from Polish dances that became popular in Sweden in the 17<sup>th</sup> century. On its way north, the dance developed new forms locally and was adapted to new environments. The Røros Pols Dance is characterized by an unbridled vitality and humour, with compelling rhythm and movements, and a light-hearted execution of the melody that encourages the dancers to perform with exuberant frenzy. In consequence, it is regarded as «the king of dances» within the fiddle-playing areas of Norway and in Jämtland and Härjedalen in Sweden. Since the 17<sup>th</sup> century, Røros and the surrounding

communities have been home to a large number of proficient fiddlers and dancers. As a tradition, the music and dance of the Røros Pols remain strong, and many of today's performers have reached an international level of performance. The popularity of this tradition has caused the dance to be recognized and performed in many parts of the country, as well as in folk-dance circles in Sweden, Denmark and the United States.

### **The Røros Fair**

The winter fair at Røros takes place towards the end of February every year, and lasts for five days. This fair was officially established in 1854, but winter fairs were common in the mining town even earlier. The present fair represents a continuation of this tradition. Stalls are erected on all available space in the streets, and the many courtyards are opened for the sale of food and beverages. During the opening ceremony approximately eighty horse-drawn sledges arrive at Malmplassen square from the surrounding valleys and from Sweden. The horses are placed in the town's stables. As in earlier times, the Sámi come to town to sell their products and handicrafts made from leather and horn. This is the main event of the year at Røros, attracting more than 75,000 visitors.

# 3 Justification for inscription

## 3a Criteria

### **Background: The original justification**

The wooden town of Røros was inscribed on the World Heritage List in 1980 under the name: «Røros» and on the basis of criteria (iii), (iv) and (v). In the nomination document of 16 May 1978 the State Party gives the following justification for inscribing the property on the World Heritage List:

*Røros is a unique mining environment with exclusively wooden architecture. For 333 years the town has combined impulses from Germany, Denmark, Sweden, Trondbeim and neighbouring districts. This has resulted in a wood-constructed environment containing much of the finest of the Norwegian tradition, which has at the same time become something very special in our land on the industrial, social, and cultural planes as well as on the architectural.*

*Røros mining village with its environment is a characteristic example of the significant traditional style of wooden architecture which forms a unique mining village at the height of 600 m. Above sea-level*

In its evaluation of May 1980, ICOMOS gives the following justification for inscribing Røros on the World Heritage List:

*Within the framework of Norway's inventory of cultural property, Røros ranks in importance with Bryggen and the Stave church at Urnes, which have already been inscribed on the World Heritage List. Røros is an extensive mining settlement dating from 1644, when the development of the copperworks began. Its physical history has continued without interruption since the town was burned in 1679. Thus the numerous surviving buildings represent the Norwegian tradition of wooden construction that flourished in the eighteenth and nineteenth centuries. The buildings reflect the dual occupations of the inhabitants, mining and farming, the domestic groups being arranged as compact farmyards. These groups are disposed on a regular urban pattern adapted to the mountain terrain, reflecting the particular kind of industrial planning introduced by the Danish kings of Norway in the sixteenth and seventeenth centuries. Røros is a characteristic example of this type of technological and industrial development, as well as being an outstanding survivor of a traditional kind of human settlement built in traditional methods of construction. Also it has become vulnerable under the impact of economic change since the recent cessation of copper mining after 333 years of continuous activity. Lastly Røros embodies a strong degree of rarity because of its location. It was built as an industrial community in the mountains (650 meters above sea level) at a very northern latitude (62°35'N) subject to extremely long winters and low temperatures (-50 degrees C). For these reasons Røros qualifies under criteria iii, iv, v and is therefore recommended for inscription on the World Heritage List.*

Røros was inscribed on the World Heritage List as part of the second group of nominations. At that time, the requirements had not yet been clarified and both the nomination document and the ICOMOS evaluation are very basic documents. The quotations above give the complete text of the justification from both documents.

On inscription in 1980 the boundaries of the World Heritage Site were not clearly defined. In practice, the area that had been designated as a conservation area pursuant to Section 25.6 of the Planning and Building Act was considered as the World Heritage Site. This covers the main parts of the old town centre. (This

delimitation was formalized in connection with the Periodic Reporting in 2006.) However, in the original justification, «Røros mining village and its environment» is mentioned. Consequently from the very start the value of the surroundings for Røros Mining Town as World Heritage was recognized.

After 10 years as a world heritage site, the Directorate for Cultural Heritage commissioned ICOMOS Norway to conduct an evaluation of the management of Røros Mining Town. The evaluation was completed in 1993 and it was recommended that the State Party should put forward a proposal that the World Heritage Site be extended to incorporate several elements that further explained its value, and that the Circumference be established as a buffer zone. Work on a proposal for this extension commenced in 1995.

The nominated extension comprises cultural landscapes that help to explain why the mining town was founded and how it functioned. The new areas are governed by the same criteria – (iii), (iv) and (v) – and reinforce and elaborate on the original justification of the outstanding universal value.

The original nomination document did not specify the values in relation to each individual criterion. This information is given below for the proposed extended World Heritage Site in its entirety (i.e. including the currently inscribed Røros Mining Town).

### **Criterion (iii)**

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

From the time copper ore was found in the mountains at Røros in 1644 and over the ensuing 333 years until the copper works went bankrupt in 1977 a unique culture developed in the remote and sparsely inhabited area. The uniqueness rests in particular on the testimony preserved that shows how technology and people could adapt to the remoteness of the location and climatic extremes in order to extract the valuable copper.

With German mining technology as a starting point, German, Danish, Swedish and Norwegian immigrants created a mining community under extreme conditions. The community developed in collaboration with the few farmers and the Sámi who already lived and worked in the area. Today there is no mining in the area, but Røros Mining Town and the traces of mining, smelters, transport systems and systems for water management, bear a unique testimony to the adaptation of technology to the requirements of the natural environment and the remoteness of the situation. Testimonies of the dual occupation of the inhabitants, mining and farming, is clearly seen in the preserved structure of the town and in the surrounding cultural landscape. The urban agriculture with its specialized system for use of resources show in an outstanding and coherent manner how people were forced to exploit to the full all available natural resources in order to survive and establish a community in an area that could not provide enough food for its own population. Transport was mainly done on frozen lakes and rivers during the winter. Testimonies of this activity are revealed by the stables and buildings, built on the farms and in the town, for overnight accommodation for those involved in transport.

A distinct and proud culture emerged in this setting. Inside the «free mining town», the miners owned their own farms and had a relatively high degree of freedom vis-à-vis their employment at the copper works. Towards the end of the 1800s major changes took place in the field of mining and transport. The cultural heritage of this period such as flotation plants, cableways, a power station, railway tracks, etc are also preserved. As the importance of the copper works gradually diminished, the community successfully readjusted to new activities. Therefore when the copper works finally went bankrupt, the consequences for Røros Mining Town were undramatic.

The mining operations and the urban agriculture that involved keeping livestock have ended and the cultural heritage sites where these activities took place have fallen into disuse. Today Røros Mining Town is a living urban community based on industry, trade and tourism. However, the traces of the old mining culture remain in the cultural heritage sites as well as in the German-influenced place names and family names, in the dialect which contains many special words, the Røros pols dance, the Røros breed of cow, and in traditions such as the Røros Fair.

#### **Criterion (iv)**

*(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.*

Nordic towns of wooden construction are a significant expression of building traditions in northern Europe. Røros is an outstanding example of a Nordic town of wooden construction. The original town structure is completely retained with well-preserved buildings bearing the stamp of the 1700s and 1800s. The town plan is an example of how European concepts of town planning were adopted and adjusted to local conditions and building traditions in this remote mountain town.

Røros is also a well-preserved and exceptional example of the town communities that arose in conjunction with the high activity in ore mining in the 1600s to 1700s in Europe and the «new world» of South America. On account of the climate and the location, Røros represents the outer limits of what was possible at that time, and this is reflected in the building tradition.

Røros Mining Town is situated on a south-aligned slope surrounded by hills ascending to treeless mountain plains. The town is framed against this spectacular backdrop with the panorama of the mountains on all sides. The original plan of the town from the end of the 1600s is intact. After 1679 there have been no more fires, which is unusual for a town of wooden construction such as Røros. It is a completely preserved wooden town, and only the church is a masonry building. The original town structure is preserved with the residential houses with their interior courtyards clustered together along the streets. The building tradition is based on traditional wooden architecture with or without exterior panelling, and the form and details are typical of the region. The large number of well-preserved outbuildings with stables and cowsheds are a rarity and constitute a clear reminder of the miner's dual occupations - mining and farming.

#### **Criterion (v)**

*(v) be an outstanding example of traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change.*

Røros Mining Town and the Circumference constitute a totality that is an outstanding example of traditional settlement and land-use. The various activities that have been carried out in the area constitute a cohesive and interdependent unit. These activities have shaped a cultural landscape that provides a unique picture of how the mines and the mining town functioned as a complex and at times vulnerable system that verged on the limits of what was possible in an inhospitable landscape with a harsh climate.

Today these cultural landscapes have been altered to some extent by the closure of mines and by changes to agriculture activities.

The outstanding universal value of Røros Mining Town and the Circumference is closely linked to the natural environment: the mountain plains, the cold climate, the copper ore, a network of lakes and rivers as well as long distances to harbours and large towns. This gave Røros its uniqueness, and formed the

background for the development of the cultural landscapes that were linked to Røros Mining Town and the copper works in different ways.

The industrial cultural landscapes are relict landscapes with traces of mining, smelters and other mining operations. They show traces of mining operations on the mountain plains throughout a period of 333 years in an outstanding manner. Since the end of mining operations, there has been no development pressure because the mining areas and the smelter at Femunden are located in mountain areas.

The urban agricultural landscape developed at the same time. The only form of agriculture possible in the cold climate was growing hay as fodder for livestock. The miner's family lived in town and kept their livestock there. Urban agriculture was composed of an intricate system of small plots on the outskirts of Røros Mining Town where grass was grown. The uncultivated land in the vicinity of the town and one or more summer grazing farms were also part of the resource base. In addition, haymaking and gathering reindeer lichen etc. were part of a totality that shows how the inhabitants used all the resources nature had to offer. Since the men worked at the copper works and were often away from home, the women, and sometimes the children, played an important role in these agricultural activities. At Røros the traces of this complex system are preserved almost in their entirety in the cultural landscape. Together they form a well-functioning system which is an outstanding example of a cultural landscape created by the arduous toil of the mining families.

## **3b Proposed Statement of Outstanding Universal Value**

### **The Significance of Røros Mining Town and the Circumference**

#### Introduction

Copper was a vitally important metal for the whole of Europe in the 1600s. It was used for the copper plating of roofs and hulls, for pots and pans and as an important ingredient in the production of bronze and brass. The metal was therefore in demand among Europe's warring powers who needed copper for their bronze cannons and brass for ship's equipment etc. This was the background for the establishment of a copper works in the Røros region despite the extreme conditions.

In its golden era in the 1700s, through its export to Amsterdam, Røros Copper Works was an important producer of copper in a European context. The copper works provided the Danish-Norwegian King in Copenhagen with much-needed capital through tithes and export duties. For the largest trading houses in Trondheim, Røros Copper Works was of fundamental importance, contributing as it did to their prosperity and thereby the prosperity of the town. Far and wide in these sparsely populated areas, the establishment of the copper works led to a total revolution in the lives and business activities of the inhabitants. The copper works influenced the entire surrounding area even far beyond the Circumference.

#### The mining town on the mountain plains

The cold climate and the remote location were factors that had to be considered by the copper works and the miners when Røros Mining Town was established with a smelter and mines on the mountain plains. From this starting point, a unique form of operations developed that is seen in the town itself, in the cultural landscape surrounding the town and in the industrial cultural landscape in the vicinity of the mines and smelters. The story of the struggle to survive through a long and harsh winter and back-breaking toil is illustrated in an outstanding manner by the town itself, by the cultural landscape surrounding the town and by the mines on the mountain plains. The stark, black slag heaps constitute a major component of the urban landscape, and the bare mountain plains that surround Røros are visible from all parts of the town. The Malmplassen square beside the smelting house is even today the heart of the town where

people meet. The miner's dual role as a miner and a farmer is shown in the town structure. Small farming properties with space for the livestock that helped to tide the mining families through the winter are concealed behind the street facades. Agriculture formed a much larger part of the work of the employees at the copper works than was usual at other mines.

#### Social conditions

There were clear class divisions in the community with the management of the copper works and the clerical workers forming an upper class. The miners were mainly self-employed, owning their own farming properties in the mining town and plots of land that they had cleared within the «free mining town». However this class division did not entail the establishment of separate areas with housing for the workers. Even though most of the spacious and impressive buildings are located on the main street, Bergmannsgata, the houses of ordinary miners adjoin them. This is unusual in comparison with other mining communities.

The employees of the copper works worked a five-day week so that they had time to devote to their own agricultural activities. In addition the copper works shut down for a month in the summer to allow the workers to carry out the harvesting. Nonetheless urban agriculture was primarily dominated by women. When the man in the family was at work in the mines, the women and children cared for the livestock.

#### Røros Mining Town as a Nordic town of wooden construction

Røros Mining Town is an outstanding example of a Nordic town of wooden construction. The traces of Baroque town planning with false perspectives and focal points combined with the building traditions of the region and the location of the town against the backdrop of the mountain plains ensure that the special features of the town distinguish it clearly from other towns constructed in wood in the Nordic countries. This also applies to other wooden towns on the World Heritage List in general.

#### Cultural landscapes

The cultural landscapes around Røros Mining Town show why the town was founded and how it functioned. Their importance lies in their relationship with Røros Mining Town, and they form an integral part of the totality. The miner's dual occupations, mining and farming, are clearly shown in the landscape by the numerous small hay sheds and plots of land that still demonstrate how this intermixture was conducted. The comprehensive system in operation to safeguard all the natural resources available is also seen in the cultural landscape further from the town centre with the summer grazing farms and the uncultivated land where hay and lichen, etc. were gathered. The proposed extension to the World Heritage Site around Røros Mining Town contains historic cultural landscapes that demonstrate with exceptional clarity how miners and other employees had to exploit all available natural resources in addition to their wages from the copper works in order to survive. No other mining town with its cultural landscape on the World Heritage List demonstrates such complete exploitation of such scanty resources.

The industrial landscape around the mines explains why Røros Mining Town was established. Even though the mining operations were not technologically innovative, the location of Røros on the mountain plains clearly attests to the extra burden added to the everyday drudgery miners in all countries suffered. The mining areas contain traces of 333 years of mining and a number of these areas have remained undisturbed since the end of mining operations. The location of Røros on the mountain plains also provides a special dimension that distinguishes it from mining areas in steep mountains (e.g. in South America)

The industrial cultural landscape at the Femundshytta smelter that is located in a remote and wild area characterizes the special features of the copper works' operations in that the widespread lack of firewood forced the copper works to establish smelters at an increasing distance from the mines in places where there was a ready supply of fuel. This area remains almost untouched after the closure of the smelter.

### Transport

The enormous amount of transport is one of the special features of mining operations at Røros. Everything had to be brought in. The long winter meant that the most commonly used method of transport prior to the arrival of the railway was by sledge on frozen rivers and lakes. This was the usual method of transporting goods in areas where lakes and rivers freeze. The winter transport route from Tufsingdal via Korssjøen to Røros is the first of its kind on the World Heritage List.

### The Buffer Zone

The buffer zone comprises cultural landscape that places Røros in a wider historical and functional setting with traces of several mines, smelters, charcoal burning, transport, agriculture, Sámi reindeer husbandry, etc. In combination, these support the outstanding universal value of the Property.

### **Proposed Statement of Outstanding Universal Value**

The World Heritage Site Røros Mining Town and the Circumference comprises a unique mining town, established in 1646, built entirely of wood, and surrounded by a cultural landscape that shows in an outstanding and almost complete manner how the mining operations, transport and way of life had to be adapted to the requirements of the natural environment – the mountain plains, the cold climate, the remote location without roads and with marginal growth conditions for forests and agriculture. On this basis a unique culture developed that has disappeared in part, but outstanding testimony of its existence has been preserved.

## **3c Comparative analysis**

When Røros was inscribed on the World Heritage List in 1980, the value of the town as both a mining town and a town of vernacular wooden construction was underlined. These aspects are still of importance for Røros Mining Town. However, since 1980 there has been a strengthening of the significance and the awareness of the industrial cultural heritage. In respect of technology Røros Copper Works was not a pioneer but imported proven technology and adapted this to the extreme requirements of the natural environment. The industrial cultural landscape with its ruined mines and smelters is now proposed included in the world heritage site – not because of technological innovations, but because the landscape explains why Røros Mining Town was established and provides the background for the development of the town. In this context the traces of other activities that explain how the town could function also constitute a significant part of world cultural heritage. The universal values of Røros Mining Town and the Circumference are rooted in the mining town as well as in the cultural landscape of the Circumference that together provide an almost complete picture of how the town functioned. This picture is characterized by the remote location and by the requirements of the natural environment with the mountain plains and the cold climate. The comparative studies carried out are restricted to mining towns where mines/cultural landscape comprise part of the world heritage site. The table below also provides a short description of the setting of the town in the landscape since this is of importance for the evaluation of Røros.

The universal value of Røros Mining Town also lies in its role as a representative of Nordic towns of wooden construction. Therefore a comparison with the Nordic towns of wooden construction that are inscribed on the World Heritage List has also been conducted.

### **Mining towns with a cultural landscape in Norway**

In the 1600s and 1700s several ore mines were established in Norway (cf. 2b History). The Røros Copper Works was incontestably the most important of the copper works. Mining communities were also established at the other ore mines but it was only at the Kongsberg Silver Mines and the Røros Copper Works that towns grew up.

### Kongsberg and the Silver Mines

Kongsberg mining town was founded in connection with the discovery of silver in 1623, and the town grew up round the smelter at Nybrufossen. The King owned the silver mines, which constitutes a difference between the two towns from the very start. German miners and management remained for a longer period of time, and their presence was more widespread than was the case in Røros. Kongsberg developed as a centre for mining management and education in Norway. The town is also of wooden construction with a brick masonry church from 1761. Public buildings are larger than in Røros and are separated from the miners' dwellings. Kongsberg possesses many well-preserved individual buildings but as a totality Røros is more unified and is preserved with greater integrity. Røros also appears more solid and forceful as a mining town with Malmplassen square as the central meeting place and the slag heaps forming part of the townscape. Kongsberg, which is surrounded by forests and is located at a lower altitude, also lies further south in a milder climate. This gives the town a completely different character.

The mines at Kongsberg were technically more difficult to operate, and today they appear to represent a greater feat of engineering than the mines at Røros. The industrial landscape is well-preserved as a relict cultural landscape. The traces of urban agriculture (the miner's cultural landscape) have almost disappeared at Kongsberg, but have been preserved in a unique manner in immediate contact with the mining town at Røros. The entire system of functions linked to mining, transport and people's ability to survive in a hostile environment and cold climate is much more visible at Røros.

### **Mining towns with cultural landscape on the World Heritage List compared to Røros**

World Heritage Site	Centuries	Metal	Criteria	Principal differences
<b>Røros Mining Town and the Circumference</b>	17 <sup>th</sup> – 20 <sup>th</sup>	Copper	iii, iv, v	
Mining Area of the Great Copper Mountain in <u>Falun</u> Sweden	12 <sup>th</sup> – 21 <sup>th</sup>	Copper	ii, iii, v	<u>Town</u> : Masonry and wood, larger. <u>Mines</u> : Bigger, technologically important, mining over a longer period. <u>Landscape</u> : Lowland
Mines of <u>Rammelsberg</u> and Historic Town of <u>Goslar</u> Germany	9 <sup>th</sup> – 20 <sup>th</sup>	Copper Silver Lead	i, iv	<u>Town</u> : Older, timber frame construction, bigger. <u>Mining</u> : over a longer period, technologically important.
<u>Blaenavon</u> Industrial Landscape, UK	19 <sup>th</sup> – 20 <sup>th</sup>	Coal Iron	iii, iv	<u>Town</u> : Later period, masonry. <u>Mines</u> : Later period. <u>Landscape</u> : Lowland.
<u>Cornwall and West Devon</u> Mining Landscape, UK	18 <sup>th</sup> – 20 <sup>th</sup>	Copper Tin Arsenic	ii, iii, iv	<u>Mines</u> : Important steam technology. <u>Several towns</u> : Masonry. <u>Landscape</u> : Lowland, partly by the sea.
Historic Town of <u>Banská Stiavnica</u> and Technical Monuments in its vicinity, Slovakia	Medieval - 19 <sup>th</sup>	Silver Gold	iv, v	<u>Town</u> : Medieval, Central European Renaissance, masonry. <u>Landscape</u> : Wooded hills.
City of Potosi Bolivia	16 <sup>th</sup> – 18 <sup>th</sup>	Silver	ii, iv, vi	<u>Town</u> : Masonry, bigger, richer, Spanish colonial. <u>Mines</u> : More extensive. <u>Landscape</u> : High mountains.

World Heritage Site	Centuries	Metal	Criteria	Principal differences
<b>Røros Mining Town and the Circumference</b>	17 <sup>th</sup> – 20 <sup>th</sup>	Copper	iii, iv, v	
Historic Town of Guanajuato and Adjacent Mines Mexico	16 <sup>th</sup>	Silver	i,ii,iv,vi	<u>Town</u> : Masonry, bigger, Spanish colonial baroque. <u>Mines</u> : More extensive <u>Landscape</u> : High mountains.
<u>Iwami Ginzan</u> Silver Mine and its Cultural Landscape, Japan	16 <sup>th</sup> - 20 <sup>th</sup>	Silver	ii,iii,v	<u>Towns</u> : 3 port towns + settlements: Partly wood. Japanese vernacular. <u>Landscape</u> : Wooded hills by the sea.

Of the mining towns with cultural landscape in the comparison, Falun is clearly the town that has most in common with Røros Mining Town and the Circumference. Therefore a closer comparison between Røros and Falun is given below. All the European mining towns and cultural landscapes are located in the lowlands, and the same applies to Iwami Ginzan in Japan. Consequently freezing temperatures, extreme cold and the struggle to acquire sufficient food for people and livestock do not form part of their history to the same degree as at Røros. The two mines in South America are in part situated in very high mountains but further south in latitude. They represent a different culture based on the Spanish conquistadors' colonisation and exploitation of the riches of the new world – silver and gold. Both are larger and appear to have been far wealthier communities.

#### Mining Area of the Great Copper Mountain in Falun

The extraction of copper has taken place in Falun since 700 to 800 AD. In the 1600s, Falun was Europe's largest and most important producer of copper, also in respect of the technology used. Today the «Great Pit», the enormous mine that caved in in 1687, is the centre of the World Heritage Site. The mining town of Falun, which was established in accordance with the 1646 plan, adjoins this as a buffer zone. The town is larger than Røros, and the central parts of the town are built of masonry. However, in the districts where the miners lived, the buildings are of timber log construction. The cultural landscape surrounding Falun is marked by traces of copper production with numerous mines, smelters, slag heaps, roads, canals, small mining communities and manor houses. Many of the same elements are to be found in Røros Mining Town and the Circumference, but Røros and the mining operations there date from a more recent period of time and are much smaller than those in Falun. Røros Mining Town conveys a strikingly different impression due to its location set against the backdrop of the mountain plains, with the stark, black slag heaps as a key component of the townscape, the wooden houses, the small plots of the miners with their hay sheds that are preserved close to the town centre, and the entire spectrum of traces that demonstrate the struggle for survival in a remote town in meagre natural conditions and a cold climate.

Over the centuries there have been close ties between Falun and Røros. Linnévägen in Falun forms part of the World Heritage Site. This road was named after Carl von Linné who in 1734 travelled along it on the way to Røros. The winter transport route from Falun to Røros crosses into the Circumference at Tufsingdal.

#### **Towns of wooden construction**

Wood was the most common building material in the densely forested Nordic countries of Finland, Sweden and Norway. The buildings were erected mainly as timber log constructions with or without exterior wooden panelling. The same building technique is to be found in many parts of Russia and in the east of Europe, although the style differs. In North America there are also a number of towns of wooden construction with a predominantly English-influenced form. In the three Nordic countries, a large number of towns have been preserved that are entirely built of wood or contain large areas with

houses of wooden construction. In the 1970s, a large project was initiated by ICOMOS for the registration of wooden towns in the Nordic countries – «Den nordiska Trästaderna». The documentation led to increased awareness of the value of these towns. The project overview revealed that in these three countries there are approximately 90 towns that are built entirely of wood or that have large areas with old wooden houses.

#### Nordic towns of wooden construction on the World Heritage List

The typology of the Nordic towns of wooden construction (criterion (iv)) is first and foremost represented by Old Rauma in Finland. Another Nordic town of wooden construction on the World Heritage List is the Church Village of Gammelstad, Luleå, in Sweden. In Falun there are also districts comprising wooden houses, although this has not been focused on as typologically representative of the Nordic towns of wooden construction under criterion (iv) in the nomination documents. (Cf. comparison above).

Old Rauma, Finland, is a port and a commercial and religious centre that grew up around a medieval monastery. The town is situated on flat terrain. Rauma burned in the 1600s and today is primarily characterized by buildings from the 1700s and 1800s. Even although most of the buildings preserved are contemporary with those at Røros, the two towns are distinguished by different regional building traditions. Moreover, the background for the founding of the town, the location and the function differ, and this has created two completely different towns.

The Church Village of Gammelstad, Luleå, Sweden, consists of rows of small wooden buildings that surround the big stone church from the early 1400s. The buildings were used for overnight accommodation for travellers from the neighbouring villages in connection with church services and religious festivals. The long distances and the cold climate made it difficult for churchgoers to travel home the same day. The town was not used for permanent habitation and therefore did not have all the functions of a town. Thus it differs completely from fully functioning towns such as Rauma and Røros.

#### **Other towns of wooden construction on the World Heritage List**

The Old Town Lunenburg, Nova Scotia, Canada, represents a planned British colonial settlement in North America. The buildings are built using the coulisse construction technique with exterior panelling, the oldest dating from the 1700s. The style is English-influenced but the English stone architecture style has been recreated in wood. The town is on the coast, and fishing and shipbuilding have become the main industries. The manner of construction and the style of the buildings, as well as the location and industrial foundation of the town, distinguish it from Røros.

Sewell Mining Town, Chile, is located in the Andes mountain range at an altitude of 2000 metres above sea level and is a «company town» built from 1905 onwards to house workers at the copper mines. The copper mines, which became the world's largest underground copper mines and are still operational, are not included in the nomination. The town is located on a mountain slope so steep that the streets are flights of steps and the buildings are constructed on wooden platforms. The social hierarchy in the mining community is clearly seen in the buildings of the town. At its peak the town had 15,000 inhabitants. In respect of the dating, construction, layout, size, location and social history, Sewell is a different kind of wooden town from Røros. Sewell represents the 20<sup>th</sup> century company town and the establishment of a financially strong industry, while Røros primarily represents the pre-industrial mining town that was initially a company town. Though separated by a span of 250 years, both towns were founded on mining operations, financed by foreign investment, in a remote and hostile environment.

### 3d Integrity and authenticity

This section should be seen in connection with Section 4, *State of Conservation and factors affecting the Property*.

#### **Integrity**

##### The Town and Cultural Landscapes

Røros Mining Town has been preserved with a high degree of integrity. The old town plan from the 17<sup>th</sup> century has been preserved completely and with no change since the new church was finished in 1784. The wooden buildings and the large white masonry church still dominate the townscape and stand in strong contrast to the black slag heaps. Malmplassen square, where the copper ore was brought in from the mines, is still the centre of the town. Even today these features characterise Røros as a mining town. The dual occupation of the inhabitants as employees of the copper works and farmers is still evident in the town where outbuildings built for domestic animals hide in the courtyards behind the facades of the houses.

With the proposed extension of the Property, the setting of the town is included in the world heritage site. The visual connection between the town and the deforested mountain plains has been preserved, with the presence of the mountains representing a major feature in the townscape.

Due to the operations of the copper works, the hillsides around the Mining Town were deforested by the beginning of the 18<sup>th</sup> century. Today low birch trees are re-establishing themselves in uncultivated areas. Overgrowth is a general problem, but at the same time it is a natural process that can only be prevented by active farming and by special arrangements for selected areas. There are several redundant farms within the Property, but their fields are cultivated and mowed by the remaining farmers and by farmers from the Buffer Zone. In this way the integrity of the agricultural landscape is retained as a «continuous landscape».

The intention of the proposed extension to the present world heritage site is to place the Property in a wider historical and functional context. The extension includes different cultural landscapes that explain why the mining town was established and how it was able to function in the harsh climate and in its remote position.

The cultural landscape created by urban agriculture is located close to the town. This is the landscape of the miner/farmer. The small plots of land with hay sheds are a prominent and outstanding feature of the landscape surrounding the town. Local farmers mow these areas according to special arrangements with the municipal conservation officer. The hay sheds are now part of a conservation project: the Outbuildings Project. The extent of areas of this kind of landscape has been somewhat reduced in the 20<sup>th</sup> century, and the subdivision into plots has not been completely preserved in all areas. However, its importance for the story of Røros Mining Town and its inhabitants is now fully accepted.

Røros Mining Town is a living town that has developed slowly over more than 300 years. In the 20<sup>th</sup> century an industrial area was built on the flat area below the old town. After World War II the pace of change increased in Røros – as in most European towns. Residential areas were built on the fringes of the old town centre, areas that are appropriately situated in the landscape. The new houses are all built of wood, and continue the wood-building tradition of Norway. Railways, roads and a small airport made their impact on the surrounding landscape from 1877 onwards. These and other forms of infrastructure are part of the history and natural development of a living town. Altogether the new constructions are generally compatible and do not detract from the overall integrity of the town and the surrounding landscape.

The mines at Storwartz and the Nordgruvefeltet are relict cultural industrial landscapes that contain buildings, technical installations, ruins and traces of 333 years of mining and transport. The mines were left when mining operations ceased in connection with the bankruptcy of Røros Copper Works in 1977, and because of their location in the mountains there was no development pressure on the sites. Storwartz, Christianus Sextus and the Muggruva mines have been left more or less untouched since mining ceased. A small museum has been erected over the entrance shaft to the mine at Olavsgruva, open to visitors and forming part of the Storwartz mining field. At the King's Mine extensive measures have been implemented to prevent polluted water from entering the rivers. Apart from this no new constructions have been erected in these areas.

As relict industrial landscapes, the Storwartz and Nordgruvefeltet mining areas together with the surrounding mountainous landscape constitute areas with a high degree of integrity that illustrate both mining operations over a long period and different ways of closing down mines.

#### Femundshytta

Femundshytta is a relict industrial cultural landscape with ruins and traces of the smelter and the settlements that were established in connection with the smelting operations between 1743 and 1842. When the smelter closed down after about a hundred years, the area was abandoned – with the exception of one farm which is still preserved. The area was remote and uninhabited in the 18<sup>th</sup> century, and the feeling of remoteness and untouched nature is still strong today. The traces of the industrial activities together with the natural beauty of the site continue to convey an impression of what it must have been like to settle and work in this wilderness. As a relict industrial cultural landscape Femundshytta has been preserved with the highest degree of integrity.

#### The Winter Transport Route

The winter transport routes on frozen lakes and rivers leave few traces in the landscape. The question of their integrity becomes an issue of the integrity of both the route and the surrounding landscape together. The Winter Transport Route from Tufsingdal to Røros has been preserved in its entirety and passes over lakes and through areas that have been subject to only minor encroachments. It still conveys the struggle of the travellers in the lonely and remote area where only the Holla and Korssjøen farms provided accommodation and rest for people and their animals.

#### The Buffer Zone

The Buffer Zone contains the administrative centres of Tolga, Os and Holtålen municipalities with their shops and modern residential areas. However, there is also a large number of cultural heritage sites connected to Røros Copper Works in the Buffer Zone (cf. Annex 1 Maps: Areas in the Buffer Zone particularly influenced by Røros Copper Works). The degree of integrity of the areas with cultural heritage connected to the copper works varies somewhat. Besides these there are the two large national parks, Femundsmarka and Forollhogna, as well as protected landscapes and other cultural landscapes of national importance within the Buffer Zone.

#### **Authenticity**

Røros Mining Town has been recognised as cultural heritage since the 1930s. Central cultural heritage authorities, and later regional authorities, have given priority to repairing and conserving the town for almost 70 years. During this period the ideology of conservation has changed in many ways, with the importance of authenticity in materials becoming particularly prominent after World War II. This manifested itself strongly in the Venice Charter (ICOMOS 1964). Different aspects have subsequently been added to the concept of authenticity and have made it more complex. The Operational Guidelines to the World Heritage Convention, Section II E, sum up the present content of the concept.

Røros Mining Town has been preserved with a high degree of integrity as a whole. However, the situation is more complex when it comes to the authenticity of the individual buildings. The town has developed

for more than 300 years, and over these years small single-storey buildings have been extended, new stories have been added, some of them have had panelling installed etc. Nonetheless, the buildings are still considered «authentic». In the description below we have chosen to consider what has happened to the town for the last 70 years, i.e. the period after which it was recognised as cultural heritage and the conservation authorities became involved in its management.

### Form and design

The old town plan has been completely preserved. Restoration work started 70 years ago with the buildings along the main streets. The timber log core of these buildings has been preserved, thus retaining their size and form. Similarly the design has also in general been retained, although there are examples where the architectural details of the buildings have been made to look older than they originally were. Typically the panelling and details in the «Swiss style» from the late 19<sup>th</sup> and early 20<sup>th</sup> centuries were replaced by details that belonged to an earlier period (cf. Section 2b History and Development)

### Materials and substances

In the areas outside the two main streets most of the buildings have been preserved with their architectural details, i.e. with no renewal of materials. All over the town the outbuildings in the courtyards have been preserved with a high degree of authenticity. When they were no longer used for domestic animals they were allowed to remain as they were. Although they were not given priority in the first period of restoration, today they are the most authentic buildings in Røros. They are now being repaired through the Outbuildings Project, which practises «soft conservation» strictly. As little of the wood work as possible is being replaced, and the repair work is being carried out according to traditional methods. Some of the best restoration craftsmen in the country are working on the project (cf. Section 5 e Property management plan and 5 g Sources of expertise and training.) The hay sheds and summer grazing farms in the urban agriculture cultural landscape are in the same position and are also included in the project. The only monumental building in Røros, the church, has been preserved with a very high degree of authenticity in both its exterior and interior where the original painted surfaces are intact.

### Use and function

Most of the buildings in the town are residential. Kjerkgata and the lower part of Bergmannsgata have shops on the ground floor. This reflects the use from the middle of the 19<sup>th</sup> century onwards. However, the outbuildings in the courtyards no longer contain domestic animals, and the owners use most of them for storage.

### Traditions, techniques and management systems

In the beginning Røros was a «company town» and the copper works were responsible for organising everything from work, transport and food supplies to schools and a few social services. This part of the copper works' responsibility has long ago been taken over by the municipality. The copper works no longer exist. There are now only a few people left in Røros who are familiar with the techniques of mining and smelting to produce copper.

### Location and setting

Cf. Above: **Integrity**

### Intangible heritage

Røros is rich in intangible heritage. The dialect is alive and is spoken by the local people. Place names and family names are reminders of the former mining activities. The tradition of the Røros pols dance remains strong and is still practised by fiddlers and folk-dancers even beyond Røros. The old traditional winter fair is a great event every year in February. Through their works the author Johan Falkberget and the painter Harald Solberg have contributed to making Røros part of the Norwegian identity (cf. Section 2b History)

### Spirit and feeling

The spirit of Røros as a mining town is well preserved and present even today. This is probably due to the prominent position of the large black slag heaps in the town and the importance of Malmplassen square in front of the former smelting house. This where the copper ore was brought and weighed. Today it is a meeting place and the centre for local events.

Røros is a living town that is still developing slowly. Yet when all the aspects of the concept of authenticity are combined and all the buildings and the setting are seen as a whole, Røros Mining Town possesses a high degree of authenticity. Through its almost 30 years on the World Heritage List the Outstanding Universal Value of the town has remained intact and the extension of the site will support and strengthen this value.

For the cultural landscapes within the Property the concept of authenticity is not considered relevant. These are dealt with above, cf. **Integrity**.

# 4 State of Conservation and factors affecting the Property

## 4a Present state of conservation

### Town and Cultural Landscapes

#### State of Conservation in the present World Heritage Site

In the nomination document from 1978, the State Party described the State of Conservation of Røros in the following manner:

*The most acute danger has arisen through the cessation of the Copperworks, since larger or smaller portions of its property may go astray, at least from a cultural preservation standpoint. Building condition ranges from very good to bad. The latter holds true first and foremost for a number of outbuildings which are no longer used and are therefore in danger of being torn down.*

There have been many developments since Røros was inscribed on the World Heritage List, and the situation with regard to the buildings found inside the existing world heritage area has been improved. In the state budget for 1979, the Storting (Norwegian Parliament) granted extraordinary funds for «the acquisition of cultural heritage sites at Røros» (Proposition no. 39 (1979-1980) to the Storting). The government purchased Malmplassen square and the slagheaps with adjacent buildings, as well as the Storwartz mining field, from the assets of the bankrupt Røros Copper Works. The Ministry of the Environment acts as owner of these properties on behalf of the government, and the Directorate for Cultural Heritage is responsible for their management. At the same time, the Storting endorsed a local initiative to establish a museum at Malmplassen square to preserve and maintain the cultural heritage sites acquired from the bankrupt copper works. Røros Museum currently operates the sites at Malmplassen square and in the Storwartz area, including the Olavsgruva mine which is open to visitors. The buildings left by Røros Copper Works inside the existing world heritage area are currently in a fairly good state of repair. In addition, major repair and maintenance work has been undertaken on the timbered embankment walls beside the smelter.

The problems associated with the preservation of the outbuildings were not addressed until later. These houses were in disrepair, but they also had a greater degree of authenticity than many of the residential buildings and were therefore of prominent historic interest. During 1994-95 a registration and an assessment of the condition of the outbuildings located within the world heritage area were undertaken. Approximately 460 outbuildings were registered, and a project was launched for the repair and maintenance of these buildings. To date, well over 200 of these have been restored. The site owners cover 20 per cent of the costs, the municipality contributes 15 per cent, and the government/Directorate for Cultural Heritage 65 per cent. The project has been prolonged, and has gradually come to include outbuildings within the area proposed for extension of the World Heritage Site.

The only monumental building at Røros, the church, has undergone two major rounds of repair and restoration work at an interval of approximately fifty years. Recent investigations show that renewed repair and maintenance work is required on a major scale. This work has started, and the church will be closed for a period of two years from 1 November 2008 to allow for the extensive restoration of the foundations and the interior.

### The listed buildings

The state of repair of the listed buildings inside the nominated world heritage site has been reviewed in the context of a nationwide project (cf. Section 6 c: Results of previous reporting exercises). The investigation shows that the buildings are in good condition, well above the national average.

### The cultural landscape around the old urban centre

The proposed extension applies to the cultural landscape and the entire landscape space in which the town is located. After the smelting house closed and the emissions of toxic sulphuric fumes ceased, the character of the landscape has gradually changed. At the same time, animal husbandry involving grazing animals has declined considerably, and the climate has become slightly milder. The formerly open, deforested landscape around Røros town is currently in the process of becoming overgrown. This development is to some extent limited by active agriculture. The cultural landscape of the urban agriculture, with its small land plots and hay sheds, has been deemed to have sufficient importance to warrant special efforts to keep these areas open. Today, the subdivision of the land plots in the Småsetran district is well preserved. Other parts of the cultural landscape surrounding the town are more characterized by modern farming methods, but even here the hay sheds have largely been preserved. These buildings are in varying states of repair, and their ownership is often complicated or unclear. The Outbuildings Project has also initiated restoration work on some of these.

Today, Røros is a living town with more recent areas of industrial, trade and residential construction, public institutions and an airport. The more recent buildings have mostly been appropriately placed in the terrain with a view to preserving the unity and integrity of the town.

### The Storwartz and Nordgruvfeltet mining fields

The mining fields constitute industrial, relict cultural landscapes, which also comprise a number of buildings and technical installations (Cf. Section 2a: Description). The areas have developed, and show traces from 333 years of mining activities. These have been left more or less intact since the operations ceased.

The houses in the mining fields are mainly in good condition, while the technical installations are in varying states of repair. The cableway between the Olavsgruva and Storwartz mines has been restored, but there is a need for repair and maintenance work on the flotation plant, which forms one of the end points of the cableway.

In the Muggruva mine, the remains of the only remaining waterwheel are still located inside the mineshaft, but they are in a very poor condition. At the Christianus Sextus mine, the cableway station is in a bad state of disrepair. Inside the world heritage area we also find the Kuråsfossen power station, which is in an excellent condition.

### Pollution

The Norwegian Institute for Water Research (NIVA) has surveyed the situation with regard to pollution around nearly all the mines and smelters inside the Circumference. The analysed material has been compiled into a database. The pollution problems are associated with run-off containing heavy metals caused by the weathering of sulphide minerals, with subsequent leaching of elements liberated by the weathering process. The sources are found in the rock piles, ground-up tailings from the flotation process, mineshafts and polluted ground water near the smelting houses. Based on the evaluations carried out by NIVA, various measures have been undertaken around the various mines. In weighing the considerations for reducing pollution and preserving cultural heritage values it has been accepted, for example at Storwartz, that no measures should be taken that disturb the cultural heritage values. At the King's Mine, on the other hand, the rock piles have been covered and the tailings pond reinforced to prevent it from sliding and thereby causing problems for the situation in the Orva river and further down to the Glomma river.

In their present state, the mines at the Storwartz and Nordgruvefeltet mining fields constitute interesting examples of the different methods used to prevent the pollution of waterways when mining operations are wound up.

### **The Femundshytta smelter**

The Femundshytta is an industrial, relict cultural landscape, and the smelting house is a total ruin. The area contains a number of traces from the former activities. Partial overgrowth by birch shrub renders it difficult to «read» parts of the site. Otherwise the site with its ruins lies almost untouched in a wide sweep of natural landscape.

### **The Winter Transport Route**

This transport route passes through cultural landscapes and areas of natural environment that have been subject to only minor encroachment. The condition of the buildings on the large farms that provided stables and accommodation for travellers varies.

## **4b Factors affecting the Property**

### **(i) Development pressures**

Today, Røros Mining Town is a living town with manufacturing and tourism as its main industries. The town is therefore set to develop further.

Inside the existing world heritage area the pressure for further development is negligible to moderate. To the extent that such pressure exists, it is associated with requests to put the outbuildings to new uses. The outbuildings are carriers of a significant part of the historical content of Røros Mining Town and are especially valuable in the world heritage context.

The population of Røros municipality has increased moderately over recent years, and this has entailed a degree of pressure on the areas located on the fringes of the old town centre and on the cultivated land in the vicinity. The municipal land-use plan shows, however, that the need for new industrial and residential areas can be met without jeopardizing the outstanding universal value of the Property. The proposed extension of the World Heritage Site will serve to enhance the general awareness of the importance of the location of the old mining town in the landscape and will contribute to improving the adaptation of new projects to the surroundings.

#### Year-round use of residential housing in Røros town centre

In order to ensure permanent settlement and counteract the tendency for buildings to be purchased and used as holiday homes, the authorities are empowered to impose the obligation of residence pursuant to the Concession Act. In 1975 Røros municipality introduced the obligation of residence for the town centre, in accordance with Sections 7-1 and 7-2 of the Concession Act. The provisions for the obligation of residence as set forth by the Act are strictly enforced, although the Act allows for exemption in the case of direct inheritance or inheritance in the first collateral line. Some houses are therefore not occupied all year round, but this has not been deemed to be serious with regard to the town centre as a whole.

#### Trade development in Røros town centre

Over time, Røros has seen a rather weak development of its retail trade sector, and has consequently received applications for the establishment of shopping centres outside the historic urban core. In the longer term this development will serve to weaken the urban core as a centre for trade for the local inhabitants, and this is considered to be undesirable. A project has been launched with government support with a view to promoting and developing the town as a centre for local trade. A comprehensive survey has determined that the town has a potential for such development.

#### The area south of the railway line adjacent to Røros town centre

This long-established manufacturing area has for a prolonged period undergone restructuring, but with no unified plan. Efforts have been initiated to clarify the future use of this district and to ensure a design that supports the historical centre.

#### New residential housing

Plans have been submitted for the establishment of a new residential area in the Gjøsvikmoen district to the south-east of Røros town centre. This may entail a conflict with the natural environment/landscape assets located along the permanently protected Hådalsvassdraget watercourse. It could also entail consequences for the effect of the outstanding universal value of the Property in the form of winter routes and old dam constructions in the landscape.

#### The airport – safety zone and extension of the runway

The airport is located at the bottom of the bowl-shaped landscape surrounding Røros Mining Town, in former marshland which previously served as the main source of peat. In recent years the safety requirements for airports have been made more stringent. As a consequence, a safety zone must be established around the airstrip. In this context, parts of an old road must be reconstructed, but its former alignment will be left in the landscape even though it will no longer be used. No construction is allowed inside the safety zone, but the landscape can still be maintained with traditional methods, and the consequences of the safety zone are consequently deemed to be negligible with regard to the outstanding universal value of the Property.

Today, there is only one daily arrival and departure by a small aircraft (Dash 8 - 110/300) from the airport. In addition, the airport is used by sports aircraft. The municipality wishes to extend the runway to allow the airport to receive larger charter aircraft. The consequences have so far not been analysed, but the request will be processed pursuant to the Planning and Building Act when/if the case is submitted.

#### Holiday homes

Because of a prolonged period of economic prosperity for the population in general, there has been an increase in the number of requests for the construction of holiday homes. In addition, the demands for levels of comfort in holiday homes have been raised to equal those found in all-year residential housing. The establishment of an area for the construction of holiday homes may therefore appear as a major encroachment in the landscape. In the most sensitive areas near Røros Mining Town, for example at Hanesåsen and near Lake Hittersjøen, the municipality has regulated this construction activity in an appropriate manner. Currently (2008) one of the landowners in the Sundet district wishes to develop an extensive area for the construction of holiday homes, and is undertaking planning work to this end. The preliminary plans will entail a clear conflict with the outstanding universal value of the cultural landscape. This development project will require the formulation of a zoning plan, and proceedings pursuant to the Planning and Building Act will serve to protect the outstanding universal value of the Property.

In addition, there is general pressure for the construction of holiday homes inside the Property and in the Buffer Zone. The holiday homes are part of the economic basis of the municipalities. The construction work itself, and the subsequent demand for services and goods that these holiday homes generate, have positive financial effects. Through the application of the Planning and Building Act, the municipalities, the county authorities and the government will ensure proper consideration of the outstanding universal value of the Property.

#### Abandonment of farms, depopulation, overgrowth

The agriculture found inside the Property and in parts of the Buffer Zone is of a marginal nature. Permanent closure threatens the most marginal areas, an alternative that may be particularly relevant on the occasion of a generation shift. In addition, major restructuring of agriculture has been undertaken,

causing the summer grazing farms to fall into disuse. These development trends have entailed major consequences for the cultural landscape. With the absence of grazing animals or regular mowing the landscape gradually becomes overgrown. Old trails disappear in the undergrowth, and disused buildings decay. The causes of this development are found in domestic as well as international agricultural policies. These trends can be counteracted to some extent by the implementation of special measures. To improve the profitability of small farm units, domestic agricultural policies currently reward the development of local niche products that are distinctive and of high quality, and promote ecological farming methods. At the same time «locally made food» has become a badge of honour. Farmers and food producers in the Røros region are active in this field. The Røros cattle and the Sámi reindeer husbandry provide key raw materials for the development of first-class local specialities.

Farming methods have been developed to facilitate the maintenance of the cultural landscape around Røros Mining Town. In the Buffer Zone, extraordinary governmental funding is granted for the traditional mowing of uncultivated meadows in the Sølendet nature reserve.

The Femundshytta smelter and The Winter Transport Route are located in ANR areas (areas designated for agriculture, natural environments and recreational purposes in the municipal land-use plan). Both these areas are unpopulated or only very sparsely populated. Depopulation constitutes the major threat to the maintenance of these cultural landscapes.

### **(ii) Environmental pressures**

A milder climate has caused overgrowth to accelerate, and birch shrub can currently be observed higher up on the mountainsides than previously. This overgrowth is considered to be unfortunate, for the industrial as well as the agrarian cultural landscape, and measures have been initiated to counteract it in certain selected locations.

Climate change could also entail more attacks by pests on the woodwork in buildings and architectural details.

### **(iii) Natural disasters and risk preparedness**

Spring floods caused by heavy snowfall, quick thaws and large amounts of precipitation could be a threat to the wooden houses in the mining town. In 1934 a flood caused major damage to the houses and constructions along the Hitterelva river. Following this incident, a reinforced embankment was constructed in stone and timber along the section of the river where it runs through the town. However, a similar or larger flood could still be critical.

Lightning may cause fires. Almost all the buildings in Røros Mining Town and the Circumference are made of wood, and fires – irrespective of their cause – may develop into a disaster. In a densely clustered group of wooden houses like Røros Mining Town, the possibility of fires represents the worst-case scenario for the population as well as the authorities at all levels.

#### Fire safety

Since the 1980s the Directorate for Cultural Heritage and the municipality have made systematic efforts to protect the mining town from fires. These efforts have included various types of measures aiming to maximise safety with a minimum amount of intrusion in the valuable buildings. In the period 2003-2008 a new project for improving fire safety was implemented with funding from the Ministry of the Environment/the Directorate for Cultural Heritage, the UNI foundation and Røros municipality. The project has entailed no cost to the house owners. Modern technology for the early detection of fires has been put to use, including the installation of 1200 wireless sensors for the detection of unusual smoke or heat in a total of 200 properties. In addition a heat-seeking camera mounted in the church spire monitors the entire urban core to detect irregular heat. Both these installations are monitored from a central location that

immediately notifies the fire station. In addition, low-pressure water mist systems have been installed in all lofts in the wooden housing, hydrants are placed in the streets, and some buildings are protected by fire sprinkler systems. These measures have been combined with comprehensive information to the occupants.

#### **(iv) Visitor/tourism pressures**

##### Town and cultural landscapes

A rough estimate indicates that Røros Mining Town receives one million visitors per year. The peak seasons are July, Easter and February at the time of the winter fair. Røros has a longer tourist season than many other destinations in Norway, and this serves to spread the number of visitors over a longer period. Summer, early autumn and winter bring many visitors, while late autumn and early spring are low seasons.

The town has several small hotels in the old urban core and two larger ones at its outskirts. In addition, a number of smaller guest houses and cabins are found in the area surrounding the town. The number of visitors is currently not considered to represent a problem with regard to wear and tear on the cultural environment. In the main streets a certain change in trade patterns can be observed, from mainly targeting the local population to focusing on the tourists. If this trend continues, Røros may easily appear as «touristified» in the future. (Cf. above, the section on Trade development in Røros town centre.)

	Number of guest days 2007
Hotels	Approx. 115 000
Motels/guest houses	Approx. 5 000

##### Femundshytta

Visitors are taken to Femundshytta by the 100-year-old boat «MS Fæmund II» that crosses the lake during the summer season. Only the owner/operator of the Femundshytten farm has uses the road. The number of visitors is therefore very limited. A small part of the area however, the so-called «Playtown», is a highly vulnerable site that may easily be damaged if visitors fail to tread carefully. The implementation of special measures has so far been deemed unnecessary, although the development will be monitored.

The number of registered visitors who bought food at the farm amounted to approximately 2000 (in 2007). The number of visitors has increased slowly from approximately 1800 registered guests in 2002.

#### **(v) Number of inhabitants within the Property and the Buffer Zone**

Municipality	Total number in the municipality	Total number in the world heritage area	Total number in the Buffer Zone
Tolga	1700	No world heritage site in the municipality	1600
Os	2080	None in the Winter Transport Route	2080
Engerdal	1455	2 at Femundshytta	2
Holtålen	2070	0 in the Town and Cultural Landscape (Muggruva mine)	1210
Røros	5670	Approx. 3000 in the Town and Cultural Landscape	2670
<b>Total</b>	<b>3002</b>		<b>7562</b>

# 5 Protection and Management of the Property

## 5a Ownership

### **Town and Cultural Landscape**

Most of the area is privately owned. Some important sites are owned by the municipality. On the occasion of the bankruptcy of Røros Copper Works in 1977, the government purchased Malmplassen square with the smelting house, buildings and the slagheaps, as well as the Storwartz mining field. (Cf. section 2b History and Development).

### **Femundshytta smelter**

The industrial cultural landscape is privately owned, and forms part of the only farm on the site.

### **The Winter Transport Route**

The Winter Transport Route from Tufsingdal valley to Røros town passes mainly over lakes that are located on government-owned land. The route also passes over some privately owned ground.

### **The Buffer Zone**

The buffer zone comprises large mountain areas that are government-owned or locally-owned common land. The other areas are mostly privately owned.

## 5b Protective designation

The most prominent legislative act in terms of the management of the world heritage site in a general perspective is the Planning and Building Act. Major amendments to this act have recently been adopted, to enter into force from 1 July 2009. The amended act comprises a number of new opportunities that can be used in efforts to safeguard the outstanding universal value of the Property, but at the present time the provisions in the existing act remain in force.

In addition there are some special laws, the Cultural Heritage Act and the Nature Conservation Act, which also provide opportunities for the protection of cultural landscapes and cultural heritage sites as well as a number of other special statutes.

### The Planning and Building Act of 14 June 1985

This Act applies to the Property and the buffer zone, and is the most prominent statute for ensuring comprehensive protection of the outstanding universal values.

The most prominent sections for management of the World Heritage Sites are:

- Section 19 County-level planning
- Section 20 Municipal-level planning
- Section 25-6 Zoning provisions for conservation areas
- Section 74-2 Planning solutions and appearance (the «aesthetic requirements» section)
- Section 92 Municipal responsibilities to safeguard the historic, architectural and cultural value of buildings when making changes to their exterior
- Section 93 Projects requiring application or permission

The Act strongly emphasizes early involvement in order to safeguard cultural and natural values in an appropriate manner. If a superior level of authority decides that the municipality has failed to address national cultural heritage interests in its planning process, it can raise objections to the plan. In this situation, the matter must be finally settled by the Ministry of the Environment. This provision acts as a safeguard to ensure appropriate consideration of the outstanding universal value of the Property.

### **Planning status for the Town and Cultural Landscapes**

#### Land-use plan for Røros town centre (1994)

The fringe areas of the town are covered by the «Land-Use Plan for Røros Town Centre», adopted in 1994. This plan designates these areas for purposes of agriculture, natural environment and recreation, and has thereby been a key instrument for the preservation of the outstanding universal value in the area.

#### Conservation area plan for Røros town centre (1976-81)

The centre of Røros with its wooden houses is currently managed in accordance with four zoning plans with common provisions that were approved in 1980. The plans are based on Section 25-6 of the Planning and Building Act, Special areas, and its main purpose is to preserve the area as a monument of cultural history (conservation area). The zoning plans comprise strict regulations pertaining to the preservation of buildings and street patterns. The plans have proven to be an appropriate instrument for the conservation of world heritage values since the nomination in 1980.

#### Conservation area plan for the Småsetran area, with maintenance plan (1989)

Inside the proposed extension of the world heritage area, the zoning plan for the Småsetran area from 1989 is in effect, with an appurtenant maintenance plan. The plan is one of very few governmental zoning plans adopted in accordance with Section 25-6 of the Planning and Building Act for purposes of protecting cultural and natural heritage. The plan is an appropriate management document for the preservation of the world heritage values in the Småsetran area.

#### Regulated recreational area along the Hitterelva river from Malmplassen square to Sjøbakken

The area on both sides of the Hitterelva river between Malmplassen square and Sjøbakken is regulated as a recreational area. This implies a general ban on any construction, with the exception of the facilitation of recreational activities.

#### ANR areas – agricultural areas, areas of natural environment and recreational areas

The Storwartz field and the Nordgruvfeltet field are located inside ANR areas with a ban on construction imposed by the land-use plan for Røros municipality. The same applies to Mølmannsdalen valley, the areas on the north side of Hitterdalen valley, the Vola area and the areas west of the Glomma river between Skårhammardalen valley/Sundbakken and Orvos, as well as the areas along the Orva river up to the Nordgruvfeltet mining field and the Muggruva mine. The Arvedalslina cableway, Falkberget and the Trondalen valley are also included in this plan. These areas are attractive for the construction of holiday homes. The ANR status provides sufficient authority to the municipality with regard to the management of the world heritage values in the area.

#### New land-use plan for Røros town centre

A new municipal land-use plan for Røros town centre is currently being formulated, and was sent on a hearing round in the autumn of 2008. The plan is expected to be adopted in 2009. In the section «Key principles for Røros», the relationship between the plan and World Heritage is described in the following manner:

- The municipal land-use plan shall safeguard long-term management and use of the areas and the natural environment and cultural heritage sites.
- As a World Heritage Site, Røros has a particular responsibility towards the international community.

- As a World Heritage Site, Røros shall follow best practices with regard to the management of the natural environment and cultural heritage.
- The management plan shall be continued and elaborated in detail with regard to the town centre.
- Common industrial, cultural heritage and natural environment sites shall be preserved as a resource for daily use, and as a basis for knowledge, experience and sustainable cultural, social and economic growth.
- Røros shall to the greatest possible extent be protected through use, with opportunities for development and innovation based on values from its cultural history.
- The municipal land-use plan is part of the Municipal Masterplan, and takes precedence over previous zoning plans and building plans to the extent that these are in conflict with the content of the municipal land-use plan.

The plan comprises core parts of the area that is currently proposed as a World Heritage Site.

### **Femundshytta**

The Femundshytta smelter is located within an area currently designated as an ANR area, with a general ban on new construction imposed by the municipal land-use plan for Engerdal municipality. The area is not subject to pressure for further development, and the outstanding universal value is sufficiently safeguarded by way of this planning status.

### **The Winter Transport Route**

This area is located within areas currently designated as ANR areas, with a general ban on new construction imposed by the municipal land-use plans for Røros and Os municipalities. The world heritage values in these areas are currently not subject to pressure for further development.

### **The Buffer Zone**

In the context of planning, most of the areas inside the Circumference are categorized as ANR areas, with a general ban on new construction. This categorization provides an opportunity to municipal and regional authorities to protect the cultural heritage in the event of pressure from parties who wish to develop the area.

### Conservation area plan pursuant to Section 25-6 for parts of Tolga town centre

The areas associated with the establishment of a smelter and miners' farms at Tolga are designated as conservation areas.

### **New regional plan for the World Heritage Site Røros Mining Town and the Circumference**

A joint regional plan for Hedmark and Sør-Trøndelag counties will be formulated for the World Heritage Site Røros and the Circumference pursuant to the new Planning and Building Act. This will be the first time such a plan has been established in Norway on the basis of World Heritage Sites, across municipal and county boundaries. The plan will focus on the role of cultural heritage as a resource for regional development, and will expand cooperation on the protection of the cultural heritage associated with the mining activities in both counties. Planning work was initiated in October 2008.

## The Cultural Heritage Act of 9 June 1978

The purpose of the Act is to protect ancient monuments and historic environments with their characteristics and variations as part of Norwegian cultural heritage and identity, and as components of a unified management of the environment and natural resources. When decisions are made pursuant to other legislative acts, but with an impact on interests related to resources represented by cultural heritage, emphasis should be put on the purposes of the Cultural Heritage Act.

Monuments and sites pre-dating 1537 are automatically protected, irrespective of whether they are archaeological sites, ruins or intact buildings. The same applies to Sámi monuments and sites older than 100 years. An automatically protected buffer zone of five metres is in effect around an automatically protected object. Before starting any kind of project, the initiating party is obligated to clarify whether the project will impinge on automatically protected cultural heritage sites. Intact buildings dating from the period 1537-1649 are likewise automatically protected.

Following a comprehensive consultation procedure among relevant private bodies and public authorities, the Directorate for Cultural Heritage may issue protection orders for monuments and sites regardless of their age and including the surrounding area. The protection of the surrounding area should serve to safeguard the impact of the protected monument in the landscape and to protect any associated scientific interest. Specific provisions are established for each separate protection order. Entire historic environments are protected according to a decision by the King in Council.

The Directorate for Cultural Heritage and the county authorities can issue temporary protection orders with immediate effect if cultural heritage sites of national importance face risk of damage or obliteration. The initiation of proceedings for permanent protection is subsequently considered. A small number of municipalities have also been granted this authority, and Røros municipality is one of them.

The Act safeguards cultural monuments and sites from the earliest times with no limit in time up to the present. Application for permission is required for all kinds of projects that impinge on protected monuments and sites. The authority to grant exemption from the protection order is divided between the county authorities and the Directorate for Cultural Heritage. All decisions may be appealed to a superior authority.

### Churches

With the exception of automatically protected churches, historic Norwegian churches are usually not protected pursuant to the Cultural Heritage Act. However, in cooperation with church authorities, a list has been drawn up of churches that should be managed as though they were protected pursuant to the Cultural Heritage Act.

### Monuments and sites protected pursuant to the Cultural Heritage Act Listed Churches

Area	Automatically protected cultural localities – Section 4, archaeological and Sámi	Cultural sites protected pursuant to special decision, Sections 15 and 19	Listed churches
Town and Cultural Landscapes	41 (35 archeological localities and 6 Sámi)	42 localities/sites with a total of 102 buildings. Includes 1 railway station.	1
Femundshytta smelter	0	0	0
The Winter Transport Route	1 (archaeological site)	0	0
The Buffer Zone	560 localities. Each locality may have several protected objects	6 farms. Each site comprises several buildings.	8

With regard to automatically protected cultural heritage sites, registration is not complete for cultural sites older than 1537 or for Sámi cultural sites.

## The Nature Conservation Act of 19 June 1970

The preamble to the Act states that the natural environment is a national asset that must be protected. The management of natural environment assets should be based on a long-term and all-round use of resources and should take into account the preservation of the natural environment in the future as a basis for human activity, health and well-being. Cultural landscapes and cultural heritage sites can be protected in accordance with this Act. In association with the preparations for the extension of the World Heritage Site, a separate report on the natural values in the Circumference has been drawn up.

The Act defines three categories of protection that are relevant for Røros Mining Town and the Circumference.

### National parks

In order to preserve large, mainly undisturbed, distinctive or beautiful natural regions owned by the state, these may be designated as national parks. In a national park, landscapes, plant life, animal life and cultural and natural heritage sites are protected against encroachment. A decision to establish a national park is made by the King in Council following a comprehensive process of consultations.

### Protected landscapes

Distinctive or beautiful areas of cultural or natural landscapes are protected against any encroachment that will substantially change the character of the landscape. An order for the protection of a landscape is issued by the King in Council following a comprehensive process of consultations.

### Nature reserves

The establishment of nature reserves is undertaken to protect an undisturbed or largely undisturbed type of natural environment that has a particular scientific or historic interest. An area can be totally protected or protected for a particular purpose. A decision is made by the King in Council following a comprehensive process of consultations.

## Areas protected pursuant to the Nature Conservation Act

Area	National park	Protected landscape	Nature reserve
Town and Cultural Landscapes		1 Kvitsanden area	
Femundshytta smelter	0	0	0
The Winter Transport Route			The route crosses two nature reserves: - Tufsingdaleskeren - Lille Korsjølia
The Buffer Zone	2 national parks: - Femundsmarka - Forollhogna	9 protected landscapes	21 nature reserves
The Circumference	2	10	23

### Kvitsanden protected landscape (2004)

The Kvitsanden protected landscape is located in the area adjacent to the urban core of Røros town, and was protected pursuant to the Nature Conservation Act in 2004. The purpose of the protection is to preserve the traces from the ice age and the landscape formations in the area.

### Governmentally protected recreational area at Lake Doktortjønn

The area around Lake Doktortjønn has been purchased by the Ministry of the Environment to be used for recreational purposes. The area forms a valuable part of the fringe zone around the mining town.

### The Pollution Control Act of 13 March 1981

The purpose of the Act is to protect the environment against pollution, to reduce existing pollution, to reduce the quantity of waste and to promote better waste management. The Act should ensure that the quality of the environment is satisfactory, so that pollution and waste do not result in damage to human health or adversely affect welfare, or damage the productivity of the natural environment and its capacity for self-renewal.

This Act is particularly relevant with regard to polluted run-off from closed mines and smelters. The situation in terms of pollution has been surveyed, and a number of different initiatives have been implemented. In some contexts, however, pollution and waste in the form of rock piles or slagheaps constitute important components of the industrial cultural landscape, and a partial balance between these different interests has been achieved (cf. Section 4a: Present State of Conservation).

### The Concession Act of 31 May 1974

Among other things the Act confers to the municipalities the prerogative to impose the obligation of residence on all housing units that are being or have been used as all-year residential housing. Røros municipality introduced provisions for the obligation of residence in 1975, and this has been of prime importance in preventing the houses in the town centre from being purchased for use as holiday homes and thereby being left empty for the rest of the year. In this manner, the Act contributes to maintaining Røros Mining Town as a living town. (Cf. Section 4b Factors affecting the Property)

### The Land Act of 12 May 1995

The purpose of the Land Act is to ensure that land resources are employed in a way that is beneficial for society and for those employed in agriculture.

Provisions in the Land Act state that cultivated land must not be used for purposes that are not directed at agricultural production, and that cultivable land must not be used in such a way that it becomes unsuitable for agricultural production in the future. Exemption from these provisions may be granted in special cases, following an application which must be submitted to the local authority concerned.

The Act contributes to the preservation of the cultural landscape in the Property and the buffer zone.

### Royal decree of 15 August 2006

Protection of the cultural heritage is a cross-sectoral responsibility in Norwegian public administration. This implies, for example, that all sectors of the government are responsible for the cultural heritage and historic buildings that they own. By a Royal Decree of 15 August 2006, all ministries and their subordinate agencies became obliged to establish nationwide plans for the protection and management of their properties. The national protection plans provide no legal safeguards as such, but establish an administrative type of protection. The most prominent objects will subsequently be protected pursuant to the Cultural Heritage Act.

The following national protection plans are relevant with regard to Røros Mining Town and the Circumference:

National protection plan	Number of objects in the Property	Number of objects in the Buffer Zone
Cultural heritage sites in Norwegian power supply	Kuråsfossen I power station	0
NSB (Norwegian State Railways)	Glåmos station (listed)	Håmålvoll station Reitan station Stensli station
Cultural heritage in the railways (Norwegian National Rail Administration)	Røros station	Tolga station Håmålvoll station Reitan station Stensli station

## 5c Means of implementing protective measures

### The Declaration of Intent

The Norwegian Government and regional authorities, the Sámi Parliament and five municipalities have signed a declaration of intent in which they commit themselves to protect the outstanding universal value of the Property. In addition they will protect relevant monuments, sites and cultural landscapes in the buffer zone. (Cf. Annex 4: Declaration of Intent)

### Agencies with Management Authority

In Report No. 16 (2004-2005) to the Storting, «*Living with our cultural heritage*», the Government emphasizes that the Norwegian World Heritage Sites should constitute examples of best practice with regard to the management of cultural heritage. The Government has decided that management should be effected through existing Norwegian legislation and public management systems, with the appurtenant distribution of responsibilities between administrative levels and sectors. No special bodies with authority in the individual World Heritage Sites have therefore been established.

### Management of cultural heritage

#### The Ministry of the Environment

The Ministry acts as a political secretariat for the Minister of the Environment and is the country's supreme authority in matters pertaining to cultural heritage. The Ministry also prepares proposals for the protection of historic environments for the King in Council, and acts as body of appeal for decisions made by the Directorate for Cultural Heritage.

#### The Directorate for Cultural Heritage

The Directorate for Cultural Heritage is the professional advisory and executive body for the Ministry of Environment. The Directorate:

- Makes decisions on protection pursuant to the Cultural Heritage Act.
- Acts as an authority in matters pertaining to cultural heritage, and can grant exemptions from the protection of automatically protected cultural heritage sites.
- Acts as an authority in matters pertaining to cultural heritage, and can grant exemptions from the protection of cultural heritage sites owned by the state.
- Can raise objections to municipal plans that threaten cultural heritage of national importance. The matter will in this case be decided by the Ministry of the Environment.

The central area of Røros town around Malmplassen square and the mines of the Storwartz field are owned by the government, represented by the Ministry of the Environment. Responsibility for the management of these sites has been delegated to the Directorate for Cultural Heritage, which holds the responsibilities associated with ownership and acts as an authority in matters pertaining to requests for changes. Røros Museum operates the area on a daily basis and is responsible for the implementation of maintenance and repair work.

#### Sør-Trøndelag county authority, Hedmark county authority and the Sámi Parliament

The county authorities are independent, politically governed regional bodies, while the Sámi Parliament is an independent, politically governed body with responsibility for matters pertaining to the Sámi minority, including the management of its cultural heritage sites nationwide.

These institutions:

- Act as advisors to the municipalities in matters pertaining to cultural heritage in the context of planning.
- Have responsibility for following up those parts of the municipal plans that impinge on the preservation of cultural heritage sites, and for raising objections to these plans if cultural heritage of regional or national importance are threatened. This also applies to world heritage. The matter will in this case be decided by the Ministry of the Environment.
- Act as advisory authorities in matters pertaining to requests for changes to be undertaken to protected buildings, and may grant exemptions for minor changes. Appeals to decisions made by the county authorities or the Sámi Parliament can be submitted by the site owner or a relevant interest group, and will in this case be decided by the Directorate for Cultural Heritage.
- Can issue orders for temporary protection pursuant to the Cultural Heritage Act if cultural heritage values of national importance are threatened.

#### The municipalities

Municipalities are independent, politically governed bodies at the local level. The municipalities: Hold a general responsibility for planning within their geographical boundaries.

- Provide advice and follow up maintenance in conservation areas.
- Process requests for changes to be undertaken to buildings that are worthy of protection but not listed as protected. Appeals on the decisions made by the municipality can be submitted by site owners, relevant interest groups or the county authority.
- Røros municipality is one of a small number of Norwegian municipalities that have been granted authority to issue orders for temporary protection pursuant to the Cultural Heritage Act if cultural heritage of national importance is threatened.
- Røros municipality also organizes the repair of outbuildings through the Outbuildings Project, and establishes agreements with local farmers for the maintenance of the cultural landscape at Småsetran and the other urban land plots.

The site owners constitute a cornerstone in the management of the nation's cultural monuments and sites. Their willingness and initiative are decisive for an appropriate level of protection. The owners are responsible for the ordinary maintenance of their properties.

### **Management of natural resources**

#### Directorate for Nature Management

The Directorate for Nature Management is the professional advisory and executive body for the Ministry of the Environment in matters pertaining to the management of natural resources.

#### County Governors of Sør-Trøndelag and Hedmark counties

The County Governor is the representative of the Government at county level, and has a particular responsibility for coordinating government-initiated activities in the county so that important national policies can be implemented in a balanced manner.

A primary task of the County Governor's office is to ensure that the local authorities fulfil the obligations for which they are responsible. These comprise obligations within several fields of society, including nature conservation and agriculture.

The responsibilities of the Division for Environmental Conservation include:

- Implementing conservation plans
- Managing protected areas
- Monitoring the natural environment
- Managing areas for outdoor recreation
- Managing game and freshwater fish
- Monitoring compliance with environmental regulations in planning
- Monitoring levels of pollution

The responsibilities of the Division for Agriculture include:

- Monitoring agriculture and forestry
- Development of local agriculture
- Development of agriculture and forestry in the context of local and regional planning

Both divisions cooperate with the county authorities with regard to the protection of important cultural landscapes.

#### The Norwegian Nature Inspectorate

The Nature Inspectorate was established by the Nature Inspectorate Act of 21 June 1996. Its purpose is to manage environmental assets of national importance and to prevent environmental crime. The Inspectorate has the task of providing guidance and information, care and maintenance, registration and documentation. This applies to both cultural and natural heritage. Inside the Circumference there are four supervisory bodies for nature conservation, one of which is associated with Røros municipality.

#### **World heritage council**

A world heritage council/collaborative advisory council has been established in all Norwegian World Heritage Sites, with representatives of all levels of public management. In Røros Mining Town, the main task of the council has consisted of coordinating the management of the mining town as a cultural heritage site. In order to coordinate the management of the far larger, extended World Heritage Site, an expanded council will be established with representatives of five municipalities, two county authorities and the government. The council will have representatives that are politically as well as administratively appointed, and will approach the world heritage status broadly as a basis for improving the management of the World Heritage and for achieving sustainable development of the local communities.

## **5d Existing plans related to municipality and region**

### **Tourism**

Represented by the Ministry of Trade and Industry, in 2007 the Government submitted a strategy for the Norwegian tourist industry: «*Valuable experiences - national strategy for the tourist industry*». One of the main goals for the tourist industry is to turn Norway into a sustainable tourist destination. The strategy says the following about the World Heritage Sites:

*«The status as world heritage area places high demands on the management of cultural and natural values. The Government wants the Norwegian world heritage areas to be developed as beacons for best practice within nature and cultural heritage management, and NOK 40 million is set aside for this in 2008. The primary industries in these areas are in decline, and there is*

*therefore a need to investigate how agriculture may be operated and developed, in order to preserve the cultural landscape for the future.»*

Through Innovation Norway, a government-owned enterprise under the auspices of the Ministry of Trade and Industry, Norway has signed National Geographics' charter for *geotourism* and has committed itself to following and implementing the principles of geotourism in its promotion of the tourist industry. Geotourism is a type of tourism that maintains, strengthens and emphasizes the local characteristics, environment, culture, aesthetics and cultural heritage of a destination, and that benefits the local community.

### **The project «Sustainable Tourism 2015»**

As follow-up to the national tourism strategy, the Ministry of Trade and Industry has launched the project «Sustainable Tourism 2015» through Innovation Norway. The Røros region has been selected as one of four pilot projects, which will include the compilation of a proposal for a certification scheme for tourist industry enterprises. The project comprises the tourist industry in the Holtålen, Os, Tolga and Røros municipalities.

In September 2008, a separate regional strategy for tourism was prepared for the Nord-Trøndelag and Sør-Trøndelag counties, focusing on World Heritage and Røros as a prominent tourist destination.

### **Selected cultural landscapes in agriculture**

From 2008, the Ministry of Agriculture and Food has entered into a cooperation with the Ministry of the Environment, the Norwegian Agricultural Authority, the Directorate for Nature Management and the Directorate for Cultural Heritage with a view to identifying twenty selected cultural landscapes in Norwegian agriculture.

The active mountain farming areas in the Vanggrøftdalen and Kjurrudalen valleys in Os municipality have recently been selected as one of these landscapes. The selection criteria include that the area should constitute a coherent landscape with continuity and a long history, that it is either representative or characteristic, and that it possesses a major value in terms of information. The Vanggrøftdalen and Kjurrudalen valleys are located inside the Circumference in the south-western part of the buffer zone, and their inclusion in this scheme will ensure funding for annual maintenance work.

### **The Interreg project «Scandinavian Heartland»**

In 2008, the Interreg project cooperation was initiated between the mountain regions in Hedmark and Sør-Trøndelag counties in Norway and Dalarna and the southern part of Jämtland counties in Sweden. The project comprises two sub-projects:

- Living rural communities
- Tourism based on nature and culture

The university colleges in Hedmark and Dalarna participate through the training of students and promotion of project assignments related to World Heritage may become a relevant option. The goal of the project is to strengthen cross-border cooperation as well as the attractiveness and competitiveness of the regions involved. The World Heritage Sites Falun and Røros are both partners in the project.

## **5e Property management plan**

### **The Statement of Intent**

Cf. Annex 4

### **Management Framework and Plans**

Cf. Annex 3

## **Ongoing projects**

A number of repair and maintenance projects are underway, and these will be continued and possibly expanded inside the nominated world heritage area. *(See also section 4a: Present State of Conservation)*

### The Outbuildings Project

The project, initiated in 1995, is supervised by Røros municipality. The project has gained major importance for the development of knowledge and craftsmanship, and is currently attracting international attention. The project is an ongoing effort, and is currently working not only inside the present world heritage site, but also in the area that has been nominated for extension.

### Repair and maintenance of government-owned properties acquired from Røros Copper Works

Buildings and installations left from Røros Copper Works, currently owned by the government represented by the Ministry of the Environment and managed by the Directorate for Cultural Heritage/Røros Museum, are undergoing constant repair and maintenance work. This applies to buildings and installations around Malmplassen square and in the mountain areas around the Storwartz mines. This work is supervised by Røros Museum.

### Repair and maintenance of buildings owned by Røros Historical Society in Sleggveien road

Røros Historical Society is an NGO that owns five buildings at the top of Sleggveien road, near the slagheaps. These buildings are used as museums and are maintained by Røros Museum.

### Repair and maintenance of the church

Comprehensive repair and maintenance work is being undertaken on the church. This will continue for several years to come.

### Agreement on the maintenance of cultural landscapes

An agreement has been signed with a local farmer for the maintenance of the cultural landscape in the Småsetran district. This agreement is still valid, and an assessment of whether it should be expanded to comprise larger areas will be undertaken.

## **5f Sources and levels of finance**

There are a number of different grant schemes that could be relevant for the World Heritage Sites. Few of these are intended specifically for World Heritage Sites, but in the event of an application world heritage status may enhance the priority given to the application.

### **Ministry of the Environment/Directorate for Cultural Heritage**

Funds have been allocated for projects in the world heritage areas through items on the state budget included in the chapter devoted to the Directorate for Cultural Heritage. In 2008, Røros Mining Town was granted approximately NOK 11 million. The funds are primarily used for repair and maintenance of buildings, for example through the Outbuildings Project and for the repair and maintenance of the buildings acquired by the government from Røros Copper Works at Malmplassen square and in the Storwartz mining field. Some funds are also devoted to the maintenance of the cultural landscape in the Småsetran district. World Heritage has been given priority in successive state budgets, and the level of funding has gradually increased.

### **The county authorities**

The Directorate for Cultural Heritage allocates annual funding to the county authorities for the repair and maintenance of buildings that are protected pursuant to the Cultural Heritage Act. The county authorities also contribute funds from their own budgets for the maintenance of protected and other historic

buildings. In addition they grant substantial funding to the museums to cover operations, exhibitions and various other initiatives.

### **Norwegian Cultural Heritage Fund**

The goal of the Norwegian Cultural Heritage Fund is to help to coordinate public and private sources of financing to ensure that a variety of Norwegian cultural heritage sites and cultural environments are preserved and made available for the general enjoyment and enlightenment of the public, and for development and general growth. It is intended to encourage cooperation between site owners and the business community, promote the availability of private capital and support local and regional partnerships and expense sharing. Applications for support submitted by site owners inside world heritage areas have been given high priority. The Fund's secretariat is located at Røros.

### **Ministry of Agriculture and Food**

The Ministry of Agriculture maintains a number of grant schemes that help sustain an active agricultural sector and preserve cultural landscapes. Those that most directly help to preserve cultural and natural heritage values in the landscape are listed below.

#### Special environmental initiatives in agriculture

This scheme has a two-fold purpose: to preserve the cultural and natural heritage values in the agricultural landscape, and to reduce pollution from agricultural activities. The scheme is operated by the municipalities.

#### National grant scheme for grazing land

The purpose of the scheme is to encourage increased grazing by domestic animals in areas that are currently not used as pasture, as well as to reward farmers who let their animals graze freely.

#### Regional environmental programmes in agriculture

The regional environmental programmes are compiled by the County Governors in consultation with the county authorities and regional business sector organizations, and are intended to enhance the impact of environmental efforts in agriculture at the regional level. A number of different programmes of varying character have been drawn up, adapted to the situation in the individual counties. The largest programme comprises general efforts to prevent overgrowth in cultural landscapes.

#### World heritage programmes under the annual agricultural marketing agreement

In order to safeguard the cultural landscape in the world heritage areas, the Ministry of Agriculture has launched a separate world heritage programme under the annual agreement on marketing and funding with the organizations in the agricultural sector. These funds should be seen in conjunction with funding granted by other sectors of public administration. Currently these funds apply only to initiatives within the two world heritage areas of Vega Archipelago and the West Norwegian Fjords. The existing world heritage area at Røros currently comprises only the town houses, and is therefore not eligible for this scheme at present.

### **Ministry of Local Government and Regional Development**

#### Discretionary funding

Since 2004, the criteria for the allocation of discretionary funding emphasize that municipalities that face special challenges in terms of environmental policy associated with the management of common social resources should be granted extraordinary funding if these challenges are not addressed through the ordinary system for distributing income between municipalities. This applies, for example, to municipalities that possess national cultural heritage sites/historic environments and large areas that are protected pursuant to the Nature Conservation Act. This discretionary funding is allocated by the County Governors on the basis of applications.

### The county authorities' regional development funds

The county authorities are responsible for the management of funds granted by the Ministry of Local Government and Regional Development for regional development purposes. The funds granted as direct support to enterprises are allocated through Innovation Norway. In Sør-Trøndelag county a separate programme has been established to support efforts to promote positive development and settlement in the inland municipalities in Sør-Trøndelag county. Os and Tolga municipalities are also covered by the programme. The development of industries and activities based on cultural and natural heritage, culinary culture and performing arts are all eligible for this scheme.

### **EU Interreg funding**

Interreg is one of several EU development programmes for regions that border on non-EU countries, including Norway. With regard to World Heritage Røros Mining Town and the Circumference, the programmes *Nordic Green Belt* (comprises the two Trøndelag counties in Norway and Jämtland and Västernorrland counties in Sweden) and *Scandinavian Heartland* (comprises Hedmark county and Røros in Norway and Dalarna county in Sweden) may be of relevance.

From the Norwegian side, funding is allocated by the Ministry of Local Government and Regional Development and the participating public authorities. Development projects for competence building in the fields of the natural environment, culture and tourism, training and competence development and ICT are relevant for several aspects of the management of world heritage.

Cooperation with the World Heritage Site Falun in Sweden is of particular interest, since this is Røros' Nordic twin town.

### **Ministry of Culture and Church Affairs**

The Ministry of Culture allocates funds to the museums and national cultural institutions, among other establishments. The ministry may also allocate funding directly to specific initiatives or projects.

Norwegian Archive, Library and Museum Authority may grant funding to projects associated with the dissemination of information, archives, digitalization, and the development and protection of the museums' collections.

Arts Council Norway is subordinate to the Ministry of Culture and allocates funding to projects that aim to preserve intangible cultural heritage.

### **Ministry of Education and Research**

The Ministry of Education and Research is an important partner with regard to the dissemination of information, and has several grant schemes that receive applications for projects in the municipal schools.

**Research Council of Norway** has programmes that can grant support for research and development work associated with World Heritage.

## **5g Sources of expertise and training**

### **National level**

#### Directorate for Cultural Heritage

The Directorate for Cultural Heritage possesses expertise in a number of disciplines that are relevant for the management of Røros Mining Town and the Circumference: architectural history, technical and industrial monuments, technical expertise for building preservation, Sámi cultural heritage, archaeology, cultural landscapes and jurisprudence.

#### Directorate for Nature Management and Norwegian Nature Inspectorate

The Directorate employs experts in the field of nature management. It also includes a division that undertakes fieldwork. One inspector is permanently stationed at Røros.

#### Directorate of Mining

The Directorate employs experts on geology and mining.

#### Norwegian Institute for Cultural Heritage Research

This national research institute employs highly qualified specialists in cultural history, architectural history, archaeology and conservation. The institute has undertaken a number of projects and surveys in Røros Mining Town and the Circumference. The Directorate for Cultural Heritage has a permanent, annual agreement with this institute on surveys at Røros.

#### Norwegian Institute for Water Research (NIVA)

NIVA has undertaken research and development projects focusing on the run-off of metals from most of the mining areas of importance in the region, in particular at the Nordgruvfeltet and Storwartz mining fields.

#### Norwegian Institute for Nature Research

This national research institute employs highly qualified specialists in natural history, biology, ecology etc.

#### Norwegian University of Science and Technology in Trondheim (NTNU)

The university trains graduate-level architects and engineers within mining and metallurgy. In addition the university offers Master's degrees, and undertakes research in the fields of mining, metallurgy, building preservation and cultural heritage management.

SINTEF (Norway's largest research organization), Norwegian Institute for Urban and Regional Research and NTNU have undertaken a number of research projects and surveys associated with Røros as a historic site and world heritage area.

#### Sør-Trøndelag University College

This university college offers continuing education in building preservation for technicians and craftspeople.

### **Regional level**

Hedmark and Sør-Trøndelag county authorities possess expertise in a number of fields. Their experience in planning and cultural heritage management is particularly relevant for world heritage areas.

The County Governors of Hedmark and Sør-Trøndelag counties possess expertise in several areas. Their competence in environmental management and agriculture is particularly relevant for world heritage areas.

The Sámi Parliament possesses expert competence in the field of Sámi cultural heritage sites and their management, and is responsible for issues related to Sámi cultural sites nationwide.

#### Upper secondary schools

The upper secondary schools at Røros and Tynset provide training for building and construction. Preparations are underway to enable apprentices to obtain a craft certificate in the field of building preservation.

### **Local level**

#### Municipalities

All municipalities possess competence in planning. Only Røros municipality possesses expert competence in the management of cultural heritage sites.

### Røros Museum

The museum possesses expertise in cultural history related to mining, agriculture, building traditions, cultural landscapes and Sámi cultural heritage in the Røros region. A centre for building preservation with regional responsibility has been established at the museum. Every year, the centre arranges a number of courses for craftspeople, and also undertakes repair and restoration work. In combination with the Outbuildings Project, the centre has a key role in the efforts to provide continuing education to craftspeople in the field of building preservation.

### Nordøsterdal Museum

The museum possesses expert competence in cultural history related to mining, agriculture, traditional architecture, cultural landscapes and society in the Nordøsterdal region. The museum also has competence in building preservation.

### The Outbuildings Project

The Outbuildings Project, under the supervision of Røros municipality, has been in activity for more than ten years. From its inception, one of the main ideas behind the project was that it should serve as a training ground in line with the principle of «learning by doing». In combination with the centre for building preservation under the auspices of Røros Museum, the project has served to establish a core group of craftspeople with expert skills in repairing and restoring historic buildings in the Røros region.

### Celebration of Craft

This was an EU project under the Leonardo da Vinci programme, involving eight partners from six different countries. Its purpose was to test the working methods of the Outbuildings Project in an international context and to build respect for the knowledge and skills of craftspeople, as well as to demonstrate the need for a cross-disciplinary approach in the restoration of historic buildings.

### The craftspeople

The core group of highly skilled restoration craftspeople currently found at Røros represents a knowledge resource and contributes to the training of new craftsmen. They are currently active even beyond the confines of Røros, and participate in several international projects.

## **5h Visitor facilities and statistics**

Røros and the Circumference have a lot to offer visitors. Facilities for visitors include simple, rustic accommodation as well as high-standard hotels, cafés and gourmet restaurants etc. Businesses and shops of various kinds can be found in the two main streets of the town.

Røros Reiseliv Travel Cooperative is a joint destination enterprise for the promotion of tourism in Røros, Os, Tolga and Holtålen municipalities. The enterprise operates a tourist office at Røros and arranges town walks in the old mining town.

## The Town and Cultural Landscapes

### **Communications to Røros Mining Town:**

#### Air:

Røros can be reached by air from Oslo Airport Gardermoen.

Travel time: One hour. Currently there is one daily arrival with a return flight after a short stop.

A number of domestic and international flights land at Værnes airport (Trondheim), with train connections to Røros. Travel time is approximately three hours.

### Train:

From Oslo via Hamar to Røros

Travel time: Five hours. Approximately eight departures and returns per day.

From Trondheim to Røros

Travel time: 2½ hours. Five departures and returns per day.

### Bus

Several bus companies operate various daily connections between Røros and Oslo, Hamar, Elverum and Trondheim.

**The number of visitors to Røros Mining Town** has been estimated by Røros Tourism to amount to **approximately 1 000 000 per year.**

Hotel capacity in Røros Mining Town

	Number of rooms
Hotels	376
Motels/guest houses	26

In addition private rooms are rented out on a minor scale.

### **Tourist attractions**

#### Røros Museum

The museum in the old smelting house is open all year, with periodic exhibitions related to the mining activities and the Røros community. The museum arranges guided tours also outside the museum building itself, in particular to the slagheaps and to Sleggveien road, where a number of buildings have been furnished as museums that can be opened to the public on request.

In 2007, the museum also started to arrange guided tours in the Storwartz area. The museum operates the Olavsgruva mine there as a museum site, arranges guided tours in the mine and sets up exhibitions in the entrance building.

Number of visitors in 2007

The smelting house and the Olavsgruva mine	40 500
Sleggveien road	5 250

#### Dokortjønna recreational park and Femundsmarka national park centre

The centre arranges specially adapted walks for groups of visitors in «The world heritage and Røros landscape». The tours focus on topics related to both cultural and natural heritage.

#### The «Fjell-Ljom» Press Museum

The newspaper 'Fjell-Ljom' was established in 1886. The original newspaper house has been preserved intact with its complete technical equipment, and currently serves as a museum. The writer Johan Falkberget was associated with this newspaper for fifty years.

#### Ratvolden, to the east of and below the King's Mine

The former home of the writer Johan Falkberget is open to the public during the summer season. His former home has been preserved and is currently owned by Røros municipality, while a private association, the Falkberget Ring, arranges guided tours of the site and operates a café and a shop.

Number of visitors on guided tours in 2007: Approximately 1800. Many more make their own visits to the site, and the gate is always open.

#### The Røros Fair

The fair is the major annual event at Røros and takes place in the third week of February. Stalls and places for the sale of food and beverages are set up all over the town area. At the outset this served as a place where the local population could meet visitors from near and far who wanted buy or sell goods at the annual winter fair. Gradually the fair developed into a tourist attraction.

Estimated number of visitors in 2008: Approximately 75 000.

Røros is also the venue for a considerable number of other cultural activities, and several festivals are arranged in addition to the attractions described above

## Femundshytta smelter

#### Communication:

Daily trips and returns during the summer season with the boat «MS Fæmund II». There is no other public transport to Femundshytta. A toll road leads to Femundshytta, but only the site owners are allowed to use this road.

#### Catering

The farm serves food to visitors during the summer. Number of visitors in 2007: Approximately 2000.

#### Guided tours:

The owners of the farm arrange guided tours in the ruin of the smelting house.

## **5i Policies and programmes related to the presentation and promotion of the property**

### **Museums**

#### Røros Museum

The museum operates websites that provide comprehensive information on Røros Mining Town and the Circumference. The websites [www.verdensarvenroros.no](http://www.verdensarvenroros.no) and [www.worldheritageroros.com](http://www.worldheritageroros.com) had a total number of 90 000 hits in 2007, which is an increase of 67 per cent from the preceding year.

The general website of the museum: [www.rorosmuseet.no](http://www.rorosmuseet.no)

#### World Heritage Centre

Plans are being prepared for the establishment of a World Heritage Centre for the documentation and dissemination of information. Røros Museum is supervising this work.

#### Nordøsterdal Museum

The Nordøsterdal Museum foundation is a regional museum for the Nord-Østerdal district and is responsible for several sites in different locations inside the Circumference. The museum cooperates with Røros Museum on the dissemination of information related to mining.

Website: [www.nordosterdalsmuseet.no](http://www.nordosterdalsmuseet.no)

### Falkberget/Ratvolden

The former home of Johan Falkberget at Ratvolden currently functions as an independent museum unit owned by Røros municipality. Johan Falkberget's novels portray the human and social conditions associated with Røros Copper Works in the past.

### The «Fjell-Ljom» Press Museum

The «Fjell-Ljom» press museum was opened in 1986 following a comprehensive voluntary joint effort. It contains an important segment of cultural history in the form of the only remaining complete, old-fashioned newspaper printing house in the Nordic countries. The site is currently operated by Røros Museum.

The Museum Centre in Trysil-Engerdal is a museum for the geographical areas located in Engerdal municipality.

### Ålen Rural Museum and Petran Museum at Holtålen

Holtålen municipality possesses buildings and collections that reflect activities related to social development inside the Circumference through the ages.

Femundsmarka National Park Centre, with departments at Røros and Elgå, arranges exhibitions on the nature and culture in the Femundsmarka National Park, as well as evening lectures and guided tours on the national park and other areas of natural environment and cultural landscapes inside the Circumference.

### **Local newspapers**

Røros is in the unique position of having two old local newspapers – «Fjell-Ljom», established in 1886 and «Arbeidets Rett», established in 1907. In addition a further newspaper has recently been established – «Gränsposten». The regional newspapers «Østlendingen», «Adresseavisen» and «Bredablikk» are also read in parts of the area. These most probably serve as the main media through which the local population can be kept informed of the efforts to extend the world heritage area. The newspapers monitor these efforts actively, and are regularly invited to press conferences.

### **The municipalities' websites**

Information on World Heritage Røros Mining Town and the Circumference will be posted on the websites of all the municipalities involved.

### **Dissemination to children and youth**

Dissemination of information on world heritage values to the younger generation is given priority by the schools. World heritage values are brought to the pupils by way of separate projects and through the regular teaching of social sciences. At Røros, several cooperative projects involving the schools and Røros Museum have been implemented – for example the project on the adoption of houses.

### «Adopt a house»

Røros Museum had a problem with repeated vandalism on unoccupied buildings for which the museum was responsible. Cooperation was therefore established with the school on the adoption of houses. Under this arrangement, groups of pupils are assigned responsibility for monitoring particular houses, while they also are given information on the history of the building. The scheme has been a resounding success. Vandalism has ceased, and the adoption of houses has generated interest and «ownership» of the World Heritage.

### «World Heritage in young hands»

Through the programme «World Heritage in young hands», the decision-makers of the future receive knowledge and practical training that encourage the protection and preservation of the cultural and

natural heritage. The programme is a cooperation between the UNESCO World Heritage Centre, with support from the World Heritage Committee, and the UNESCO school network, ASPnet. Its main purpose is to develop new forms of teaching through activities in schools and international meetings for students and teachers. The development of the project has taken place through training courses for teachers and workshops for students. The teacher training courses provide an introduction to the educational material developed by UNESCO on World Heritage.

Røros Upper Secondary School has been an active partner in these efforts from their inception at the international level in 1994. Four international workshops have been arranged on the World Heritage Site Røros Mining Town under the auspices of Røros Upper Secondary School, in close cooperation with the municipality and the authorities responsible for conservation. Teaching at the school includes subjects related to World Heritage, and a separate course for tour guides has been developed with an emphasis on this field.

In the workshops for youth the students receive knowledge, practical training and skills in various types of conservation and maintenance. Here they undertake independent assignments under the supervision of a competent master craftsman. Representatives of Røros Museum, Røros municipality, the Røros division of the Society for the Preservation of Norwegian Ancient Monuments and other partners have supervised such restoration groups for youth.

The schools at Os, Tolga, Holtålen and Engerdal also provide information to their pupils on the history of Røros Copper Works, Røros town and the mining communities and smelters inside the world heritage area. Following the establishment of Røros Mining Town and the Circumference as world heritage, there are ample opportunities for expanding the cooperation between different schools on training programmes related to the world heritage.

### **Private associations and voluntary organizations**

A number of private associations have been established with a view to maintaining the cultural heritage at Røros. These associations undertake a considerable amount of work in the local environment.

Røros Historical Society has a large membership mass and publishes books/leaflets on buildings, cultural landscapes and people in the world heritage area. The society also owns a number of buildings, which are managed by Røros Museum.

Friends of the Olavsgruva mine is a support group for the Olavsgruva mine and arranges activities related to the mine.

«The Old Mining Town» Association is a local division of the Society for the Preservation of Norwegian Ancient Monuments and manages the Per Åsmundsagården and the Rasmusgården houses at Røros. The association arranges evening lectures and is active vis-à-vis public authorities.

The Falkberget Ring acts to promote interest in the work of the writer Johan Falkberget. The Ring arranges courses, seminars etc.

Friends of the Røros Cow work to promote knowledge of the Røros cattle breed, which for centuries served as the main source of food for people in the Circumference.

The local historical societies in Engerdal, Os, Tolga and Holtålen all undertake activities that to some extent are related to issues pertaining to the historic development in the world heritage areas and the buffer zone.

## 5j Staffing levels

The two county authorities play an important and direct role in the management of the Property and the buffer zone. (Cf. section 5 c: Means of implementing protective measures and section 5 g: Sources of expertise and training.) They each employ one architect with competence in cultural heritage management, who in particular monitors the World Heritage Site Røros Mining Town and the Circumference. In addition the county authorities can make use of the entire spectrum of relevant competence that is found within their own organizations.

### **Town and Cultural Landscapes**

#### Røros municipality

Røros municipality employs one cultural heritage manager (an architect), who works within the technical services division of the municipal administration. In addition the Outbuildings Project is supervised by a separate site supervisor. The municipality also employs a planner with competence in cultural heritage management.

#### Norwegian Institute for Cultural Heritage Research

The institute permanently employs a technical curator, who annually undertakes preparatory investigations before repair and maintenance work is started. This work is undertaken in cooperation with the cultural heritage authorities and is funded by the Directorate for Cultural Heritage.

#### Røros Museum

The museum possesses expert competence in cultural history related to mining, agriculture, Sámi cultural history and local traditional construction methods. In addition the museum possesses competence in practical building preservation and arranges training courses in this field. The museum supervises the repair and maintenance work on the buildings that it manages and also accepts external assignments.

Number of employees with expert competence in cultural history: 5 persons Number of employees at the centre for building preservation: 7 persons
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#### The craftspeople

All repair and maintenance projects have emphasized training. The Røros region currently has a group of craftspeople with expert skills at its disposal. These are mostly self-employed and accept assignments inside the entire area of the Circumference.

Number of enterprises with expert competence in building preservation: Approximately 15
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### **Femundshytta smelter**

No expertise in the management of cultural heritage sites is found locally, but there is sufficient competence for the management of the area in the county authority and at Nordøsterdal Museum. In addition Engerdal municipality employs a manager for cultural issues who also works with the museums and on the management of cultural heritage sites.

### **The Winter Transport Route**

No expertise in the management of cultural heritage found in the area through which the route passes. The southernmost part of the area is located in Os municipality, which possesses no expert competence in the field of the management of cultural heritage sites. There is sufficient competence for the management of the route in the county authority and at Nordøsterdal Museum. The northernmost part of the route runs through Røros municipality (see above).

# 6 Monitoring

A number of different authorities have the responsibility for monitoring that the outstanding universal value is safeguarded in the world heritage areas. The Directorate for Cultural Heritage collects this information in the Periodic Reporting to the World Heritage Committee.

## 6a and b Key indicators for measuring state of conservation and administrative arrangements for monitoring property

Periodic Reporting (27 October 2005) was submitted to the World Heritage Committee in respect of previously inscribed world heritage areas. However, prior to this the Directorate for Cultural Heritage invited ICOMOS Norway to conduct an evaluation of the management of Røros Mining Town as a World Heritage Site. ICOMOS Norway appointed a group of independent Norwegian and foreign experts to carry out the evaluation. Two such evaluations were carried out in 1993 and 2003 respectively (cf. Section 6 c: Results of previous reporting exercises).

### Aerial photography

It is now proposed that Røros Mining Town be extended to include the industrial and agrarian cultural landscapes. Aerial photographs will be analyzed to monitor changes in the cultural landscape. Aerial photography will be carried out every six years in connection with Periodic Reporting to the World Heritage Committee.

Indicators measuring state of conservation	Agencies responsible for the monitoring
Number of <u>historic buildings</u> restored to a normal level of maintenance.	Municipalities County authorities
Number of <u>historic outbuildings</u> restored to a normal level of maintenance	Røros municipality, Outbuildings Project
Number of <u>protected buildings</u> restored to a normal level of maintenance	County authorities Askeladden, the database of the Directorate for Cultural Heritage, maintains an overview of the maintenance situation
Number of listed <u>churches</u> restored to a normal level of maintenance	Directorate for Cultural Heritage
Number of <u>technical/industrial</u> heritage sites restored	Municipalities and county authorities for sites in private, municipal or county authority ownership Directorate for Cultural Heritage for sites owned by the state
Number of <u>areas</u> with contracts for maintenance and clearance to prevent overgrowth	Municipalities Directorate for Cultural Heritage County Governor
Number of <u>old roads</u> that are tended in order to prevent overgrowth	Municipalities
<u>Overgrowth of cultural landscapes:</u> The development is to be monitored through the analysis of aerial photographs	County authorities Directorate for Cultural Heritage

Indicators measuring state of conservation	Agencies responsible for the monitoring
<u>Construction of holiday homes:</u> The development is to be monitored through the analysis of aerial photographs	Municipalities County authorities Directorate for Cultural Heritage
<u>Growth of urban settlements:</u> The development is to be monitored through the analysis of aerial photographs	Municipalities County authorities Directorate for Cultural Heritage

## 6c Results of previous reporting exercises

### ICOMOS Norway reports in 1993 and 2003

Two reports have been compiled by ICOMOS Norway for the existing world heritage area, Røros Mining Town. After Røros' more than ten years as a World Heritage Site, the Directorate for Cultural Heritage was of the opinion that the time was ripe for an impartial evaluation of the management of Røros as cultural heritage. ICOMOS Norway was asked to conduct this. An international group of five Norwegian and international experts was appointed, and the evaluation was carried out in 1993 and repeated in 2003. Both reports set out general guidelines for the future management of Røros Mining Town.

The 1993 report underlined the value of the outbuildings and their poor state of maintenance. This led to the start of the «Outbuildings Project» (Uthusprosjektet). The report contains a special chapter on the outer limits and possible extension of the World Heritage Site. First, it is recommended that the present site should be given clear boundaries and that these should include specified areas outside the built-up area. Secondly, it is recommended that special attention be paid to the cultural landscape defined by the whole Circumference. It is proposed that the Circumference should be defined as a buffer zone, and that the name of the Property be changed to «Røros Mining Town and its Circumference».

The 2003 ICOMOS Norway report was compiled as preparation for the Periodic Reporting activity required by the World Heritage Committee. Work on the extension of the world heritage area was commenced as a follow-up of the 1993 report, and ICOMOS Norway was requested to focus on the evaluation of the management of today's world heritage area. One of the recommendations of the report is that the work to determine the boundaries and the extension continue. The report calls for the establishment of a management plan, and recommends that a Visitors Centre should be established and that the Outbuildings project should continue.

### Periodic reporting to the World Heritage Committee (27 October 2005)

A Periodic Report dated 27 October 2005 that was compiled for the existing world heritage area was submitted to the World Heritage Committee. As a result the name of the world heritage area was changed from «Røros» to «Røros Mining Town» (Norwegian: Røros bergstad).

### Review of protected buildings

At present a project that represents a collaboration between the county authorities and the Directorate for Cultural Heritage is being conducted to carry out a survey of the state of maintenance for buildings nationwide that are protected pursuant to the Cultural Heritage Act. The data will be entered into the database of the Directorate for Cultural Heritage – Askeladden.

The survey of Røros has been completed and the work on entering the data into the database will be concluded in April 2009. The result of the survey shows that the state of maintenance in houses facing the street is good, and that after more than ten years of conservation work on the outbuildings, their condition is also generally good. Overall the state of maintenance of protected buildings within the nominated world heritage area is well above the national average.

# 7 Documentation

## 7a Photographs

Id. no	Caption	Date of Photo	Photographer	Copyright owner	Address	Non exclusive cession of rights
Front page	The Winter Transport Route	2003	Stefan Quinth	© Stefan Quinth	Camera Q Slottet 530 10 Vedum, Sweden	
1 and 2	Map of the Circumference 1737			©Riksarkivet	Postboks 4013 Ullevaal Stadion, 0806 Oslo, Norway	
3	Letter of Privileges of 1646			©Statsarkivet i Trondheim	Maskinistgata 1, 7042 Trondheim, Norway	
4	Map of Røros Mining Town 1711			©Det Kongelige bibliotek, Fotografiske atelier, København, Denmark	Postboks 2149 DK-1016 København .K Denmark	
5	Røros about 1890		Drawing; Arne Berg	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
6	The town in winter	2001	Ole Jørgen Kjellmark	©Ole Jørgen Kjellmark	7374 Røros, Norway	x
7	The town and surrounding landscape	2001	Ole Jørgen Kjellmark	©Ole Jørgen Kjellmark	7374 Røros, Norway	x
8	Røros smelter at work	1907		©Røros Museum	Pb. 224 7374 Røros, Norway	x
9	Inside the smelting house			©Røros Museum	Pb. 224 7374 Røros, Norway	x
10	Malmplassen	2005	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x
11	Hitterelva	2005	Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	x
12	Hitterelva	1996	Jiri Havran	©Jiri Havran	Pb. 5360 Majorstua 0304 Oslo, Norway	
13	Hitterelva	2006	Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	
14	Streets	2008	Lisen Roll	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
15	Church, Malmplassen, slagheaps		Ole Jørgen Kjellmark	©Ole Jørgen Kjellmark	7374 Røros, Norway	x
16	Copperworks' bell	2005	Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	x
17	View from the slagheaps	2002	Arve Kjersheim	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
18	View from the slagheaps	1996	Jiri Havran	©Jiri Havran	Pb. 5360 Majorstua 0304 Oslo, Norway	

<b>Id. no</b>	<b>Caption</b>	<b>Date of Photo</b>	<b>Photographer</b>	<b>Copyright owner</b>	<b>Address</b>	<b>Non exclusive cession of rights</b>
19	Church interior	1996	Jiri Havran	©Jiri Havran	Pb. 5360 Majorstua 0304 Oslo, Norway	
20	Church interior	1996	Jiri Havran	©Jiri Havran	Pb. 5360 Majorstua 0304 Oslo, Norway	
21	Hiort chapel	2008	Lisen Roll	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
22	Hiort chapel	2005	Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	x
23	Hiort chapel	2005	Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	x
24	Bergmannsgata	1865	Elen Schomragh	©Røros Museum	Pb. 224 7374 Røros, Norway	x
25	Bergmannsgata		Iver Olsen	©Røros Museum	Pb. 224 7374 Røros, Norway	x
26	Bergmannsgata	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
27	Narrow passage	1996	Jiri Havran	©Jiri Havran	Pb. 5360 Majorstua 0304 Oslo, Norway	
28	Winter	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
29	Winter		Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	x
30	From the church tower	2005	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x
31	C. Borchgrevink's house	2007	Ingrid Melgård	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
32	C. Borchgrevink's house	2007	Ingrid Melgård	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
33	Drawing; D.I. Sonerud	1983				
34	Rasmusgården	1914	Iver Olsen	©Røros Museum	Pb. 224 7374 Røros, Norway	x
35	Rasmusgården	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
36	Rasmusgården		Drawing; Sverre A. Ødegaard	©Røros Museum	Pb. 2224 7374 Røros, Norway	x
37	Rasmusgården, courtyard	2007	Roy Åge Håpnes	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
38	Kjerkgata	End of 19 <sup>th</sup> C		©Røros Museum	Pb. 2224 7374 Røros, Norway	x
39	Kjerkgata	1869	Elen Schomragh	©Røros Museum	Pb. 224 7374 Røros, Norway	x
40	Kjerkgata, desember 2008	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x

<b>Id. no</b>	<b>Caption</b>	<b>Date of Photo</b>	<b>Photographer</b>	<b>Copyright owner</b>	<b>Address</b>	<b>Non exclusive cession of rights</b>
41	Sleggveien	2007	Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	x
42	Sleggveien	1996	Jiri Havran	©Jiri Havran	Pb. 5360 Majorstua 0304 Oslo, Norway	
43	Tyri Myren	1933		©Røros Museum	Pb. 2224 7374 Røros, Norway	x
44	Tyristuggu	2007	Roy Åge Håpnes	©Riksantikvaren	Pd 8196 dep. 0034 Oslo, Norway	x
45	Sleggveien	1996	Jiri Havran	©Jiri Havran	Pb. 5360 Majorstua 0304 Oslo, Norway	
46	Transporting hay	1972	Sverre Ødegaard	© Røros Museum	Pb. 224 7374 Røros, Norway	x
47	Cattle in the street	About 1950		©Røros Museum	Pb. 224 7374 Røros, Norway	x
48	Grazing cattle	2003	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x
49	Reindeer moss		Jon Suul	©Jon Suul	Pb. 253 Røros 7364 Røros, Norway	x
50	Transporting moss		Iver Olsen	©Røros Museum	Pb. 224 7374 Røros, Norway	x
51	Transporting hay			©Røros Museum	Pb. 224 7374 Røros, Norway	x
52	Bogs			©Røros Museum	Pb. 224 7374 Røros, Norway	x
53	Hay sheds	2006	Lisen Roll	©Riksantikvaren	Pd 8196 dep. 0034 Oslo, Norway	x
54	The town from the air	2005	Ole Jørgen Kjellmark	©Ole Jørgen Kjellmark	7374 Røros, Norway	x
55	Stormohaga	1954	Fjellanger Widerøe	©Fjellanger Widerøe A/S	Sorgenfriveien 9 7037 Trondheim, Norway	
56	Stormohaga	2005	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
57	Åsvollen	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
58	Rasmusvollen		Drawing; Sverre A. Ødegaard	©Røros Museum	Pb. 224 7374 Røros, Norway	x
59	Rasmusvollen	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
60	Rasmusvollen	2005	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
61	Storwartz	2006	Alexander Austnes	©Røros Museum	Pb. 224 7374 Røros, Norway	x
62	Storwartz	2007	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x

<b>Id. no</b>	<b>Caption</b>	<b>Date of Photo</b>	<b>Photographer</b>	<b>Copyright owner</b>	<b>Address</b>	<b>Non exclusive cession of rights</b>
63	Storwartz	2006	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x
64	Lower Storwartz	2005	Ole Jørgen Kjellmark	©Ole Jørgen Kjellmark	7374 Røros, Norway	x
65	Cableway	2006	Alexander Austnes	©Røros Museum	Pb. 224 7374 Røros, Norway	x
66	Storwartz	2007	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x
67	Storwartz	2004	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x
68	Storwartz	2007	Jon Holm Lillegjelten	©Røros Museum	Pb. 224 7374 Røros, Norway	x
69	Map of Storwartz mines 1694		Røros Kobberverk arkiv	©Røros Museum	Pb. 2224 7374 Røros, Norway	x
70	Christianus Sextus	2006	Lisen Roll	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
71	Christianus Sextus	2006	Lisen Roll	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
72	Muggruva	2005	Ole Jørgen Kjellmark	©Ole Jørgen Kjellmark	7374 Røros, Norway	x
73	Miners	About 1940	Alf Sandnes	©Røros Museum	Pb. 224 7374 Røros, Norway	x
74	Harborg railway station	1877		©Røros Museum	Pb. 224 7374 Røros, Norway	x
75	Arvedalslina	About 1900	Iver Olsen	©Røros Museum	Pb. 224 7374 Røros, Norway	x
76	Kuråsfossen power station	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
77	Femundshytta, the play town	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
78	Femundshytta, the play town	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
79	Femundshytta	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
80	Femundshytta	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
81	Winter Transport Route	2003	Stefan Quinth	©Stefan Quinth	Camera Q Slottet 530 10 Vedum, Sweden	
82	Winter Transport Route	2003	Stefan Quinth	©Stefan Quinth	Camera Q Slottet 530 10 Vedum, Sweden	

<b>Id. no</b>	<b>Caption</b>	<b>Date of Photo</b>	<b>Photographer</b>	<b>Copyright owner</b>	<b>Address</b>	<b>Non exclusive cession of rights</b>
83	Winter Transport Route	2003	Stefan Quinth	©Stefan Quinth	Camera Q Slottet 530 10 Vedum, Sweden	
84	Korssjøen farms	2001	Trond Taugbøl	©Riksantikvaren	Pb. 8196, 0034 Oslo, Norway	x
85	Winter Transport Route	2003	Stefan Quinth	©Stefan Quinth	Camera Q Slottet, 530 10 Vedum, Sweden	
86	Water chute		Amund Spangen	©Amund Spangen	Mælan 52 7374 Røros, Norway	
87	Tolga	2008	Lisen Roll	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
88	Feragen	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
89	Rauhåmåren	2005	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
90	Eidet	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
91	Eidet	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
92	Eidet	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
93	Hiort-Engan	2008	Bård Langvandslien	©Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
94	Sølendet		Amund Spangen	©Amund Spangen	Mælan 52 7374 Røros, Norway	
95	Sami and reindeer at the winter fair	2000	Marit Ose	©Marit Ose	Hjulmakerveien 22 7374 Røros, Norway	x
96	Sami visiting town		Iver Olsen	©Røros Museum	Pb. 224 7374 Røros, Norway	x
97	Slaughtering reindeer	1930s		©Røros Museum	Pb. 224, 7374 Røros, Norway	x
98	Sami with reindeer		Iver Olsen	©Røros Museum	Pb. 224, 7374 Røros, Norway	x
99	Winter fair	2008	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
100	Ratvolden	2005	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
101	Painting by Harald Sohlberg	1904	Jacques Lathion	©Nasjonalmuseet for kunst, Arkitektur og design, Norge	Pb. 7014 St. Olavs plass 0130 Oslo, Norway	

<b>Id. no</b>	<b>Caption</b>	<b>Date of Photo</b>	<b>Photographer</b>	<b>Copyright owner</b>	<b>Address</b>	<b>Non exclusive cession of rights</b>
102	The Sohlberg row of houses	1999	Trond Taugbøl	© Riksantikvaren	Pb. 8196 0034 Oslo, Norway	x
103	Painting by Harald Sohlberg	1904		©Trondheim Kunstmuseum	Bispegata 7b 7013 Trondheim, Norway	
104	Rørospols dance	2008	Helge Christie	©Helge Christie	2540 Tolga, Norway	x
105	Craftsmen	2007	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
106	Craftsmen	2007	Torbjørn Eggen	©Torbjørn Eggen	Røros kommune Postuttak B 7361 Røros, Norway	x
107	Children in Flanderborg	1915		©Røros Museum	Pb. 224 7374 Røros, Norway	x
108	Children i Sleggveien	2007	Anniken C. Mohr	©Anniken C. Mohr	Rosteds gate 6 0178 Oslo, Norway	

## 7b Text relating to the management of the Property

Annex 3: Management Framework and Plans

Annex 4: Statement of Intent

## 7c Most recent records and inventory of the Property

In connection with the preparation of this nomination dossier the following background material and reports have been prepared especially.

- Marie Louise Anker, *Prosjekt «Avgrensning, vern og forvaltning av verdensarv Røros» - Sluttrapport (2001)* (Project on the delimitation, protection and management of the World Heritage Site Røros Mining Town).
- Kirsti Jordet, *Særtrekk ved kobberverksdrifta ca. 1630-1890 (2003)* (Distinctive features of operations at the copper works, from approximately 1630 to 1890). The report deals with relations between the Røros Copper Works and the rural settlements in Nordøsterdal. This forms part of the project mentioned above.
- Torfinn Rohde, *Naturverdier i Circumferensen (Naturitas 2007)* (Values in the natural environment in the Circumference). This deals with the natural environment and the work on protection inside the Circumference pursuant to the Nature Conservation Act. Protection of the watercourses also plays a central role in this report.
- Jenny Fjellheim, *Det samiske perspektivet i verdensarven Røros (Røros Museum 2007)* (The Sámi perspective in the World Heritage Site Røros Mining Town). This deals with the importance of the Sámi and Sámi reindeer husbandry for the community at Røros throughout the period from the establishment of the copper works to the present time.

- Bjørn Ivar Berg, *Vurdering av Rørosgruvene som kulturminner (2007)* (The evaluation of the mines at Røros as cultural heritage). This focuses on placing the mines in the cultural heritage complex formed by the historic mines as a whole, including the mining town of Røros.
- Arne Espelund: *Fra berggrunn og jordsmonn i Rørostraktom* (ISBN 82-996953-0-9) (From rock and earth in the Røros region). A general presentation of mining and metallurgy in the Røros region. The book is based on a report compiled for the Directorate for Cultural Heritage that has been considerably expanded.
- Magne Fjæran, *Bergstaden - en kulturbistorisk steds- og landskapsanalyse (Røros kommune 2006)* (Røros - a cultural-historic analysis of town and landscape). This shows the gradual growth of the mining town and analyses the different values in the area as a basis for planning.
- Kjell Andresen and Marie Louise Anker, *Utvidelse av verdensarvområdet på Røros - Arbeidsnotat fra «omegnsgruppa»*, (Riksantikvaren, Directorate for Cultural Heritage, 2007) (Extension of the world heritage area at Røros) Memorandum from the «extension group».
- Dr. Jukka Jokilehto, *Røros, Mining Town, extension. Observations following the mission, 23.-26. September 2007.* (Memorandum 27.09.2007)
- Eigil Iversen, *Forurensningssituasjonen ved gruver og smeltehytter innenfor Circumferensen - Rørosfeltet* (Pollution situation at mines and smelters inside the Circumference - the Røros area). Memorandum, NIVA 2008.
- Jon Holm Lillegjelten, *Oversikt over synlige kulturminner i Storwartzområdet - Rapport fra Rørosmuseet etter oppdrag fra Riksantikvaren april 2008.* (Cultural heritage at the Storwartz Mines). Memorandum. Røros Museum.

## 7d Address where inventory, records and archives are held

Riksarkivet (National Archives of Norway)  
PO Box 4013 Ullevål Stadion, NO-0806 Oslo

Statsarkivet i Trondheim (Regional State Archives)  
PO Box 2825 Elgesæter, NO-7432 Trondheim

Riksantikvaren (Directorate for Cultural Heritage)  
PO Box 8196 Dep, NO-0034 Oslo

Direktoratet for naturforvaltning (Directorate for Nature Management)  
Tungasletta 2, NO-7485 Trondheim

Hedmark fylkeskommune (Hedmark County Authority)  
Kulturvernseksjonen, Parkgt. 64, NO-2325 Hamar

Sør-Trøndelag fylkeskommune (Sør-Trøndelag County Authority)  
Regional utvikling, Fylkeshuset, Postuttak, NO-7004 Trondheim

Rørosmuseet (Røros Museum)  
PO Box 224, NO-7374 Røros

Nordøsterdalsmuseet (Nordøsterdal Museum)  
Museumssenteret Ramsmoen, Kongsveien 6, 2500 Tynset

Røros kommune (Røros Municipality)  
Postuttak B, NO-7361 Røros

## 7e Bibliography

See also 7c *Recent Record and Inventory of the Property*

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## 8b Official Local Institution/Agency

### Town and Cultural Landscapes and Winter Transport Route, northern section

Røros kommune (Røros Municipality)  
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Contact: Torbjørn Eggen,  
E-mail: torbjorn.eggen@roros.kommune.no

Holtålen kommune (Holtålen Municipality)  
7380 Ålen, NORWAY

Sør-Trøndelag fylkeskommune (Sør-Trøndelag County Authority)  
Regional utvikling  
Fylkeshuset  
Postuttak  
7004 Trondheim, NORWAY  
Contact: Marie Louise Anker,  
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### Winter Transport Route, southern section

Os kommune (Os Municipality)  
Rytrøa 14  
2550 Os i Østerdalen, NORWAY

Hedmark fylkeskommune (Hedmark County Authority)  
Kulturvernseksjonen  
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### **Femundshytta**

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Box 27  
2440 Engerdal, NORWAY

Hedmark fylkeskommune (Hedmark County Authority)  
Kulturvernseksjonen  
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2325 Hamar, NORWAY  
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## **8c Other Local Institutions**

### **Rørosmuseet**

Box 224  
7374 Røros  
NORWAY  
E-mail: [museumspost@rorosmuseet.no](mailto:museumspost@rorosmuseet.no)

### **Nordøsterdalsmuseet**

Museumssenteret Ramsmoen  
Kongsveien 6  
2500 Tynset  
NORWAY  
E-mail: [mus-rams@online.no](mailto:mus-rams@online.no)

### **Røros Reiseliv**

Peder Hiortgata 2  
7374 Røros  
NORWAY  
E-mail: [post@rorosinfo.com](mailto:post@rorosinfo.com)

## **8d Official Web address**

### **Røros Museum**

The website has a comprehensive history of the world heritage site Røros Mining Town and the proposed extension in Norwegian and in English  
[www.verdensarvenroros.no](http://www.verdensarvenroros.no)  
[www.worldheritageroros.no](http://www.worldheritageroros.no)

### **Riksantikvaren Directorate for Cultural Heritage**

The website of the Directorate has a description of the present world heritage site in Norwegian and English, and an up to date report on the progress of work with the extension in Norwegian.  
[www.riksantikvaren.no](http://www.riksantikvaren.no)

# 9 Signature on behalf of the State Party

Oslo, 27 January 2009

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Erik Solheim  
Minister of the Environment  
Norway