World Heritage List 2017
Tarnowskie Góry Lead-Silver-Zinc Mine
and its Underground Water Management System (Poland)

Dear Madam,

ICOMOS is currently assessing the nomination of “Talayotic Minorca” as World Heritage Site, and an ICOMOS evaluation mission has visited the property to consider matters related to protection, management and conservation, as well as issues related to integrity and authenticity.

In order to help with our overall evaluation process, we would be grateful to receive information to augment what has already been submitted in the nomination dossier.

Therefore, we would be pleased if the State Party could consider the following points and kindly provide additional information:

Rationale for the nomination
The nomination includes below- and above-ground areas and the selection of the above-ground areas is not fully clear.

Could the State Party provide some additional explanation on this matter and explain whether the nomination has to be considered as a series or one single property?

As the rationale of the nomination needs some clarification, could the State Party provide vertical sections and 3D model sections illustrating the links between the underground part and the above ground structures, explaining the rationale for defining the nominated property?

Boundaries
The nomination dossier only briefly describes the boundaries of the nominated serial property, and of their buffer zone. However, the rationale for their delineation, particularly of the above ground components, is not fully clear.

Could the State Party clarify on the ground of what principles they have been drawn?
Protection
Ideally the strongest level of legal protection should be in place for all surface areas in their entirety (and not only for some of the attributes) when a property is nominated for World Heritage listing. From the nomination dossier it seems that legal protection is not fully in place for all surface areas (p. 390 – 391).

Could the State Party clarify if they all (from A2 to A8) are legally protected by the relevant legislation and what type of legal protection is in place for the area A5?

Could the State Party also provide additional and updated information on the advancement of legal protection designations of areas which do not enjoy yet legal protection and on the state of the art with regard to the legal protection for each surface component?

The dossier briefly explains that for the buffer zone special layers of protection have been designed (p. 21 – 35).

Could the State Party provide additional information on the legal basis for this special protection, when it has been formally adopted/ approved and how this is implemented or, if not already in place, by when its finalisation is expected?

Development project
The property is located in a densely populated area and in one of the most industrialised district of Poland. The dossier itself admits that pressures from urban and industrial development exist and need to be controlled.

Could the State Party provide detailed information on any on-going, approved or envisaged development project within the nominated property and its buffer zone?

Management
ICOMOS notes that, given the complexity of the property, many institutions and bodies at the national and local levels hold responsibilities in the protection and in the management of the nominatec property. Their cooperation and coordination is therefore crucial for the management to be effective and ensure that the values of the nominated property are maintained over time. The nomination dossier mentions that an informal framework scheme of cooperation has been developed in the framework of the preparation of the nomination, although this has not been formalised yet.

This ‘cooperation scheme’ appears to be crucial and would need to be formalised and agreed upon by all relevant administrations and stakeholders as soon as possible. Could the State Party provide a timetable for its approval?

Clear roles, responsibilities and tasks in the management of the nominated property need to be assigned to each of the involved parties. Could the State Party consider this issue and clarify the organigram for the Steering committee, its competences and functioning?

Finally, the nomination dossier mentions that the management plan has not been finalised yet.

Could the State Party provide updated information on the timeframe for its finalisation, approval by all concerned parties and beginning of its implementation?

Could the State Party also clarify the status of the management plan in relation to other existing plans and their provisions so as to ensure that effective mechanisms are in place to avoid that development projects or modifications of planning provisions may negatively impact on the proposed OLV and its attributes?

We look forward to your responses to these points, which will be of great help in our evaluation process.
We would be grateful if you could provide ICOMOS and the World Heritage Centre with the above information by **Monday 14 November 2016 at the latest**, and we thank you in advance for your kind cooperation.

Yours faithfully,

Gwenaëlle Bourdin
Director
ICOMOS Evaluation Unit

Copy to  Tarnowskie Góry Land Lovers' Association
         UNESCO World Heritage Centre
Ms Gwenaëlle Bourdin
Director
ICOMOS Evaluation Unit

Subject: World Heritage List 2017, Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System (Poland)

Dear Madam,

We are pleased to submit additional information, requested by the ICOMOS letter of 14 October 2016, concerning the nomination of the Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System.

We would like to underline that Poland is aware of the challenges of the examination process and anticipates discussion on the nomination dossier.

Please accept, Madam, the assurance of our highest consideration.

Yours faithfully,

Prof. Małgorzata Rozbicka, PhD, MSc
Director of the National Heritage Board of Poland

Copy to:
1. UNESCO World Heritage Centre
2. Permanent Delegation of the Republic of Poland to UNESCO
3. Polish National Commission for UNESCO
4. Department of Heritage Protection of the Ministry of Culture and National Heritage
5. a/a
Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System, Poland

RESPONSE TO THE REQUEST FOR ADDITIONAL INFORMATION

RATIONALE FOR THE NOMINATION

The nomination includes below- and above-ground areas and the selection of the above-ground areas are not fully clear. Could the State Party provide some additional explanation on this matter and explain whether the nomination has to be considered as a series or one single property? As the rationale of the nomination needs some clarification, could the State Party provide vertical sections and 3D model sections illustrating the links between the underground part and the above ground structures, explaining the rational for defining the nominated property?

RATIONALE FOR THE SINGLE PROPERTY APPROACH

Consultation on the approach was undertaken with the World Heritage Centre and it was agreed that the proposal may be submitted as a single property.

The nominated property as proposed comprises the entire underground system of mining workings: all principal drainage galleries (adits) that contribute to the underground water management system, chambers, transport galleries, and shafts (that connect to surface, whether capped or open), together with the water station, both under- and above-ground structures. The underground part is completed by surface mining topography, an integral part of the environment.

The underground part of the property comprises the core value of the property, and bears the greatest contribution to Outstanding Universal Value. Every surface character area, however, adds important information about the history and development of the property, assists in surface orientation for the underground and in communicating the vastness of
Warsaw, 14 November 2016.

the extent of the water management system and the mine workings in which it operates, provides in certain instances key access points to the underground via shafts and levels, and generally assists in its understanding, its community values and proper management. It is an organically evolved site (landscape), with designed elements. Ore deposits were located at various depths, all relatively close to the surface. Some parts of the underground and surface features, which are the outcomes of mining activity, are fully integrated and it is not possible to make any horizontal division.

The underground and surface 'character areas' are connected in 3D: the underground network laterally underlies all carefully selected surface 'character areas' and is physically and historically connected to each by vertical mineshafts, of which there are many, or in the case of the adits the surface features have been fully included as they are part of the functional integrity of the water management system. The surface character areas are important, the best-preserved, very suggestive (clear) indicators of the character of the property, in the past and today (geology, mining and heritage). The surface features help to understand geology of ore deposits, the underground water issue (water table, high infiltration) and the technical challenge in construction of the water management system over several centuries.

The State Party considered a serial property but having analyzed the character of the site, the way it has developed and has been functioning over time, decided not to select this approach. In our opinion it would be rather an artificial division, confusing for the local community with the potential to negatively impact upon the presentation and management of the property.

The three dimensional character of the property, composed of underground and above ground features, unfortunately makes the presentation on maps technically difficult, however 3D perspectives are supplied with this correspondance.

**JUSTIFICATION FOR INDIVIDUAL CHARACTER AREAS**

**Friedrich Mine Adit Portal and Ditch and God Help Adit Portal and Ditch (A2, A3)**
Adit portals and ditches, the technical surface features that are integrated with the adit systems underground, have been fully included as far as the discharge points in rivers as they are part of the functional integrity of the water management system, in this case drainage/water removal that protects the underground mining network from
Warsaw, 14 November 2016.

Flooding. In addition, the Friedrich Adit portal has rare architectural attributes including form, design and materials (comparable to some of the best existing examples in Germany), indicative of the status of the state mine – far more costly and showy than a simple functional design. The ditch has attributes of size and scale to handle the high water flow (more water than the river into which it flows), of design in terms of its length and inclination that are designed to remove water at a constant fall and throughout the year – even in winter where the warmer mine water will be discharged before it can freeze. Continuation of water flow, in other words continuity of the dynamic function for which the system was designed, is also an attribute of process.

See: Appendix 1, 2, 3

**Adolph Shaft Waterworks (A4)**

The highly authentic built form and design of the surface complex of the waterworks (including steam generation for the engines located underground at the water level in Friedrich Deep Adit) attains high functional integrity in combination with the underground features of the water management system. This is a unique site, indicative of the forward-looking, high-technology, large-scale state mining enterprise and its contribution to regional industrial development in Upper Silesia through state-of-the-art water supply. It is a highly advanced technological ensemble for its time, with fine attributes of industrial architecture above and below ground, introduced in Prussian style with fused local adaptation.

See: Appendix 1, 4, 5

**Mining Landscape (19th c) (A5)**

This mining landscape was present when Adolph Shaft Waterworks was constructed and accentuates the integration of water supply into the active mining environment, a significant value therefore in terms of association.

The value of the property is the integrated combination of the mine and water management, and in this surface mining landscape – adjacent to Adolph Shaft Waterworks – this inter-relationship may be easily understood.

We fully agree with the ICOMOS mission inspector that the character areas A4 and A5 can be merged to create a single area. Both are physically connected vertically by shafts to the lateral underground mining and water management network.

See: Appendix 1, 4, 5
Silver Mountain and Washing Tip (A6)

Silver Mountain's intensely readable mining terrain is testimony to the changing scale, intensity and technologies of mining and the significance of mineral output during the two principal historic mining phases. The surface is substantially under-drained by the Friedrich Deep Adit and connected to it by several shafts that directly connect into the main drainage level itself, and numerous shafts that connect with the laterally extensive underground workings in the sub-horizontally bedded ore deposit, all of which is included in the underground property.

The vertical geological section in the quarry provides access and physical information in terms of the strata's structural and lithological properties, its mineralogy and ore-deposit characteristics and, crucially, its hydro-geological properties. Further, the quarry face also contains a key access level into the underground mining system.

Washing Tip is a mineral ‘washing’ (crushing of ore/rock followed by gravity-water separation into ore concentrate and low-ore values/rock waste) physically and spatially connected to Peace Shaft. Its size/scale/volume/footprint is testimony to the scale, technology and organisation of the Phase II State mine, particularly in terms of zinc production, and its entire form and mass is contained within the property area. It is also part of the water management system in that industrial water (as opposed to drinking water) was sourced directly from the flow of mine water extraction – at first from the Original Site of Friedrich Mine by ditch to the washing tip and later pumped by steam engine from Peace Shaft. So the shaft (sunk first to construct the Friedrich Deep Adit system) was, after completion of the adit, used after as a source of adit water (of suitable industrial quality) by pumping up the shaft to the sophisticated ore ‘washer’ plant. We also know that the abnormal anthropogenic concentration of carbonate dolomite containing lead-zinc-iron, and the granular particle nature and drainage qualities, of the washing tip provides a valuable calamine flora habitat, a semi-natural outcome of the metal mining process.

Silver Mountain and Washing Tip are combined into one character area to present the full spectrum of mining topography, characteristic for different periods and or deposits (lead and silver, zinc). This integration is important for the presentation and management of the property.

See: Appendix 1, 6, 7
Original Site of Friedrich Mine (A7)
This site is included for its substantial archaeological potential in terms of early surface-underground water management (Kunst rosche water supply to Peace Shaft Washing Tip A6), sites of horse-powered Kunst pumping water to surface, steam engine sites (including the first steam engine) for pumping water to surface, the site of ore discovery, the latter marked by the commemorative conical tip that is a tangible expression of the community values of Tarnowskie Góry's mining culture. It is a historically very important place where construction of the 18th and early 19th c. water management system started. Archaeological research, to date, has not been conducted because the true significance of the place only emerged during exhaustive desk research as part of the nomination process.

In terms of attributes that testify to the exceptional community values associated with the mining landscape we can group this feature with the characteristic mining parks that preserve characteristic features (pingi and warpie) of the mining landscape.

See: Appendix 1, 8, 9

Municipal Park (A8)
This site is a tangible expression of the exceptional community value of the mining culture and landscape where ancestors once worked. It is representative of a large number that were constructed throughout Upper Silesia from the 1830s/40s through to the early 1900s.

It is also a surface expression and one which provides orientation for the underground mining network - and underground water management system - which passes beneath and was connected to it via shafts. It is already a site that has held a special place with the community life for generations, its associations with the property are well-known and it was felt that its contribution was beneficial to the communication of overall values.

See: Appendix 1, 10, 11

GENERAL COMMENT
The important surface features contained within 'character areas', including shaft heads and surrounding tips that pinpoint the underground system and give ready appreciation of its areal extent at surface, allow airflow, and access to humans and bats, are integral to
functional integrity. They also act as orientation for the underground, indicative of the characteristic of scale and extent of this mining enterprise (we have selected the best and most accessible, but not the entire area of Friedrich Mine, and other lead-silver-zinc mines) and its water management system. Our selection of the property attributes and delineation of the boundaries concentrated on containing all the water management system.

BOUNDARIES

The nomination dossier only briefly describes the boundaries of the nominated serial property, and of their buffer zone. However, the rationale for their delineation, particularly of the above ground components, is not fully clear.

Could the State Party clarify on the ground of what principles they have been drawn?

BOUNDARY OF THE PROPOSED WORLD HERITAGE PROPERTY

In the process of the boundaries delineation three principal issues were taken into account:

- The spatial distribution of attributes and the condition of such historic features (authenticity and integrity) and their potential for scientific research (archaeology),
- Current legal protection and land use regulations,
- Land ownership divisions.

Boundary of the Underground (A1)

The boundary of the underground system is drawn to contain the entire underground water management system and the most concentrated areas of ore exploitation, including an area of archaeological potential (to the north of God Help Adit, where a large area of 16th century workings are proven to exist but continued water abstraction at Kaehler Shaft prevents exploration at the present time). The boundaries correspond (are within) with the boundaries of the legal protection (the national and local levels).

Boundaries of the surface character areas

Friedrich Mine Adit Portal and Ditch, God Help Adit Portal and Ditch (A2, A3)
Warsaw, 14 November 2016.

The area comprises of the entire man-made functional component of the adit system as far as their discharge points into the rivers. The boundaries follow ownership divisions and were checked against current land use regulations. Also legal provisions for introducing formal legal protection were considered (listing procedures are already underway and advanced).

**Adolph Shaft Waterworks (A4)**
The entire historic property as bounded by original perimeter walls. The boundary follows historic and current land ownership division. It also compatible with the boundaries of legal protection (the national and local levels).

**Mining Landscape (19th c) (A5)**
An appropriately selected area of the best surviving pingi and warpie terrain, one that is sufficient in terms of integrity to readily interpret the mining context of Adolph Shaft Waterworks. The boundary corresponds with the ownership divisions and land use regulations. Also legal provisions for introducing formal protection as well as private owners attitude to inscription were considered. There is potential for a slight extension of the boundaries to merged A4 and A5 character areas to create a single area.

**Silver Mountain and Washing Tip (A6)**
The entire area of the historic beech forest recorded to contain both phases of mining works from surface was included. The character area was extended to include the dolomite quarry face that marks the limit of quarrying which had destroyed some of the underground and surface workings but was stopped by community environmental action in the 1960s. The boundaries also encompass the entire area of the washing tip, and its associated shaft (Peace Shaft) which was part of the water management system (directly connected to Friedrich Deep Adit) and which supplied water to the washing plant. The boundaries follow land ownership divisions. They were checked against current land use regulations and the boundaries of existing legal protection.

**Original Site of Friedrich Mine (A7)**
The principal area of the most technologically significant first installations of the state-run Friedrich Mine. The remains are archaeological as engines (steam and horse-powered) were designed as temporary and involved substantial wooden structure that could be dismantled and moved – easily, quickly and cost-effectively (an exceptionally unusual instance in world mining history, meticulously recorded in this example,
especially of large-scale stationary steam engines introduced from Britain). The boundary follows ownership and land use divisions. Also legal provisions for introducing formal protection as well as private owners attitude to inscription were considered.

Municipal Park (A8)
The property boundary coincides with the historic boundary of the park, which contains the majority of the preserved post-mining landscape directly connected via shafts to the underground water management system. The boundary corresponds with the boundaries of the legal protection and with the ownership division.

BOUNDARY OF THE BUFFER ZONE

The buffer zones of both existing and proposed World Heritage Sites in Poland are established using existing legal tools and mechanisms – through the use of existing forms of legal protection or through the inclusion of applicable provisions in local regulations.

Buffer zone (principal)
Following the analysis of the existing and potential dangers which may have an impact on the value of the nominated property, it has been determined that the goals related to the protection thereof are entirely consistent with the goals of the Natura 2000 protection regime with respect to the site PLH240003 (Bytom and Tarnowskie Góry Undergrounds). Therefore, in principle, the boundaries of the buffer zone followed the boundaries of the Natura 2000 site. There are two major exceptions: on the south the buffer zone area was reduced in comparison to the Natura 2000 site, where it includes areas which are not part of the nominated property), on the north the boundary has been slightly extended to ensure appropriate relevance to all the essential elements of the nominated property (Natura 2000 area does not include small parts of the undergrounds in the northern and central part of the city).

Special layers of protection
Special layers of protection have be proposed to be established within the buffer zone in order to supplement the protective regime guaranteed under the management plan for the Natura 2000 site. Their aim is to guarantee the preservation of view corridors and aesthetic value of the terrestrial components of the property. Special layers of protection are proposed only where necessary after thorough analysis of the current
state and potential threats to the surface attributes of the nominated property. Delineation of the boundaries was determined by the ownership and land use structure. Current regulations established by land use development plans were taken into account.

PROTECTION

Ideally the strongest level of legal protection should be in place for all surface areas in the entirety (and not only for some attributes) when a property is nominated for world heritage listing. From the nomination dossier it seems that that legal protection is not fully in place for all surface areas (p. 390-391).

Could the State Party clarify if they all are (from A2 to A8) legally protected by the relevant legislation and what type of legal protection is in place for the area A5?

Could the State Party also provide additional and updated information on the advancement of legal protection designations of areas which do not enjoy yet legal protection and on the state of the art with regard to the legal protection for each surface component?

The dossier briefly explains that for the buffer zone special layers of protection have been designated (p. 21-35)

Could the state Party provide additional information on the legal basis for this special protection, when it has been formally adopted/approved and how this is implemented or, if not already in place, by when its finalisation is expected?

The property proposed for inclusion on the World Heritage List is subject to effective protection both under the provisions of applicable laws (national and local) and according to established local customs. Appropriate forms of legal protection specified under the Act on the Protection and Guardianship of Monuments (Act of July 23, 2003) or under the Act on Nature Conservation (Act of April 16, 2004) have been implemented with respect to the majority of the site (A1, A4, A6, A8). Procedures intended to ensure that a full conservation policy is extended to the remaining parts of the property have either been initiated (A2, A3) or are expected to commence in the near future (A5 and A7). Anticipated protection will be in place by early 2018.
Warsaw, 14 November 2016.

Basic and the most restrictive form of legal protection of historic monuments, specified by the Act of July 23, 2003 is entry in the register of monuments. Administrative actions in this respect are carried out by the Regional Monuments Inspector who, ex officio or at the request of a party – the monument’s owner or user, launches the entry procedure. The preparatory stage consists in collection of information and documentary materials meant to confirm the value of the monument for the national heritage. Listing of a historical monument in the register implies the need to obtain permission of the Regional Monuments Inspector for any intervention (survey, conservation, restoration or construction works, change of use) planned at the monument or in its vicinity. Registered monuments must have an appropriate designation/qualification in the local spatial polices.

According to the same act, there is legal form of protection dedicated especially for cultural landscapes – a cultural park. The decision to set up a cultural park is taken by the municipal council, after consulting the Regional Monuments Inspector competent for this territory. Certain restriction on the use of the area can be established. There is an obligation to set appropriate policies in local development plans for the given area (development of local development plan is obligatory in case of cultural parks).

Another, relevant legal form of protection provided by the Act of July 23, 2003 is setting up in the studies of conditions and directions of spatial development and local spatial development plans, depending on the needs, a conservation protection zone covering the areas on which the limitations, prohibitions and injunctions included in the arrangements of the plan apply to protect the monuments located in the area concerned.

In addition to provisions established by legislation concerning protection of the cultural heritage, there are certain forms existing under the Act on Nature Conservation: Nature Reserve, Natura 2000, and other forms. Nature Reserve, the strictest form of protection in Poland, covers areas preserved in natural or slightly changed condition, with outstanding environmental, scientific, cultural or landscape values. Recognition of areas as a Nature Reserve takes place by an act of local law in the form of an order of the Regional Director for Environmental Protection which specifies the area’s name, location, the boundary line and the buffer zone, the objectives of protection and the nature, type and subtype of nature reserve, as well as the person supervising the reserve.
Both the area designated for inclusion on the List and the buffer zone are covered by local spatial development plans – local legislation which specifies the intended use of the given areas as well as the rules for the development thereof. All surface parts of the site of the proposed World Heritage property are covered by appropriate regulations which are intended to ensure that the current state of conservation and the control of development of the area is preserved. Draft studies of the condition and directions of spatial development for communes as well as spatial development plans\(^1\) require an opinion to be given or consultations to be made with, respectively, the Regional Monuments Inspector or the Regional Director for Environmental Protection, insofar as the provisions of the plans in question which may have a detrimental impact on the protection of cultural or natural resources placed under formal legal protection are concerned.

**THE PROPOSED WORLD HERITAGE PROPERTY**

The Underground (A1)
Character area A1 covers underground excavations related to the exploitation of underground deposits which have been conducted since the earliest days (the 12th and 13th century) within the area encompassing Tarnowskie Góry, Bytom, Radzionków and Zbrosławice until 1912, when the 'Fryderyk' Mining Company discontinued its activities due to the depletion of deposits. The sites within the nominated area have been designated on the basis of a common denominator, in compliance with the criteria applied for the purposes of selection.

The forms of monument protection policy provided for under the Act of July 23, 2003 are applicable to all of the excavations referred to above as a result of the inclusion in the Register of Historic Monuments (by decision of the Regional Monuments Inspector no. KL.III-600/454/66 dated 28.05.1966) of the former ore mine in Tarnowskie Góry (register of monuments entry no. 608/66; before this entry was made, protection was afforded under the decision on the allocation of historical monument status adopted by the Presidium of the Regional National Council in Stalinogród, signed by the Regional Monuments Inspector [decision no. KL.V-61/R/442/2/55 dated 26.04.1955]) as well as pursuant to the Regulation of the President of the Republic of Poland dated 14.04.2004 on the allocation of historical monument status to ‘Tarnowskie Góry – the underground

\(^1\) The Spatial Planning and Land Development Act (Act of March 27, 2003) does not impose the duty to prepare local plans on the local government.
section of the historical Silver Ore Mine and the Black Trout Adit’, located beneath the
town of Tarnowskie Góry in the Silesian Province. All of the aforementioned documents
place a great emphasis on the historical, research and cultural value of the protected site.

Furthermore, the entire underground section of the nominated property is located within
the boundaries of the Natura 2000 Site – the Tarnowskie Góry and Bytom Undergrounds
(PLH240003). Pursuant to the decision of the European Commission no. 2008/25/EC
dated November 13, 2007, this area has been approved and designated as an area of
Community importance. It encompasses a system of underground excavations, tunnels
and adits which serve as wintering sites for bats.

**Conclusion:**

The entire area is under formal legal protection and benefits from the appropriate
protective provisions of the local regulations.

**Friedrich Mine Adit Portal and Ditch (A2)**

Character area A2 covers the tunnels spreading from the ‘Fryderyk’ (Friedrich) Deep Adit
to the area of the Zbrostawice commune. Proceedings for the inclusion of the tunnels
spreading from the ‘Fryderyk’ Deep Adit to the area of the Zbrostawice commune in the
register of historic monuments were initiated in 2016 (notification – document no. K-RD.
5130.14.2016 dated 17.08.2016). The proposed boundaries of the monument protection
policy will encompass an extensive area of 12 plots of land which cover the historic site.
There are 7 parties to the proceedings in question, including private individuals and the
Agricultural Property Agency. The expected time of completion of the proceedings and
the issuance of the decision is late 2017 or early 2018. On 11.08.2016, the decision no. K-
RD.5130.14.2016 was issued concerning the inclusion in the register of historic
monuments of the access portal to the ‘Fryderyk’ Deep Adit (number of entry: A/480/2016),
built in 1834 and located in Ptakowice (Zbrostawice commune); it is from
this location that the aforementioned network of tunnels spreads.

**Conclusion:**

Partially covered by formal legal protection (the portal), with procedure for
inclusion of the entire area in the register of historic monuments having been

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2 The forms of legal protection in effect in the designated area, arising under the act on the
protection and guardianship of monuments or the act on nature conservation, establish different
regimes of protection depending on the nature of the given area.
Warsaw, 14 November 2016.

initiated; the area benefits from appropriate provisions of the local regulations (fields, meadows and pastures or forests, no development allowed).

God Help Adit Portal and Ditch (A3)

Character area A3 covers the tunnels spreading from the 'Boże Wspomóż' ('God Help Us') Adit on Komuny Paryskiej Street (Tarnowskie Góry). Proceedings for the inclusion of the tunnels spreading from the 'Boże Wspomóż' Adit on Komuny Paryskiej Street (Tarnowskie Góry) along with the surrounding area in the register of historic monuments were initiated in 2016 (notification – document no. K-RD. 5130.16.2016 dated 17.08.2016). The proposed boundaries of the monument protection policy will encompass an extensive area of 15 plots of land which cover the historic site. There are 10 parties to the proceedings in question, including private individuals. The expected time of completion of the proceedings and the issuance of the decision is late 2017 or early 2018.

Conclusion:
The area benefits from appropriate provisions of the local regulations (meadow and pastures, no development allowed); the procedure for inclusion of the entire site in the register of historic monuments has been initiated.

Adolph Shaft Waterworks (A4)

Character area A4 covers the area and facilities of the 'Staszic' Waterworks in Tarnowskie Góry (Staszica Street), comprising the ‘Staszic’ mine shaft building and the ‘Staszic’ mine shaft (previously known as the ‘Adolf’ mine shaft), the ‘Maszynowy’ mine shaft building and the ‘Maszynowy’ mine shaft, the former boiler house with parts of historic equipment, i.e. the Lancashire boiler cylinder with boiler brickwork (1922) and the condensate tank (1930), the former workshop, the former water softening plant, the low-voltage electrical switching station building, the bath house, workshop and storage building, the gatehouse, the western, eastern and northern perimeter wall along with the section branching off from the bend as well as the underground chambers A, B and C with parts of their historic technical fixtures and fittings, i.e. the pumping system no. 2 (1903) and steam engine (chamber 'B'), pumping system no. 6 built in 1942 (chamber 'B'), the German-manufactured manual gantry with a 8000 kg capacity (chamber 'B'), manual two-beam gantry with a 3000 kg capacity (1903, chamber 'B') and a riveted transportation container (moveable object). The 'Staszic' Waterworks in Tarnowskie Góry on Staszica Street along with all its aforementioned constituent parts is covered by a historical monument
Warsaw, 14 November 2016.


**Conclusion:**
The entire area is under formal legal protection and benefits from the appropriate protective provisions of the local regulations.

**Mining Landscape (19th c) (A5)**
Character area A5 covers former mining areas with preserved landforms showing traces of former mining shafts of the ore mines of ‘ancient’ origin as well as sites of surface excavation of limonite (19th century). The choice of this site, located in the immediate vicinity of the ‘Staszic’ Waterworks in Tarnowskie Góry on Staszica Street is entirely justified, as the site complements the historic landscape of the former mining town of Tarnowskie Góry which constitutes an asset that requires a historical monument protection policy to be in place on a permanent basis. Today, the site is protected under the provisions of local regulations. The Silesian Regional Monument Inspector intends to conduct archaeological research on character area A5 and does not rule out the possibility of the site in question being included in the register of historic monuments.

The spatial development plan for character area A5 includes zones designated in the commune register of monuments as former mining landscape protection zones, along with specific prohibitions pertaining to the development of the area.

**Conclusion:**
The entire area benefits from the appropriate protective provisions of the local regulations.

**Silver Mountain and Washing Tip (A6)**
Character area A6 covers an extensive, forested area forming part of the ‘Segiet’ nature reserve in the historic Srebrna Góra (Silver Mountain) area, where metal ore mining has a very long tradition. This area is subject to legal protection pursuant to the disposition of the Minister of Forestry dated April 27, 1953, the aim of which is to preserve the natural features of the area (a natural beech forest with some fir and spruce) which used to be the site of mining excavations and which features are well-preserved, immediately
apparent landforms that hint at the presence of numerous, densely scattered former mining shafts. This area was also extended through the inclusion of the site of the former tailings pile along with its immediate surroundings, which are covered by a conservation regime provided for under the Act on the Protection and Guardianship of Monuments of July 23, 2003, imposed through the establishment of a culture park (Resolution of the Town Council no. LXVIII/597/2006 dated 25.10.2006 on the establishment of a Culture Park designated as ‘the Tailings Pile’ located in Tarnowskie Góry, in the vicinity of Mała and Długa streets). In the Regional Monuments Inspector's view, the implemented forms of legal protection for the designated area, along with the provisions of applicable local regulations in force, guarantee the long-term preservation of the features thereof, including the preservation of the former tailings from the Fryderyk silver ore mine. The Silesian Regional Monument Inspector believes that the decision to begin archaeological research in the area in question is justified and expects this decision to be implemented.

Furthermore, the Srebrna Góra area also encompasses the Segiet Nature Reserve; a nature reserve remains the most strict form of protection of the natural environment available under Polish law. All natural features – whether animate or inanimate – are subject to legal protection within the boundaries of a nature reserve. The aim of the protection regime at the Segiet Nature Reserve is to preserve – due to research, educational and landscape considerations – the fragment of a natural beech forest along with its rich fauna and flora. No commercial exploitation of forest resources may take place within the nature reserve save for protective measures arising from the allocated tasks related to environmental protection or under a relevant preservation plan. The protective measures at the Segiet Nature Reserve are implemented on the basis of Regulation No. 63/06 of the Governor of the Silesian Province dated November 30, 2006 concerning the establishment of a protection plan for the Segiet Nature Reserve.

Draft studies of the condition and directions of spatial developments for communes as well as spatial development plans relating to the nature reserve and the buffer zone thereof (if such buffer zone has been designated), consultations to be made with the Regional Director for Environmental Protection, insofar as the provisions of the plans in question which may have a detrimental impact on the protection of the nature reserve are concerned.

**Conclusion:**
A significant part of the area is subject to formal legal protection due to its natural or cultural value (nature reserve, culture park) the entire area benefits from the appropriate protective provisions of the local regulations.

Original Site of Friedrich Mine (A7)
Character area A7 covers the area of the former Fryderyk mining facility along with the Memorial Tailings Pile. This site remains a historical monument of great importance due to its history, the nature of its former use and the possible traces of such use which might have been preserved in the ground and underground. At the present stage, as a result of the works performed, the site of the ten-metre-high Memorial Tailings Pile – the symbol of the resurgence of the mining industry in Lower Silesia in the late 18th century – has been revitalised, with a number of massive small-leaved lindens arranged in a circle and having the status of natural monuments surviving in the immediate vicinity of the tailings pile. As a result of the memorial pile regaining the status in the history of Silesian mining which it deserved, the inscription into the register of historic monuments will be a mere formality and will inevitably take place in the near future due to the existence of numerous reasons which justify such action. The Silesian Regional Monument Inspector believes that the decision to begin archaeological research in the area in question is justified and expects this decision to be implemented. The aim of the contemplated archaeological excavations is to examine the relics of the historic mining facility buildings, despite the fact that the appearance of the said buildings can be gleaned from the extensive surviving stock of photographs and illustrations.

The spatial development plan for character area A7 includes zones designated in the municipal register of monuments as former mining landscape protection zones, along with specific prohibitions pertaining to the development of the area. Specific prohibitions relating to land development have been imposed for character area A7 within the area of the monument of animate nature designated as ‘the Künszt Park’ (resolution No. 34/302/2004 of the Town Council in Tarnowskie Góry dated December 2, 2004).

Conclusion:
The entire area benefits from the appropriate protective provisions of the local regulations.

Municipal Park (A8)
Character area A8 covers the area of the Municipal Park which is protected under a formal conservation regime resulting from the inclusion in the Register of Historic Monuments (decision K-RD.5130.19.2014.KL dated 23.08.2016, historical monument register no. A/483/2016).

**Conclusion:**
The entire area is under formal legal protection and benefits from the appropriate protective provisions of the local law regulations.

**BUFFER ZONE**

Buffer zones, as separated, independent protection mechanisms (tools) do not formally exist in Poland. Therefore, buffer zones of both the existing and the proposed World Heritage Sites are established using the existing legal tools and mechanisms – through the use of existing forms of legal protection or through the inclusion of applicable provisions in local regulations.

Following the analysis of the existing and potential dangers which may have an impact on the value of the nominated property, it has been determined that the goals related to the protection thereof are entirely consistent with the goals of the Natura 2000 protection regime with respect to the site PLH240003 (the Special Natura 2000 Protection Area – Tarnowskie Góry-Bytom Undergrounds). For the above reason, the proposed buffer zone designated for the nominated property overlaps with the boundaries of the Natura 2000 site. By decision of the European Commission No. 2008/25/EC dated November 13, 2007, this area has been approved and designated as an area of Community importance. The entire area of the nominated property forms part of the Natura 2000 reserve. It encompasses a system of underground excavations, tunnels and adits which serve as wintering sites for bats. The area in question incorporates habitats specified in Appendix no. I to the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora: fertile beech forests (Dentarioglandulosae-Fagenion, Galioodorati-Fagenion) and calaminarian grasslands (Violetalia calaminariae) as well as two species of bats: the greater mouse-eared bat – (Myotis myotis) and the Bechstein’s bat (Myotis Bechsteinii) referred to in Appendix II to the said Directive. In addition, the area is also a hibernation site for seven species of bats which, although not specified in Appendix II of the Council Directive 92/43/EEC, are nevertheless protected under the provisions of domestic law. Bats also live in this habitat during the summer season.
According to the legal provisions applicable to the Natura 2000 sites, no activities may be undertaken which may, whether individually or in conjunction with other activities, have a significant detrimental impact on habitats and species for the protection of which the given site was designated. The activities performed may also not detrimentally affect the links of the given area with other Natura 2000 areas. This means that every undertaking, measure or investment must be analysed in this regard prior to the implementation thereof. Planning documents of individual communes, i.e. studies of the condition and directions of spatial development and local spatial development plans must also take into account the needs related to the protection of Natura 2000 sites.

The protection of the Special Natura 2000 Protection Area – Tarnowskie Góry-Bytom Undergrounds – a site of European Community importance – is ensured on the basis of the Disposition of the Regional Director for Environmental Protection in Katowice dated April 24, 2014 concerning the preparation of a management plan for the Natura 2000 special area designated as ‘Tarnowskie Góry-Bytom Undergrounds’ (site PLH240003), as amended by the Disposition of the Regional Director for Environmental Protection in Katowice dated May 18, 2015 amending the disposition concerning the preparation of a plan of protective measures for the Natura 2000 site designated as ‘Tarnowskie Góry-Bytom Undergrounds’ (site PLH240003). This document identifies both existing and potential hazards for the protected habitats and species (e.g. accumulation of water in drainage tunnels, flooding of underground chambers, isolation of individual parts of the system). The accumulation of water between the Blachówka adit and the Gwarków Gate may prevent bats from being able to move freely between openings facilitating access to the tunnels; attempts to build new structures in the area located in the immediate vicinity of the most important of all openings (Blachówka Zachodnia) as well as the plans for the construction of residential buildings on unstable surface in the vicinity of the Segiet Reserve and the opening leading into the Blachówka adit pose a risk of collapse of both the shaft openings and the subterranean corridors where bat species dwell, which may lead to the loss of habitats of these species. In addition, the document also identifies the necessary protective measures. Every undertaking contemplated within the area or in the vicinity of the Subterranean Tunnels of Bytom and Tarnowskie Góry as well as every planning document must be assessed with regard to whether it may bring about any of the identified hazards and whether it may restrict the scope of implementation of the contemplated protective measures.
In order to supplement the protective regime guaranteed under the management plan for the Natura 2000 area, it has been proposed that special layers of protection be established within the buffer zone, the aim of which would be to guarantee the preservation of view corridors and aesthetic value of the terrestrial parts of the property. The analysis performed demonstrated that the current rules for spatial development within the areas in question are appropriate from the standpoint of the protection of the value of the proposed World Heritage property and that the said rules should therefore be upheld. These areas shall be monitored on an ongoing basis; special protective zones shall be introduced to the studies of the condition and directions of spatial development and to the spatial development plans along with the nearest update or amendment thereof.

Conclusion:

The entire area is under formal legal protection and benefits from the appropriate provisions of the local law regulations.

DEVELOPMENT PROJECT

The property is located in a densely populated area and in one of the most industrialised district of Poland. The dossier itself admits that pressure from urban and industrial development exists and need to be controlled. Could the state Party provide detailed information on an on-going, approved or envisaged development project within the nominated property and its buffer zone?

Tarnowskie Góry administrative region

The buffer zone in Tarnowskie Góry is covered in its entirety by the Local Urban Development Plan and is subject to provisions of a strategic document, namely the Study of the Conditions and Directions of Local Development (a new integrated version of 2014). The documents regulate in a sufficient way the management of urban space.

Tarnowskie Góry is a unique city for it emerged in the process of subsequent acquisition of the neighbouring villages by an urban organism. The process started after World War II and peaked in 1973-76. ‘Internal peripheries’ were created between particular districts and subsequently underwent urbanisation. The operation of constructing large estates of blocks of flats ceased after 1989, with some of the planned estates not even started.
Single-family housing started entering the areas, growing centrifugally from the centre of each of the former villages. The remaining unoccupied areas between them were ‘caught’ in the process of covering the city with local urban development plans in 2006-2013, and in most cases the dynamic urbanisation was stopped there.

The process of constructing big industrial plants in Tarnowskie Góry, mainly providing services to coal mining, also stopped after 1989. The size of new companies radically decreased, with some of them finding locations near the already existing plants or even within their area.

A bigger level of urbanisation was planned for districts located closer to the City Centre, while small unoccupied spaces were left for landscape protection reasons (e.g. south of the City Park). The city’s southern districts, Repty Śląskie and Bobrowniki Śląskie, were planned in such a way so as to create ventilation zones and eco-corridors, and, at the same time, protect relicts of the post-mining landscape, create an adequate zone for the Repty Park, etc. Spatial planning within character areas (from A4 to A8) was carried out professionally by the City Mayor's urban planning office and the studio that prepared the plan. The major part of the most valuable areas in terms of landscape and heritage protection was included within the boundaries of the nominated property.

The protection undertaken currently in the plans through a system of orders and bans is set to function in perpetuity. The main instrument that constrains and inhibits investors – i.e. developers and plot owners – is the Study the endorsed local plans must be compliant with, or, at the very least, they may not contradict it. As of today, there are no reports of plans to implement larger investments that could affect the operation of the buffer zone – motorways, retail complexes, logistics centres, large factories or large housing estates.

In order to protect mining undergrounds and control development there are certain mechanisms set by the local law. For all investments at the area of historic mining activity recorded, prior to obtaining building permission, the investor is obliged to submit a geological and mining survey, drawn up by a qualified expert, which should identify the risks arising from the presence of the excavations and impact of the investment on them, and indicate the technical methods of mitigating these risks. Simultaneously, it is obligatory to use watertight waterworks, storm or sanitary water networks and also to properly organize and control the flow of rainwater.
Warsaw, 14 November 2016.

**Bytom administrative region**

The area of the proposed World Heritage property and its buffer zone is dominated by forest areas, and the only buildings which are located exclusively within the buffer zone boundaries are the predominantly single family houses. The boundary of the buffer zone includes part of three districts of the city of Bytom: Sucha Górę, Stolarzowice and Górnik. These are typical rural areas / suburbs. Not even light industrial plants are located in the buffer zone.

A significant part of the area is covered by the Spatial Development Plan according to the Bytom City Council resolution No. VIII / 113/15 of April 27, 2015 on the approval of the local spatial development plan of the northern part of the city of Bytom, called the ‘Blachówka’ plan – the southern part. It is prohibited, within the whole area covered by the plan, to locate any projects/ investment that could have a significant impact on the environment. Any investment activity and construction plans can be implemented only subject to the protection of natural habitats and species for which Special Natura 2000 Protection Area – Tarnowskie Góry - Bytom Underground was designated.

There is no information so far about any intentions for larger investments that could affect the buffer zone, like highways, shopping complexes, logistics centers, industrial facilities (e.g. mills, factories) or large housing estates. The area of the proposed World Heritage property together with its buffer zone is covered by the Natura 2000 designation, which significantly narrows the investment opportunities in this region due to the active protection of the surface (Segiet Reserve – beech forest habitat) and the undergrounds (mining workings, which are the habitat of bats).

**Conclusion:**

The area of the nominated property and its buffer zone is not threatened by any large scale development project. It is covered by various legal forms of protection and benefits from appropriate land regulations. The regional development strategies underline cultural and natural heritage protection as key asset in the Tarnowskie Góry area, known as ‘green Silesia’.
MANAGEMENT

ICOMOS notes that, given the complexity of the property, many institutions and bodies at the national and local levels hold responsibilities in the preparation and in the management of the nominated property. Their cooperation and coordination is therefore crucial for the management to be effective and ensure that the values of the nominated property are maintained over time. The nomination dossier mentions that the informal framework scheme of cooperation has been developed in the framework of the preparation of the nomination, although this has not been formalised yet. This ‘cooperation scheme’ appears to be crucial and would need to be formalised and agreed upon by all relevant administrations and stakeholders as soon as possible. Could the State Party provide a timetable for its approval?

Clear roles, responsibilities and tasks in the management of the nominated property need to be assigned to each of the involved parties. Could the State Party consider this issue and clarify the organigram for the Steering committee, its competences and functioning?

Finally, the nomination dossier mentions that the management plan has not been finalised yet. Could the State Party provide updated information on the timeframe for its finalisation, approval by all concerned parties and beginning of its implementation? Could the State Party also clarify the status of the management plan in relation to other existing plans and their provisions so as to ensure that effective mechanisms are in place to avoid that the development projects or modifications of planning provisions may negatively impact on the proposed OUV and its attributes?

The Management Plan for the Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System was developed in 2015 and submitted together with the nomination document for inclusion of the property in the World Heritage List.

The Management Plan covers a period of 2016-2020. It was developed by the Tarnowskie Góry Land Lover’s Association in a close collaboration of the Tarnowskie Góry City Hall and other stakeholders. The plan was commissioned by the National Heritage Board of Poland and financed from the funds of the Minister of Culture and National Heritage.

The Management Plan was commissioned by the Board (the Centre for World Heritage)
Warsaw, 14 November 2016.

with a purpose to assist the stakeholder group in preparation of the Nomination Dossier and in managing the Property as a candidate for the World Heritage List. It constitutes three documents, namely: Conservation Management Plan; Interpretation and Tourist Access Strategy; Risk Preparedness Strategy. The Management Plan is an open and living document. It will be improved and updated along with the experience gathered at the local level, with support of the National Heritage Board as required.

The Management Plan was developed on the basis of a thorough analyses of the current state of the nominated Property. It captures current legal status, community understanding and approach to heritage protection as well as skills at local level (as of 2015) and sets directions for futures activities in order to improve protection of the Property's values.

According to Polish legislation a Management Plan doesn’t have a direct legal impact, it has a status of a multi-party agreement, and thus is delivered through direct activities of the owners and administrators, who are responsible for care of monuments, and regional and local authorities through strategies, plans and other documents, relevant to certain category of activities. A constructive and effective management plan must therefore be based on cooperation of the owners, the authorities and other stakeholders in the development of a system that will ensure effective conservation, monitoring and co-participation in change management in the Property. The main stakeholders selected for each of the areas and attributes will perform an essential role of contact points, implementation coordinators for particular areas comprising the Property, and persons or institutions in charge of the measures. It is the responsibility of specific stakeholders to integrate and implement the Plan within their respective planning jurisdiction, and the responsibility of the Property Management Coordination Team and Steering Committee to coordinate and monitor such actions. Relevant content in the Plan will be applied to all revisions of such strategic documents and other plans.

Along with the development of the Management Plan a wide range of consultations and discussions with local authorities and inhabitants of the area took place. All key members of the Tarnowskie Góry stakeholder group agreed to abide by the spirit, content and direction of the plan, and are forthwith obligated to adopt and promote appropriate conservation and management of the nominated Property.

For operational reasons the **Property Management Coordination Team** has been
Warsaw, 14 November 2016.

established by the Tarnowskie Góry Land Lovers’ Association and the Tarnowskie Góry City Hall. The parties signed a letter of intent concerning cooperation for coordinating all measures related to the management of the nominated World Heritage property. The team consists of the deputy chair of the Tarnowskie Góry Land Lovers’ Association and the Deputy Mayor of Tarnowskie Góry, and is supported by an appointed representative of the Silesian Marshall Office and the Centre for World Heritage at the National Heritage Board of Poland. The responsibilities of this team include, among others, implementing the adopted Management Plan, representing the Property with outside organizations and conducting an archive.

The Management Plan was formally adopted by all key stakeholders, who signed an Agreement on cooperation with respect to the property designated as ‘Tarnowskie Góry lead-silver-zinc mine and its underground water management system, proposed for inclusion on the UNESCO World Heritage List on the November 7, 2016. The aim of the agreement is to implement the Management Plan. At the same time a Steering Committee composed of 12 stakeholders has been established. The Steering Committee is a consultative-advisory board comprising representatives of services in charge of protecting the cultural and natural heritage, as well as representatives of local authorities and the owners. The Committee will assemble once a year and in crisis situations to make strategic decisions, to perform supervision on the implementation of the Management Plan, to assess and approve possible amendments to the Plan and all other measures taken by the Coordinating Team.

The Steering Committee jointly appoints a Coordinator and Working Group. The rules concerning the appointment and the scope of duties of the Coordinator as well as the work regulations of the Working Group will be laid down in a separate agreement as the next step. The working group (or groups) will comprise representatives of the owners, local authorities, of heritage protection services and other stakeholders, appointed to implement particular measures of the Management Plan.

See: Appendix 12

Thanks to the leading role taken actively by both the Tarnowskie Góry Land Lovers’ Association and the Tarnowskie Góry City Hall and very close cooperation between the two (a special post for the property management coordination has been established) the Management Plan has been started to be implemented despite the fact that the Steering
Committee formally is only just recently established. Since the completion of the document the following actions has been completed or initiated:

**Action Plan** (Conservation Management Plan, p. 70-81)

**Policy 1:** Consistent, coordinated management
- a post for the coordinator established
- Steering Committee formally established
- a series of meetings and discussions in order to build a network for cooperation carried out successfully

**Policy 2:** Ongoing conservation and management needs
- monitoring of the Washing Tip, outlet of the Friedrich Mine Deep Adit with Portal and Ditch and a 19th-century mining landscape established
- conservation works at the Friedrich Mine Deep Adit started
- maintenance works carried out at the Original Site of the Friedrich Mine, Friedrich Mine Deep Adit outlet, God Help Adit outlet

**Policy 3:** Resources, human and financial, to implement the CMP
- development of consistent financial resourcing initiated

**Policy 4:** Increasing legal and practical protection
- extension of the legal protection established (Adolph Waterworks Station, Friedrich Mine Deep Adit Portal, Municipal Park, Adit Shaft No. 5, Adit Engine Shaft No. 22)
- extension of the legal protection initiated (Friedrich Mine Deep Adit ditch, God Help Adit ditch)
- protection of calamine meadows initiated

**Policy 5:** Residential and commercial development
- monitoring of potential changes and draft planning documents initiated and carried on
- monitoring of decisions and permits concerning spatial development initiated and carried on

**Policy 8:** Roads and railways as an options for heritage and environmentally sensitive
Warsaw, 14 November 2016.

visitor movement

- cooperation with Polish State Railways and Upper Silesian Narrow Gauge Railways Association on the protection of narrow gauge railway embankments and a possibility of using railway heritage for tourist purposes initiated

Policy 11: Archives and collections

- professional inventory and study of the TGLL Association’s archives started in cooperation with the Silesian University

Policy 14: Research and increasing knowledge

- development of a research strategy initiated with cooperation with the Silesian University
- archaeological and architectural research initiated in cooperation with the regional conservation office and the Silesian University
- detailed inventory and documentation of the underground started, 3D laser scanning of 2500 m of the underground galleries executed (works are planned to be continued), mapping of the undergrounds by the Tarnowskie Góry municipality started
- research concerning calamine meadows started in cooperation with the Silesian University
Warsaw, 14 November 2016.

List of appendixes:

1. Town of Tarnowskie Góry mining map with nominated property and its character areas – compilation and redrawing of old mining maps from 1790-1936 superimposed on the contemporary survey map (1:2000)

2. Town of Tarnowskie Góry mining map – character area 2, Friedrichsstolln (close-up)

3. Town of Tarnowskie Góry mining map – character area 3, Gotthelf Stolln (close-up)

4. Town of Tarnowskie Góry mining map – character areas 4 and 5 (close-up)

5. 3D perspective section through A4 and A5 area (view from SE)

6. Town of Tarnowskie Góry mining map – fragment of the character area 6 (close-up)

7. 3D perspective section through northern part of the A6 area (view from South)

8. Town of Tarnowskie Góry mining map – character area 7 (close-up)

9. 3D perspective section through A7 area (view from NE)

10. Town of Tarnowskie Góry mining map – character area 8 (close-up)

11. 3D perspective section through A8 area (view from SE)

12. Copy of the Cooperation agreement (with translation to English)

POROZUMIENIE

w sprawie współpracy na rzecz Dobra „Kopalnie ołowiu, srebra i cynku wraz z systemem gospodarowania wodami podziemnymi w Tarnowskich Górach” zgłoszonego do wpisu na Listę światowego dziedzictwa UNESCO

zawarte w dniu 7 listopada 2016 r. w Tarnowskich Górach, pomiędzy:

Województwem Śląskim z siedzibą w Katowicach (40-037) przy ul. Ligonia 46, reprezentowanym przez:
Wojciecha Salugę – Marszałka,
Henryka Mercika – Członka Zarządu,

Gminą Tarnowskie Góry z siedzibą w Tarnowskich Górach (42-600) przy ul. Rynek 4, reprezentowanym przez:
Arkadiusza Czecha – Burmistrza Miasta,
Piotra Skrabaczewskiego – Zastępcę Burmistrza Miasta,

Powiatem Tarnogórskim z siedzibą w Tarnowskich Górach (42-600) przy ul. Karłuszowiec 5, reprezentowanym przez:
Józefa Burdziaka – Starostę Tarnogórskiego,

Gminą Bytom z siedzibą w Bytomiu (41-902) przy ul. Parkowej 2, reprezentowanym przez:
Damiana Bartylę – Prezydenta Miasta,

Gminą Zbroślawice z siedzibą w Zbroślawicach (42-674) przy ul. Oświęcimskiej 2, reprezentowaną przez
Wiesława Olszewskiego – Wójta Gminy,

Regionalną Dyrekcją Lasów Państwowych w Katowicach, Nadleśnictwo w Bryniku z siedzibą w Bryniku (42-690 Tworóg) przy ul. Grabowej 3, reprezentowaną przez:
Adama Mazura – Zastępcę Nadleśniczego,

Śląskim Wojewódzkim Konserwatorrem Zabytków w Katowicach z siedzibą w Katowicach (40-015) przy ul. Francuskiej 12, reprezentowanym przez:
Ewę Pokorską-Ożóg – Śląskiego Wojewódzkiego Konserwatora Zabytków,
Regionalną Dyrekcją Ochrony Środowiska w Katowicach (40-032) przy ul. Dąbrowskiego 22, reprezentowaną przez: Jolantę Prażuch – Zastępcą Dyrektora,


Przedsiębiorstwem Wodociągów i Kanalizacji Sp. z o.o. w Tarnowskich Górach z siedzibą w Tarnowskich Górach (42-600) przy ul. Opolskiej 51, wpisanym do rejestru przedsiębiorców prowadzonego przez Sąd Rejonowy Katowice-Wschód w Katowicach, VIII Wydział Gospodarczy Krajowego Rejestru Sądowego pod numerem 000069696, NIP 6451905456, REGON 273247690, reprezentowanym przez: Martę Annę Bis – Prezesa Zarządu, Henryka Franciszka Schlagnera – Wiceprezesa Zarządu,

Stowarzyszeniem Miłośników Ziemi Tarnogórskiej z siedzibą w Tarnowskich Górach (42-600) przy ul. Gliwickiej 2, wpisanym do rejestru stowarzyszeń, innych organizacji społecznych i zawodowych, fundacji oraz samodzielnych publicznych zakładów opieki zdrowotnej Krajowego Rejestru Sądowego prowadzonego przez Sąd Rejonowy w Gliwicach, X Wydział Gospodarczy pod numerem KRS 0000041094, NIP 6450010326, REGON 001054216, reprezentowanym przez: Marka Kandzię – Przewodniczącego Zarządu, Zbigniewa Pawłaka – Zastępcę Przewodniczącego Zarządu,

Muzeum Górnictwa Węglowego w Zabrzu z siedzibą w Zabrzu (41-800) przy ul. Jodłowej 59, reprezentowanym przez: Bartłomieja Szewczyka – Dyrektora,

zwanyami łącznie Stronami, a każdą z osobna Stroną.

Mając świadomość wyjątkowej wartości i znaczenia kopalni rud ołowiu, srebra i cynku w Tarnowskich Górnach wraz z systemem gospodarowania wodami podziemnymi, największego i najważniejszego historycznie zespołu kopalni ołowiu, srebra i cynku w Polsce, zawierającego pionierski w swoim charakterze system odwadniania terenu, z jednoczesnym
zaopatrywaniem regionu w wodę, a także dostrzegając znaczny potencjał kulturowy, naukowy i społeczny tego dobra. Strony niniejszym postanawiają zawrzeć porozumienie o następującej treści:

§ 1

1. Na mocy niniejszego Porozumienia Strony zgodnie wyrażają wolę współpracy i koordynacji działań w zakresie użytkowania, ochrony, konserwacji, promocji oraz turystycznego wykorzystania kopalni olowiu, srebra i cynku wraz z systemem gospodarowania wodami podziemnymi w Tarnowskich Górach (dalej zwanymi Dobrem) będącego przedmiotem wniosku o wpis na Listę światowego dziedzictwa UNESCO tworząc w tym celu Komitet Sterujący dla rekomendowanego Dobra.
2. Dobro znajduje się w granicach administracyjnych gmin: Tarnowskie Góry, Bytom i Zbroślawice.

§ 2

1. Strony ustalają, iż zebrania Komitetu Sterującego będą odbywać się co najmniej raz w roku, a w przypadkach niecierpiących zwłoki w możliwie jak najkrótszym, wspólnie uzgodnionym terminie.
2. Strony zobowiązują się do wzajemnego informowania się o podejmowanych działaniach w ramach realizacji celu, o którym mowa w § 1.
3. Strony zobowiązują się do stałej współpracy z Narodowym Instytutem Dziedzictwa, w ramach kompetencji Ośrodka ds. światowego dziedzictwa, punktu kontaktowego w zakresie realizacji Konwencji UNESCO w sprawie ochrony światowego dziedzictwa kulturalnego i naturalnego z 1972 r., w celu wypracowania modelu efektywnej współpracy i podniesienia poziomu ochrony i zarządzania dobrem kandydującym na Listę światowego dziedzictwa.

§ 3

Strony będą dążyły do wypracowania ogólnych zasad współpracy określonych w „Planie zarządzania Kopalni rud olowiu, srebra i cynku wraz z systemem gospodarowania wodami podziemnymi w Tarnowskich Górach na lata 2016-2020”, stanowiącego załącznik do dokumentacji wniosku o wpis Dobra na Listę światowego dziedzictwa, w szczególności w zakresie:

1. ochrony wyjątkowej powszechnej wartości kopalni rud olowiu, srebra i cynku oraz systemu gospodarowania wodami podziemnymi w Tarnowskich Górach dla obecnych i przyszłych pokoleń, poprzez podejście oparte na wartościach i ochronę tychże wartości, które powinny stać się fundamentem wszelkich działań w granicach Dobra i jego strefy buforowej;
2. zachowania i wzmacnienia wartości Dobra poprzez ochronę prawną, która jest efektywnie wykonywana, aktywną konserwację, i w miarę możliwości dodatkową poprawę integralności i podkreślone charakteru zabytkowego Dobra;
3. zaangażowania wszystkich podmiotów zainteresowanych dziedzictwem ziemi tarnogórskiej w proces lepszego rozumienia, dzielenia się i propagowania wartości Dobra oraz w promowanie zaangażowania społecznego i płynących z niego korzyści, w celu nadania dziedzictwu istotnego znaczenia w życiu mieszkańców;
4. zintegrowania ochrony wartości kulturowych i przyrodniczych Dobra, w celu lepszego zrozumienia związków i zależności pomiędzy tymi wartościami oraz podwyższenia ogólnej jakości krajobrazu.

§ 4

1. Celem bieżącego prowadzenia prac związanych z zachowaniem, ochroną, konserwacją, monitoringiem, promocją i udostępnianiem turystycznym Dobra w związku z ubieganiem się o jego wpis na Listę światowego dziedzictwa UNESCO, Strony wspólnie wyznaczą Koordynatora oraz powołują Grupę Roboczą rekomendowanego wpisu „Kopalni ołowiu, srebra i cynku wraz z systemem gospodarowania wodami podziemnymi w Tarnowskich Górah” na Listę światowego dziedzictwa UNESCO.
2. Zasady wyboru i zakres działania Koordynatora oraz Regulamin pracy Grupy Roboczej zostaną określone w odrębnym porozumieniu.

§ 5

1. Niniejsze Porozumienie nie rodzi żadnych zobowiązań finansowych.
2. Każda ze Stron w ramach realizacji celu, o którym mowa w § 1. będzie podejmowała działania wyłącznie w granicach swoich kompetencji.
3. Za zobowiązania wobec osób trzecich zaciągnięte przez jedną ze Stron w związku z realizacją niniejszego Porozumienia żadna z pozostałych Stron nie ponosi odpowiedzialności.

§ 6

1. Porozumienie zostało sporządzone w czternaście jednобрzmiących egzemplarzach – w dwóch egzemplarzach dla Województwa Śląskiego, dwóch egzemplarzach dla Gminy Tarnowskie Góry i po jednym egzemplarzu dla każdej z pozostałych Stron.
2. Wszelkie zmiany i uzupełnienie niniejszego Porozumienia wymagają formy pisemnej pod rygorem nieważności.
3. Porozumienie wchodzi w życie z dniem podpisania.
Regionalna Dyrekcja Ochrony Środowiska w Katowicach

Zastępca Regionalnego Dyrektora
Ochrony Środowiska w Katowicach
Rzecznik

Górnośląskie Przedsiębiorstwo Wodociągów S.A. w Katowicach

Zastępca Zarządu ds. Finansowych
Aleksandra Zamasz

Wiceprezes Zarządu Spółki
ds. Przemysłu
Miroslaw Ziemian

Przedsiębiorstwa Wodociągów i Kanalizacji Sp. z o.o. w Tarnowskich Górach

mgr Marek Kandejas

Stowarzyszenie Miłośników Ziemi Tarnogórskiej

PRZEWODNICZĄCY ZARZĄDU
Stowarzyszenia Miłośników Ziemi Tarnogórskiej

mgr Marek Kandejas

ZASTĘPCA PRZEWODNICZĄCEGO ZARZĄDU
Stowarzyszenia Miłośników Ziemi Tarnogórskiej

Zbigniew Pawlak

Muzeum Górniczego Węglowego w Zabrzu

DYREKTOR

Bartłomiej Szewczyk

Strona 6 z 6
AGREEMENT

on cooperation with respect to the property designated as “Tarnowskie Góry lead-silver-zinc mine and its underground water management system”, proposed for inclusion on the UNESCO World Heritage List.

concluded on 7 November 2016 in Tarnowskie Góry, by and between:

The Śląskie Province having its registered office in Katowice (40-037) at ul. Ligonia 46, represented by:
Wojciech Saługa – The Marshal of the Śląskie Province,
Henryk Merci – Member of the Board
and

The Town of Tarnowskie Góry having its registered office in Tarnowskie Góry (42-600) at ul. Rynek 4, represented by:
Arkadiusz Czech – The Mayor,
Piotr Skrabaczewski – Deputy Mayor
and

The Tarnogórski District having its registered office in Tarnowskie Góry (42-600) at ul. Karłuszowiec 5, represented by:
Józef Burdziak – District Governor
and

The City of Bytom having its registered office in Bytom (41-902) at ul. Parkowa 2, represented by:
Damian Bartyla – The President
and

The Zbrosławice Commune having its registered office in Zbrosławice (42-674) at ul. Oświęcimska 2, represented by
Wiesław Olszewski – Head of Commune
and

The Regional Directorate of the National Forest Holding in Katowice – the forest inspectorate in Brynek having its registered office in Brynek, ul. Grabowa 3, 42-690 Tworóg, represented by:
Adam Mazur – Deputy Forest Manager
and

The Silesian Regional Monument Inspector in Katowice having its registered office in Katowice (40-015) at ul. Francuska 12, represented by:
Ewa Pokorska-Ożóg – Silesian Regional Monument Inspector
and

The Silesian Regional Directorate for Environmental Protection in Katowice having its registered office in Katowice (40-032) at ul. Dąbrowskiego 22, represented by:
Jolanta Prażuch – Deputy Director
and
Górnosłaskie Przedsiębiorstwo Wodociągów S.A. (the Upper Silesian Waterworks Company – a joint-stock company) having its registered office in Katowice (40-026) at ul. Wojewódzka 19, entered into the register of entrepreneurs maintained by the District Court for Katowice-Wschód in Katowice, 8th Commercial Division of the National Court Register, with KRS number 0000247533, NIP tax identification number: 6340128788, Regon statistical number: 271506695, represented by:
Miroslaw Szemla – Deputy CEO
Aleksandra Zamasz – Deputy CEO
and
Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. (the Water and Sewage Company – a limited liability company) having its registered office in Tarnowskie Góry (42-600) at ul. Opolska 51, entered into the register of entrepreneurs maintained by the District Court for Katowice-Wschód in Katowice, 8th Commercial Division of the National Court Register, with KRS number 0000069696, NIP tax identification number: 6451905456, Regon statistical number: 273247690, represented by:
Marta Anna Bis – CEO,
Henryk Franciszek Schlagner – Deputy CEO
and
The Tarnowskie Góry Land Lovers’ Association having its registered office in Tarnowskie Góry at ul. Gliwicka 2, entered into the register of associations, other civic and professional organisations, foundations and independent public healthcare institutions of the National Court Register maintained by the District Court in Gliwice, 10th Commercial Division, with KRS number 0000041094, NIP tax identification number 6450010326 and REGON statistical number 001054216, represented by:
Marek Kandzia – Chairman of the Board
Zbigniew Pawlak – Deputy Chairman of the Board
and
The Museum of Coal Mining in Zabrze having its registered office in Zabrze at ul. Jodłowa 59, represented by:
Bartłomiej Szewczyk – Director
hereinafter individually referred to as “Party” or jointly as “Parties”,

Having regard to the exceptional value and significance of the Tarnowskie Góry lead-silver-zinc mine and its underground water management system – the largest and most historically important complex of lead, silver and zinc mines in Poland incorporating a groundbreaking water drainage system which also supplied water to the surrounding area – and having regard to the outstanding cultural, research and social potential inherent in the property in question, the Parties hereby resolve to conclude an agreement reading as follows:

§ 1

1. Pursuant to the present Agreement, the Parties jointly express their desire to cooperate and coordinate their activities within the scope of the protection, maintenance, promotion and use
(including for the purposes of tourism) of the Tarnowskie Góry lead-silver-zinc mine and its underground water management system (hereinafter referred to as “the Property”) which forms the subject of the application for inclusion on the UNESCO World Heritage List; the Parties hereby establish the Steering Committee for the recommended Property in order to achieve the objectives referred to above.

2. The Property is located within the administrative boundaries of the following communes: Tarnowskie Góry, Bytom, Zbrosławice.

§ 2

1. The Parties hereby agree that the meetings of the Steering Committee shall take place at least once per year, and where urgent action needs to be taken – as soon as practicable, at a time mutually agreed upon by the Parties.

2. The Parties undertake to notify one another about the actions performed for the purposes of implementation of the objective referred to in § 1 above.

3. The Parties undertake to engage in constant cooperation with the National Heritage Board of Poland, within the framework of the competences of the Centre for World Heritage, the contact point with regard to the implementation of the 1972 UNESCO Convention concerning the protection of the world cultural and natural heritage, for the purposes of developing a model for efficient cooperation and management of the property recommended for inclusion on the World Heritage List.

§ 3

The Parties shall strive towards developing general principles of cooperation which shall be laid down in the Plan for the management of the Tarnowskie Góry lead-silver-zinc mine and its underground water management system in years 2016-2020 which constitutes an appendix to the documentation attached to the application for inclusion of the Property on the World Heritage List, including, in particular, with respect to the following areas:

1. protection of the outstanding universal value of the lead, silver and zinc mines and the underground water management system in Tarnowskie Góry so that it may be preserved for both the present and future generations, by adopting an approach based on values and the protection thereof, which shall become the cornerstone of all activities performed both within the boundaries of the Property and of its buffer zone;

2. preservation and enhancement of the value of the Property by ensuring effective legal protection, proactive maintenance and, insofar as practicable, additional enhancement of the integrity and emphasising the historical nature of the Property;

3. ensuring the involvement of all entities having an interest in the preservation of the heritage of Tarnowskie Góry in the process designed to ensure improved mutual understanding, sharing and promoting the value of the Property as well as in the process of promoting civic involvement and the benefits thereof in order to ensure that heritage attains an important status in the life of the local residents;

4. ensuring the integrated protection of the cultural and natural characteristics of the Property for the purposes of attaining a better understanding of the links and relations between these characteristics as well as improving the overall landscape quality.

§ 4
1. The aim of the ongoing performance of works related to the preservation, maintenance, protection, monitoring, promotion and tourist use of the Property in connection with the efforts designed to ensure the inclusion thereof on the UNESCO World Heritage List, the Parties shall jointly appoint a Coordinator and Working Group with regard to the recommendation for the inclusion of the Tarnowskie Góry lead, silver and zinc mine and its underground water management system on the UNESCO World Heritage List.

2. The rules concerning the appointment and the scope of duties of the Coordinator as well as the work regulations of the Working Group shall be laid down in a separate agreement.

§ 5
1. The present Agreement gives rise to no obligations of a financial nature.
2. In the course of activities performed for the purposes of achieving the objective referred to in § 1, each of the Parties shall act exclusively within the boundaries of its competences.
3. Where any of the Parties assumes any obligations vis-à-vis third parties in connection with the implementation of this Agreement, none of the other Parties shall accept any liability whatsoever for such obligations.

§ 6
1. This Agreement has been drawn up in thirteen identical counterparts, two for the Silesian Province and one for each of the remaining Parties.
2. Any changes and supplements to this Agreement must be made in writing or else shall be null and void.
3. The Agreement shall enter into force on the date of execution thereof.

Signatures of the respective stakeholders

Signing of the cooperation agreement, Tarnowskie Góry, November 7, 2016.
tarnogórskie underground
- work of nature, art of people
**Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System** is the largest and most significant historic lead-silver-zinc mine in Poland, together with its integrated underground water management system that incorporated a pioneering water supply that was the largest of its kind in the world. Lead output from the mining field during the sixteenth century played a key role in European silver smelting, and its nineteenth century zinc output dominated world supply of the architectural metal. The mine, and associated industrial concerns of the Prussian State, became a foundation of the German industrial revolution – emergent in Silesia – and adapted its dewatering system to supply both a rapidly expanding population, and industry, with almost its entire water needs.

The unusually accessible underground heritage remains in the care of a community based conservation association that has its roots in the 1930s, with continuous and unbroken formal activity since 1957. Such commitment shows the strength of mining and industry at the heart of the Silesian cultural tradition.


The Management Plan was developed by the Tarnowskie Góry Land Lover’s Association with a close collaboration of the Tarnowskie Góry City Hall and other stakeholders. It was commissioned by the National Heritage Board of Poland and financed from the funds of the Minister of Culture and National Heritage.
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Annex
Guardians of the Past, Pioneers of the Future

The World Heritage Convention obliges its States-Parties to protect, conserve, present and transmit the shared heritage of humanity to the future generations. The management of heritage is a difficult art form which requires perseverance, commitment, and a considerable amount of professional skill. The Tarnowskie Góry Land Lovers’ Association, which initiated the nomination process for the inscription of the Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System onto the UNESCO World Heritage List, has for the last half century been successfully taking care of this ancestral heritage. However, meeting the requirements imposed on the caretakers of properties which are candidates for inscription as well as coping with current expectations regarding heritage, forces one into a state of perpetual reflection and obliges one to build and continually improve upon a system of an enduring, targeted cooperation.

The mines of the Tarnowskie Góry region, although nominated for inscription as a cultural Property, uniquely combine the work of man and nature. The exceptionally rich natural resources were the basis of the region’s economic development. However, their use was conditional upon man’s exceptional skills and abilities. After the cessation of the extraction of ore, a labyrinth of underground corridors and an ‘extra-terrestrial’ topography remained in the landscape of Tarnowskie Góry. This unique and varied post-mining landscape undergoes further anthropogenic changes as well as a gradual renaturalisation. The recognition of resources, the learning of processes, and the definition of potential outcomes – the management planning of a cultural landscape in all its dimensions, is a demanding task. Just as the initial development of mining and water management, and the emergence of this extraordinary monument was contingent on the knowledge of the environment and on man’s skill, so is the current effectiveness of its protection.

On the initiative of the General Monument Conservator, in 2015 the Centre for World Heritage was established at the National Heritage of Poland. The Centre aims at improving the management and increase the level of protection of World Heritage properties in Poland. Among the tasks entrusted to the Centre by the Minister of Culture and National Heritage is the implementation of the procedure for submitting applications for inscription on the UNESCO World Heritage List and the shaping and promoting a model of effective conservation and management of World Heritage properties. The realization of these two tasks came together in the development of the 2016-2020 Management Plan as an attachment to the application for inscription of the Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System on the UNESCO World Heritage List.

Unfortunately, management planning is still rare in the practice of protection of cultural heritage in Poland. This management plan, developed with the support of the National Heritage Board of Poland by the Tarnowskie Góry Land Lovers’ Association in cooperation with the City of Tarnowskie Góry and other key stakeholders, sets out the principles and outlines the main directions while leaving space for evolution of the most effective solutions. The knowledge acquired in this way and the accompanying experience of cooperation will certainly bring profit in the future, and the finished document, apart from meeting the necessary requirements, constitutes a good practice which outlines the appropriate approach and course of action in the heritage protection.

Prof. Małgorzata Rozbicka
Director
The National Heritage Board of Poland
The efforts made by the Tarnowskie Góry Land Lovers’ Association, aiming at recording the structure of the Tarnowskie Góry Lead-Silver-Zinc mine and the unique underground water management system, deserve support and recognition. The decades-long statutory activity of your Association, thanks to which millions of people have visited the Historic Silver Mine and the Black Trout Adit so far, proves that knowledge and professional approach to the historical fabric, as well as passion and commitment, guarantee effective promotion and protection of industrial culture heritage.

I believe that the Tarnowskie Góry underground complex best illustrates the process of industrialization, which transformed Upper Silesia into one of the most innovative regions in Europe and the world in the 19th century. It is thanks to the achievements of technological progress, increase in mining efficiency, as well as innovations in social security that the local residents prospered. These transformations were triggered by the flourishing extraction and metallurgy of zinc and lead, the most prominent minerals of the Tarnowskie Góry area. It is here that industrialization was born. I am therefore a committed supporter of the endeavors of the Association to place the Tarnowskie Góry undergrounds on the UNESCO World Heritage List.

One of the features that characterize the projects prepared by the members of the Tarnowskie Góry Land Lovers’ Association is the consistence and incessant strive at their implementation. In this context, we have to mention your participation in the Silesian Industrial Monuments Route, and the leading role of the Historic Silver Mine in this network, as the place where visitors are offered highest-quality and diverse services, unique knowledge and experience.

We should also emphasize that the significance of the Tanowskie Góry undergrounds has already been recognized by a record on the list of National Historic Monuments. This is the highest distinction a monument can receive in Poland. The list currently includes only 60 monuments, as they are characterized by outstanding value and significance to the cultural heritage of our country.

I am convinced that the success of the application for record on the UNESCO World Heritage List is determined by the complexity of the application and the information it contains. The reliable and meticulous work performed by the Tarnowskie Góry Land Lovers’ Association for the last 6 years has proven that we can speak of the Tarnowskie Góry undergrounds as a masterpiece of human genius and a significant exchange of values in the development of technology that prospered around Europe, fueled by the extraction of lead-silver-zinc ores in Tarnowskie Góry. This activity has left us with an exquisite proof of cultural tradition, as exemplified by the vibrant Tarnowskie Góry miner tradition, promoted by the Association. I believe that these arguments will be convincing, and that Silesia will soon join the Polish regions boasting World Heritage sites.

Henryk Mercik
Silesian Voivodeship Management Board
One of the key concepts of our time is sustainability. It consists in using the existing resources at an environmental, social and economic level in the way that ensures their availability and development by future generations.

Cultural heritage and understanding of the past contribute to improving the quality of our lives. Moreover, they exert increasingly noticeable impact on environmental protection, social capital and economic development.

The expanding notion of heritage now includes landscapes, urban and industrial centers, and — apart from traditional constituents — also ruins, monuments and magnificent buildings. However, such heritage requires efforts towards overall property management. The management system of cultural heritage supports the preservation and management of properties in a way that increases achievable benefits beyond the framework of the Property.

The unique cultural heritage of Tarnowskie Góry includes mining excavations and the adit drainage system, the water management system that once coexisted with mining, urban waterworks and the Municipal Park from the turn of 19th and 20th century which is the example of one of the first revitalized post-mining areas. The heritage collectively covers twenty six interrelated elements owned by the Tarnowskie Góry Land Lovers’ Association, the Polish State, local governments and private owners. All these properties are territorially dispersed over the three neighboring communes.

The Tarnowskie Góry authorities as one of the key shareholder fully realize the value of properties located within its area as well as the ensuing obligations. Since the onset, we have been supporting the creation of the functional local heritage management system at a legal, organizational and intellectual level. Moreover, our neighbours, the city of Bytom and the commune of Zbroślawice, are committed to cooperate in building the system.

Together we have developed a cooperation scheme to protect, present and manage the properties. Personal presence of the highest town authorities in the Steering Committee and the team of the Managing Leader as well as the presence of authorized representatives in the Working Group confirm our responsible approach to the efforts initiated by the Tarnowskie Góry Land Lovers’ Association and show our full support of undertaken activities.

I am confident that our efforts will support the planning, implementing and monitoring of the activities in the way that contributes to preserving and managing our heritage and properties in line with the tenets of sustainable development.

Piotr Skrabaczelewski
Deputy Mayor for Economic Affairs
Tarnowskie Góry
With Care for Identity

When I was a child, I would play with my friends on numerous hills and hollows spread around Tarnowskie Góry. At the time I had no idea that this landscape was the art and labour of human endeavour, the work of our ancestors. I had the impression that these were simply the shapes of nature. I also remember my first trip to the underground, when I encountered the vastness of endless corridors, of water, and rock. I questioned myself – who forged so many tunnels and chambers, and why?

Those first impressions stayed with me. With my friends and colleagues in the Tarnowskie Góry Land Lovers’ Association, I have been exploring the underground labyrinth, persistently, for thirty years. There are still many places that I have not yet reached. It stretches to infinity. For me, this is a giant sculpture, left to us by our forbears.

As I learnt more and more about the accomplishments that have taken place in and around Tarnowskie Góry, I began to wonder – why does the world know so little of this place? Things began to change in 2004, when the Tarnowskie Góry underground was entered in the Presidential List of Monuments. At that time my association received great encouragement towards preparing a nomination to UNESCO’s World Heritage List. With my colleagues, we decided it was time to disenchant the popular history of Tarnowskie Góry, to reveal its true significance. For six years I have been part of a dedicated team that has researched tirelessly, in the field and in the archive, compiling our dossier, meeting challenges and taking action and bringing new partners on board. In 2013, my association received the title of Polish Heritage Guardian, awarded by the Senate of the Republic of Poland, the first non-government organisation to be honoured in this way. We felt deeply that our entire generation must fulfill our obligation to manage our heritage with diligent care and understanding, to guarantee that the testimony of the past remains a testimony in the future.

The nominated Property comprises 28 attributes and is managed by many entities, which makes it a challenging property to coordinate. We began consultations, with landowners, the community, with specialists, and with government departments from the local to regional and national levels. We now have a solid partnership in the Tarnowskie Góry, Bytom and Zbrosławice commune authorities that joined us in the protection of our heritage. The World Heritage process is responsible for this coming together, and we are stronger for it. We work together, sharing resources and expertise, tasks and challenges. We have cooperated in the development of a comprehensive and effective management system that embraces all appropriate legal and organisational frameworks.

Tarnowskie Góry Land Lovers’ Association and the City of Tarnowskie Góry, together, will lead on the coordinated management of the nominated Property. It is a deep and firm commitment that we have made, and our partners are in place to support us. We pledge our utmost assurance that management, conservation, monitoring and spatial planning will be conducted in a proper and sustainable manner, across the entire property. I am convinced that our shared endeavors to interpret, present, promote and use the property in the future will be in the positive interests of the protection of our heritage, and that future generations will continue take pride in their mining ancestry.

With a miner’s greeting, ‘God Bless You’

Zbigniew Pawlak
Vice-Chairman
The Tarnowskie Góry Land Lovers’ Association
Introduction
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1. Purpose and status of the Management Plan
Introduction

Identification

Identification and delineation of properties having outstanding universal value is a duty of States Parties (World Heritage Convention, Art. 3). The ability to understand this value depends, in part, on the degree to which information sources about the heritage and its values may be understood. The process of identification and delineation incorporates research and inventories of monuments, groups of buildings and sites to be protected under the provisions of the World Heritage Convention.

Protection

Term ‘protection’ commonly refers to legal provisions for heritage safeguarding. According to the OG, all properties inscribed on the World Heritage List must have adequate long-term legislative, regulatory, institutional protection at the national, regional, municipal level to ensure their safeguarding (OG, para 97). Legislative and regulatory measures should assure the protection of the property from development pressures or changes that might negatively impact its Outstanding Universal Value, integrity or authenticity (OG, para 98).

Conservation

According to OG and Nara Document on Authenticity, 1994 ‘conservation’ means all efforts designed to understand cultural heritage, know its history and meaning, ensure its material safeguard and, as required, its presentation, restoration and enhancement. In other words it means all the processes of looking after a site so as to retain its significance (see also: Burra Charter).

Presentation

Presentation of heritage means a series of activities to make the heritage physically and intellectually accessible. It denotes the carefully planned communication of heritage significance aimed at various audience groups. It aims at current generations to help them understand and appreciate heritage values and significance, and also at future generations to enable them taking over care of heritage in the fullest possible understanding and appreciation of its values.

1.1 Purpose of the Management Plan

World Heritage Sites are inscribed by the UNESCO World Heritage Committee under the Convention on the Protection of the World Cultural and Natural Heritage (UNESCO 1972 – World Heritage Convention) for their Outstanding Universal Value (OUV) – that is cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole (Operational Guidelines for the Implementation of the World Heritage Convention, para 49).

A principle of World Heritage is that cultural and natural heritage across the world that possess outstanding universal value require an international mandate and authority for management and protection. The primary task of the World Heritage Convention is the long-term conservation of sites on the World Heritage List.

Each State Party to this convention recognises that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage referred to in Articles 1 and 2 and situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain (World Heritage Convention, Article 4).

The Operational Guidelines (OG) require that a World Heritage Site ... must have an adequate protection and management system to ensure it’s safeguarding (para 78), whilst paragraphs 108 to 118 deal with aspects of what a required management system should include.

The State Party, therefore, has a duty to ensure that World Heritage Sites within its jurisdiction are protected for present and future generations through both statutory powers and responsible, inclusive and sustainable management.
Effective management system assisted by a management plan is one of the principal means to deliver against obligations under the World Heritage Convention. Its approach is guided by Operational Guidelines for the Implementation of the World Heritage Convention (UNESCO, 2015), resource World Heritage manual Managing Cultural World Heritage (UNESCO, 2003), and recent work by UNESCO on World Heritage and Sustainable Development; the MP adopting a values-led approach, explaining why the Property is significant and how this significance will be sustained in any new use, alteration, repair or management. It is a tool specifically developed to address the requirements of the World Heritage Convention and designed to lead to the effective care of the Property, in perpetuity, sustaining its assets. It is based on a very simple, and inclusive, thinking process – much of which had already been undertaken during the process of compilation of the Nomination Document – describing what is there, why it matters, what is happening to it and the principles by which it will be managed; and then sets more detailed work programmes for maintenance, management, access, use and other issues.

Many of the responsibilities of the State Party are, in practice, delivered by other organisations, most notably local authorities – both as local planning authorities and also providers of, or participants in, strategies and services relating to regeneration, tourism and education. Day to day responsibility for the care and management of the Property rests with the owners or operators of the physical assets (attributes) that contribute to OUV, in this case represented by the Tarnowskie Góry Management Coordination Team and Steering Committee, appointed by the Tarnowskie Góry Stakeholder Group, who coordinate activity. The process in developing this MP involved all stakeholders, and was widely consulted upon through proactive engagement.

A notable characteristic of the way in which the cultural heritage embraced by this property was put forward is the embedded role of volunteers. Associations and societies of volunteers have an important role in the identification of sites, the promotion of public participation in conservation and the dissemination of research and information, and as such are indispensable.

1.2 Status of the Management Plan

According to the Polish Constitution ratified and published in the Journal of Law international agreements are among the sources of universally binding law, which means that they become a source of rights and duties of specific recipients in the national legal order. The obligation to obey them relates equally to all public administration bodies and citizens. Ratified international treaties indicate the aims and objectives towards which Poland has committed itself to the entire international community.

Poland is a signatory to the World Heritage Convention since 1976 and, as such, according to the international law and the Constitution, is bound by the provisions of the Convention. World Heritage properties are protected according to general legal provisions based on Act on the protection of monuments and their care, Act on nature conservation, Act on spatial planning and area development and other legal acts.

The MP is not a legally binding document (doesn’t have a direct legal impact). It has a status of a multi-parties agreement, and thus will be delivered through provisions in existing strategies and plans, relevant to certain category of activities.

The Management Plan (MP) was commissioned for the Property by the National Heritage Board of Poland (the Centre for World Heritage), as a way to assist the stakeholder group in preparation of the Nomination Dossier and managing the Property as a candidate World Heritage Site. It constitutes three documents, namely: Conservation Management Plan; Interpretation and Tourist Access Strategy; Risk Preparedness Strategy. The MP is an open and living document that is supported and assisted by the National Heritage Board of Poland but that will be implemented, improved and updated at the local level.

The Management Plan was produced by the Tarnowskie Góry Land Lovers’ Association in cooperation with their Management Board, and approved by them for the purposes of the nomination of Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System. Along with the development of the management plan a wide range of consultations and discussions with local authorities and inhabitants of the area took place. All key members of the Tarnowskie Góry stakeholder group agreed to abide by the spirit, content and direction of this MP, and are forthwith obligated to adopt and promote appropriate conservation and management of the Property.
1.3. Coordination between the Management Plan and other plans

This MP is constructed on the current situation (2015), and relevant strategic plans, and the laws that underpin them, are cited in sections 5 b) and d) of the Nomination Document. It is the responsibility of specific stakeholders to integrate and implement the MP within their respective planning jurisdiction, and the responsibility of the Property Management Coordination Team and Steering Committee to coordinate and monitor such actions. Relevant content in the MP will be applied to all revisions of such strategic plans.

Table 1. Principal plans, and their host authorities, include:

<table>
<thead>
<tr>
<th>No.</th>
<th>Plan title</th>
<th>term of</th>
<th>responsible institution</th>
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<tbody>
<tr>
<td>1</td>
<td>Plan for protection of the Cultural Park ‘Halda Popluczawska’</td>
<td>without time limit</td>
<td>Mayor of Tarnowskie Góry</td>
</tr>
<tr>
<td>3</td>
<td>Study of conditions and directions of spatial development in the area of the Tarnowskie Góry municipality</td>
<td>without time limit</td>
<td>Mayor of Tarnowskie Góry</td>
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<tr>
<td>4</td>
<td>Study of conditions and directions of spatial development in the area of the Bytom district town</td>
<td>without time limit</td>
<td>President of Bytom</td>
</tr>
<tr>
<td>5</td>
<td>Study of conditions and directions of spatial development in the area of the Zbrosławice Commune</td>
<td>without time limit</td>
<td>Head of the Zbrosławice Commune</td>
</tr>
<tr>
<td>6</td>
<td>Local spatial development plan for northern districts of the city of Tarnowskie Góry – Opatawice, Rybna, Strzybnica, Pniowiec, Sowice, part of Lasowice north of Częstochowska street and forest areas</td>
<td>without time limit</td>
<td>Mayor of Tarnowskie Góry</td>
</tr>
<tr>
<td>7</td>
<td>Local spatial development plan for the districts: Śródmieście – Centrum, Lasowice, Osada Jana in Tarnowskie Góry</td>
<td>without time limit</td>
<td>Mayor of Tarnowskie Góry</td>
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<tr>
<td>8</td>
<td>Local spatial development plan for southern districts of the city Tarnowskie Góry - Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and housing estate 'Przyjaźń'</td>
<td>without time limit</td>
<td>Mayor of Tarnowskie Góry</td>
</tr>
<tr>
<td>9</td>
<td>Local spatial development plan of the former mining area of Górnicze Zakładu Dolomitowe S.A. (Dolomite Mining Plant) in Siewierz Dolomite Mine Bobrowniki–Blachówka, within the borders of the city of Tarnowskie Góry</td>
<td>without time limit</td>
<td>Mayor of Tarnowskie Góry</td>
</tr>
<tr>
<td>10</td>
<td>Local spatial development plan of the commune of Zbrosławice for the area of rural administrative unit Ptakowice</td>
<td>without time limit</td>
<td>Head of the Zbrosławice Commune</td>
</tr>
<tr>
<td>11</td>
<td>Local spatial development plan of the Bytom for northern parts of the city of Bytom, called the ‘Blachówka’ – South part</td>
<td>without time limit</td>
<td>Mayor of Bytom</td>
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<td>13</td>
<td>Plan of protection of the monuments in the event of an armed conflict and crisis situation of the Silesian Voivodeship</td>
<td>approximately to 2015</td>
<td>Management Board of the of the Silesian Voivodeship</td>
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<tr>
<td>14</td>
<td>Plan of protection of the monuments in the event of an armed conflict and crisis situation of the Tarnowskie Góry District</td>
<td>2014-2017</td>
<td>Voivodeship Monuments Protection Office in Katowice</td>
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<td>Plan of protection of the monuments in the event of an armed conflict and crisis situation of the Tarnowskie Góry District</td>
<td>systematically reviewed</td>
<td>County Starost Office in Tarnowskie Góry</td>
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<tr>
<td>16</td>
<td>Plan of protection of the monuments in the event of an armed conflict and crisis situation of the Zbrosławice commune</td>
<td>systematically reviewed</td>
<td>Mayor of Tarnowskie Góry</td>
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<td>The Silesian Voivodeship Spatial Development Plan</td>
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<td>19</td>
<td>The Silesian Voivodeship Development Strategy 'Śląskie 2020'</td>
<td>2010-2020</td>
<td>Management Board of the Silesian Voivodeship</td>
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<tr>
<td>21</td>
<td>Strategy of Development of the Tarnowskie Góry District until the year 2022</td>
<td>2010-2022</td>
<td>Management Board of the Tarnowskie Góry District</td>
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<td>22</td>
<td>County’s Program of Care over Monuments of the Tarnowskie Góry District for the period 2015-2018</td>
<td>2015-2018</td>
<td>Management Board of the Tarnowskie Góry District</td>
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<tr>
<td>24</td>
<td>Tarnowskie Góry Town Development Strategy until the year 2022</td>
<td>2014-2022</td>
<td>Mayor of Tarnowskie Góry</td>
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<tr>
<td>26</td>
<td>Local Development Plan for the Commune of Zbrosławice</td>
<td>2004-2006, 2007-2013</td>
<td>President of Bytom</td>
</tr>
<tr>
<td>27</td>
<td>City Promotion Program of Tarnowskie Góry for years 2006-2015</td>
<td>2006-2015</td>
<td>Mayor of Tarnowskie Góry</td>
</tr>
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</table>
2. Vision
With all the work involving the heritage, we aim at outcomes in three principal categories: 1. Heritage, 2. People and 3. Communities.

1. Outcomes for heritage

Through investment we want to help sustain and enhance Tarnowskie Góry’s heritage. This can breathe new life into neglected places and landscapes, and can inspire our community to further investigate, record and celebrate our stories.

Our heritage will be better managed

There will be clear improvements in the way that heritage is managed. This will include the implementation of plans for management and maintenance for more effective use of existing resources among stakeholders, and securing additional staff or other resources needed.

How we will know what we have achieved?

As a result of these improvements, we will be able to show that the heritage we manage is in a stronger position for the long term including, where appropriate, a stronger financial position. These improvements to managing the heritage are likely to mean that we will be able to meet more fully the responsibilities and requirements of World Heritage designation.

Heritage will be in better condition

There will be improvements to the physical state of the heritage. The improvements might be the result of repair, renovation or work to prevent further deterioration, such as conserving and maintaining a bridge, conserving an archive, clearing water ditches or repairing a piece of historic equipment. Improvements might also result from new work, with enabling-funding from new sources, for example creating new public access to areas and features that have previously been neglected.

How we will know what we have achieved?

The improvements will be recognised through standards used by professional and heritage specialists, and/or by people more generally, for example in surveys of visitors or local residents.

Our heritage will be better interpreted and explained

There will be clearer explanations and/or new or improved ways to help people make sense of heritage, enjoy it more and gain a better experience. The ‘new’ international significance of our heritage will be the foundation of our stories. Means might include new displays in a museum; a smartphone app with information about the biodiversity and geodiversity of a landscape; talks or tours in a historic building; an accessible guide to a historic industrial complex; or online information about archives.

Every effort will be made to share and promote this vision, and to ensure the consultation and participation of local communities in the protection and conservation of their local heritage.
Introduction
How we will know what we have achieved?
Visitors and users will tell us that the interpretation and information we provide are high quality, easy-to-use and appropriate for their needs and interests, that they enhance their understanding, and that they improve their experience of heritage.

Our heritage will be better identified/recorded
The heritage of a place, a person or our community will have been located/uncovered and/or there will be a record of heritage available to people now and in the future. This might include identifying places or collections that are of relevance to our community and making information about them available; documenting languages or dialects; recording people’s memories as oral history; surveying species or habitats and making the survey data available; cataloging and digitising archives; making a record of a building or archaeological site; or recording the customs or traditions of a place or our community.

How we will know what we have achieved?
Heritage that was previously hidden, not well known, or not accessible will now be available to the public in some way or other: visitors or users will tell you that this is an important part of our heritage and that they value it.

2. Outcomes for people

People from all communities should be able to see their heritage reflected in our local, regional, national and international stories. Projects can inspire young people to learn and get involved with heritage. They help people find fulfilling volunteer roles and develop skills, and create thousands of opportunities for an enjoyable day out.

People can have developed skills
Individuals will have gained skills relevant to ensuring that our heritage is better looked after, managed, understood and shared (including, among others, conservation, teaching/training, maintenance, digital and project management skills). Structured training activities could include an informal mentoring programme, on-the-job training or external short courses.

How we will know what we have achieved?
People involved in our projects, including staff and volunteers, will be able to demonstrate competence in new, specific skills, and where appropriate and possible, will have gained new informal/formal qualifications.

People will have learnt about our heritage
Individuals will have developed their knowledge and understanding of heritage because we have given them opportunities to experience heritage in ways that meet their needs and interests.

How we will know what we have achieved?
Adults, children and young people who took part in our projects, or who are visiting our sites or engaging with our heritage in other ways, for example through digital technology, will be able to tell us what they have learnt about heritage and what difference this makes to them and their lives. They will also be able to tell us what they are doing with that knowledge and understanding; such as, sharing it with other people, using it in their professional or social life, or undertaking further study.

People will have changed their attitudes and/or behaviour
Individuals will think differently about our heritage or our community. They will have changed what they do in their everyday lives, or will have been inspired to take some form of personal action.

How we will know what we have achieved?
We will be able to show that these changes have come about as a result of their experience in our projects from the feedback people give us. For example, some people may have a different perception of the importance of biodiversity or of the contribution made by young people in the community; others may have started doing conservation work or stopped inappropriately using the historic environment with motorbikes or even vandalising visitor facilities or a local memorial. They may have joined the management group of your Friends organisation, decided on a career in heritage or got involved in other community projects.

People will have had an enjoyable experience
People involved in our projects will have found it enjoyable, fun, interesting and rewarding. We will provide enjoyable experiences through the welcome we offer, through good customer service, and by having the right resources and equipment for people to get involved with our heritage.

How we will know what we have achieved?
People involved in our projects, including staff and volunteers, will be able to demonstrate competence in new, specific skills, and where appropriate and possible, will have gained new informal/formal qualifications.

People will have volunteered time
Individuals will be contributing their time and talent and will find it a rewarding experience. They will give their time to activities at all different levels – from project leadership and management to helping at events or creating a website.

How we will know what we have achieved?
Volunteers will be able to report personal benefits whatever their experience, background and level of engagement. These might include: new skills; increased confidence; a sense of purpose;
enhanced wellbeing; a feeling of making a contribution to heritage and society; or influencing the success of our projects and the way they are regarded in our community.

3. Outcomes for communities

Heritage is at the heart of the tourism industry, attracting overseas visitors and bringing investment into local economies. Heritage projects can re-energise neglected areas, creating vibrant places to visit, live and work. And they can foster a real sense of community.

Environmental impacts will be reduced
We will have minimised the environmental impacts of our heritage and sites and, if possible, reduced them from a current or baseline position, in the key areas of: energy and water use, and visitor transport. If our projects are site-based, we will have taken opportunities to enhance the biodiversity (habitats and species), together with the physical habitats of sites.

How we will know what we have achieved?
At the end of our projects we will report on the resources used. We will also seek to demonstrate a reduction in carbon emissions generated by our site.

More people and a wider range of people will have engaged with our heritage
There will be more people engaging with the heritage and this audience will be more diverse than before our projects. Changes will have come about as a direct result of the projects, particularly audience development work and community consultation, by collecting and analysing information about the people who engage with the heritage – and those who don’t – before, during and after delivering projects.

How we will know what we have achieved?
We will be able to show that our audience profile has changed; for example, it includes people from a wider range of ages, ethnicities and social backgrounds; more disabled people; or groups of people who have never engaged with the heritage before. We will be able to show how more people, and different people, engage with the heritage as visitors, participants in activities, or volunteers, both during our projects and once they have finished.

Our local area/community will be a better place to visit, live and work
Local residents will have a better quality of life and overall the area will be more attractive. As a result of improving the appearance of the heritage sites or of the opportunities we have provided for local and tourist people to visit, use, get involved with, and enjoy the heritage, residents will report that they feel greater pride in the local area and/or have a stronger sense of belonging.

How we will know what we have achieved?
Community members will report a greater sense of shared understanding. Visitors to the heritage sites will also tell us that the area has improved as a direct result of our projects, as well as what they value about them.

Our local economy will be boosted
There will be additional income for existing local businesses and/or there will be new businesses in the local area. We will be able to show that local businesses have benefited from our projects. This will be because we have spent our funds and grants locally, or because we encouraged more tourism visits to the local area, or because we have provided new premises for businesses that moved into the area or expanded their operations within it.

How we will know what we have achieved?
We will be able to show that these changes have come about as a direct result of our projects, using information about the local economy before and after our projects, available from organisations such as the local authority or tourism organisations.

Our organisation will be more resilient
Our organisation will have greater capacity to withstand threats and to adapt to changing circumstances and sustain a secure future. We will achieve this greater resilience through maintaining strong governance and a high level of local involvement in our organisation; increased management and staff skills; fresh sources of expertise and advice; and working in partnership to share services, staff and resources.

How we will know what we have achieved?
We might have new volunteers who increase our capacity and skills; or new sources of income through grant aid or new commercial activity, endowments or new fundraising programmes. We will be able to show that our organisation is stronger and in a better position for the future as a result of the changes we made as part of our projects.
3. Description of the Property
Introduction

3.1 Location and identification of the Property and its buffer zone

The Property is located in the Silesian Plateau of southern Poland, in one of Europe’s classic metallogenic provinces, and in the northern sector of the Upper Silesian Industrial Region.

State Party: Poland
Silesian Voivodeship (Województwo Śląskie)
District (Powiat) Tarnowskie Góry: Tarnowskie Góry Municipality, Zbroślawice Commune; District Town Bytom.

Name of the Property:
Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System

Geographical coordinates to the nearest second:
N50° 26′ 33.71″ E18° 51′ 04.42″

Area of the Property:
underground – 1330.70 ha
at surface – 342.06 ha
total – 1 672.76 ha

area of the buffer zone – 2 774.35 ha
area of the additional layer of protection – 834.17 ha

Textual description of the boundaries of the Property:
The Property comprises the principal underground mining and water management complex essentially belonging to Friedrich Mine and the Adolph Shaft Waterworks, together with directly linked surface attributes. Whilst the Property is classed as a single site, the attributes are categorised into 8 character areas for protection and management purposes.

The boundary of the underground network is drawn to include the principal lead-silver-zinc workings of Friedrich Mine, its water (drainage) management system and the Adolph Shaft Waterworks infrastructure that intersected and abstracted water from it. The boundary is projected at surface where it encloses all separately drawn surface components parts (that are connected, vertically and variably, to the underground) except the adit ditches that are unconnected in the third dimension as they were designed to carry water away from the mining environment.

3.2 History and development

The greatest proportion of the Property is underground, the remaining part comprised of directly associated features at surface. There has been no mining in the Property for almost a century, and mining will not return since the mining network is legally protected for its cultural and natural values and, further, the deposit is well constrained and predominantly worked out from centuries of mining. There is, however, continuity in water management, in terms of ‘natural’ drainage of the adit system and of water abstraction (currently, 2016, Kaehler Shaft). The chronology of attributes belonging to the Property corresponds to two principal mining phases, though operations continued, sporadically and on a reduced scale, at other times:

Phase I
From around 1490 to 1600, when numerous shallow, small-scale and independent mines sold silver to the State mints and, most importantly, exported 80 per cent of their lead production to sustain metallurgical processes in Central European silver mining centres, creating new trade routes that crossed the continent. By the 1530s, Tarnowskie Góry was the richest orefield in Poland and an extensive and complicated underground network of shallow adits, levels, chambers and small shafts survive as testimony to this period, together with areas of distinctively modified surface topography.

Phase II
From 1784 to 1910, when the deeper zone of the orefield was exploited by the modern and large-scale, state-run, Friedrich Mine, drained principally by the Friedrich Deep Adit constructed 1821-34. Peak lead, zinc and silver production was achieved around the mid-19th century. It was also during this phase that steam technology was first imported from Britain (to facilitate adit construction) and the water supply system was initiated (1797), culminating in the Adolph Shaft Waterworks (1884, renamed Staszic in 1922). The Friedrich Deep Adit system, and the extensive workings it served, survives together with the underground pumping halls and associated infrastructure at Adolph Shaft, and their corresponding surface structures. Directly associated surface mining features include adit components, shafts and a centralised ore-processing waste mound that is testimony to the sheer output of lead and zinc during the nineteenth century. Some further, unusual and distinctive, cultural attributes comprise municipal parks that are early examples of the successful post-industrial community use of a mining landscape and that sensitively preserve a usually vulnerable feature of shaft hummocks and mine spoil.

‘Medieval’ Mining in Tarnowskie Góry: 1490-1600. A lead-silver bonanza!
The town of Tarnowskie Góry was founded upon the prosperity of local lead-silver deposits discovered in the late 1520s. Góry is old-Polish for ‘mines’. Silver tends to grab public attention, and numerous small mines provided rapid riches in the early years of Tarnowskie Góry. But it was the more mundane production of lead – a massive output exploited from shallow and extensive deposits – that was of greater significance to a wider Europe at the time, though, ironically, exported and expended in the extraction of silver elsewhere.
A ‘melting pot’ of mining culture
Tarnowskie Góry turned to Saxony and Bohemia to source the latest technology. This was still essentially medieval, but with a diversification of use and mechanical refinement that was more a characteristic of Renaissance technology. Tarnowskie Góry became a ‘melting pot’ of mining culture as Silesia attracted experienced miners and ‘engineers’, their knowledge, skills and customs. Equipment and techniques were locally improved through a series of mechanical innovations in pumping and hoisting, and the introduction of the so-called ‘water gallery’ (drainage adit).

An insatiable demand for lead, and the revival of European silver
Around 80 per cent of lead from the ore field was exported, bearing witness to an extensive European metallurgical supply complex in which the production of lead, copper and silver existed in the context of mutually inter-dependent inter-continental trade. Rapid growth in the market for lead followed an invention in the chemical extraction of silver from argentiferous copper ores – that required lead as a smelting agent. This breakthrough brought European silver output to unprecedented levels which, in turn, contributed to the general economic and social development of Europe, and the consequent flow of silver bullion and specie to China, the most singularly important product that led to the birth of world trade.

Legacy in the Landscape
The extraction of laterally extensive horizontally bedded lead ore in open excavations and thousands of shallow shafts permanently altered the landscape, and hydrology, in and around Tarnowskie Góry. The style of deposit and the technology available combined to produce a characteristic, and prolific, post-mining landscape known locally as ‘pingi’ and ‘warpie’. This is embodied in the component part ‘The Mining Landscape of Silver Mountain’, supported by the vast yet shallow and tortuous network of underground workings, testimony to the scale and global impact of early Polish lead production.

Mining in the Industrial Revolution 1784-1910
The second great phase of mining began in Tarnowskie Góry at a time when Britain’s industrial revolution was well underway. What Prussia implemented in the last decades of the eighteenth century fostered the first heavy industries on ‘German’ soil and facilitated the emergent Prussian (German) industrial revolution and the foundations of the Upper Silesian Industrial Agglomeration that was in its vanguard.

As with Tarnowskie Góry’s first phase of mining, a polymetallic production was characterised by a single metal achieving superior significance. This time it was zinc, from the world’s largest deposit of zinc carbonate ore that lay in association with abundant lead. The State-owned Friedrich Mine, and other adjacent concerns, dominated world output of zinc ore – 65 per cent by 1840 – and instigated the earliest and greatest concentration of successful zinc smelters in the nineteenth century world, based on a process that was substantially innovated in Silesia and replicated with minor modification in Belgium and the United States.

Conflict, conquest and State industrial policy
Mining in Tarnowskie Góry was moribund well before the First Silesian War of 1740-42, a conflict which marked the end of Austrian control and heralded over 170 years of German rule. Rapid economic progress in Prussia (and Germany) during the nineteenth century would have been impossible without heavy State intervention, something that began in Silesia.

Model State industries in Upper Silesia
Prussia sought to pursue the economic benefits being realised by other European industrialising nations and envisaged immense strategic potential as demand soared for base metals, iron and steel, and coal. An initial triangle of integrated industries was established in Upper Silesia: lead-zinc mining and smelting, iron and steel making (including the first German steam engine foundries), and coal mining.

Battling with water
Tarnowskie Góry’s ‘mining masters’, in their efforts to establish a ‘model’ Royal lead-zinc mine, opted to reinvigorate and expand traditional gravity drainage (adit) systems to de-water the ore field. Prussia was acutely aware of the benefits arising from Britain’s industrial revolution, a process in which the development of the stationary steam-pumping engine was an essential early element and of which they had personally gained firsthand knowledge through tours of ‘intelligence and industrial espionage’. From Britain, improved Newcomen engines and the new separate condenser engines pioneered by Boulton & Watt were imported to Silesia, copied (there were no patent rights) and manufactured locally to facilitate the construction of a grand and unified adit system to drain the base of the ore-ground, for all time.

An underground ‘cultural landscape’
The completion of the deep adit network, and the modification and expansion of its feeders that intercepted a cumulative and continuous onslaught of groundwater, enabled uninterrupted production of lead and zinc – on a grand scale – throughout the nineteenth century and beyond. A monumental network of 150 km or more of accessible tunnels, shafts and galleries, many lined with fine masonry work, are testimony to Silesian pre-eminence in global zinc production; and its renewed traditional supply in lead.

Water Management System
Tarnowskie Góry’s underground water management system is a masterpiece of hydraulic engineering that demonstrates how an exceptional inflow of groundwater, up to three times that commonly encountered in central European mines, was managed in an ingenious and sustainable manner.

Water: the greatest challenge to Silesian mining
Water management was first engineered to intercept and remove groundwater inflow, thus enabling mine development and extraction to proceed unhindered. A consequence was a drastic lowering of the regional water table and an ensuing ‘water famine’ as wells ran dry.
Steam pumping and a symbiosis of mining with water supply
Steam pumping engines, installed for mining purposes, were subsequently set to work to abstract clean water from newly created underground man-made ‘rivers’ diverted away from the productive workings. This commenced as early as 1797, when the first Boulton & Watt engine (for mining) arrived on the continent at Friedrich Mine, a time when mining provided the technical capacity for the development of the world’s first large-scale public water supply systems based on the steam pumping of groundwater.

From this auspicious beginning, the scale and quality of water supply – in environmental harmony with mining – advanced with new catchments and more, and larger, engines until technical culmination in 1884 when the Adolph Shaft Waterworks was established. This incorporated the latest and most powerful horizontal steam compound engines placed in magnificent engine halls 50m below the surface, from where a rank of Lancashire boilers generated their steam. Mine-sourced water supply, separated for drinking and industrial purposes, now facilitated the rapid development of industry, and population growth, in the Upper Silesian Industrial Agglomeration that remained key to German industrialisation.

Legacy
This unique, and very early, technical ensemble of ingenious environmental sustainability survives with a high level of compositional integrity. Adolph Shaft Waterworks, its culmination and centerpiece, survives above and below ground and is due to fall within the care of the same community association that cares for the wider ‘Underworld’ of Tarnowskie Góry.

Care, Conservation and Management
The importance of mining to local Silesian culture is reflected in the early preservation, and celebration, of post-mining landscapes and structures that were developed either contemporaneous with mining, commonly in commemoration, or those that escaped remediation by a responsible State when operations finally ceased. Public and private parks that adopt characteristic mining topography are an unusual, yet typical, manifestation of this, inextricably connected to the underground. Tarnowskie Góry’s ‘Underworld’, abandoned by 1933, prompted an early twentieth century conservation movement that continues to manage and assiduously care for the site. The drainage system has long reverted to a ‘natural’ function that leaves an extensive and historically distinguished mine network and its water management system – of water removal and supply – uncommonly accessible. A selected part has been the focus of sustained conservation and public access for scientific, educational and tourism purposes by a community association since 1957. This World Heritage nomination sees a natural progression, and a binding commitment that is a further contribution to Poland’s conservation of some of the world’s most significant underground mining heritage.

The Tarnowskie Góry Land Lovers’ Association, the guardian of the Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System, has operated for over 60 years. It is one of the oldest and most active socio-cultural organizations in the region, and in Poland. The Association is not a mass organization, the number of members is stable since its foundation and reaches about 160 persons, but they effectively pursue their passions and fulfill social responsibility to protect the common cultural and natural heritage for the benefit of the present and future generations. Persistence, consistency of actions, and the advocacy of conservation amongst the residents of the city and different levels of government not only allowed for the opening of the ‘Historic Mine’ but also for a wide range of cultural and educational activities that continue to thrive today. As proof of the recognition that the Association has enjoyed, the Marshal of the Senate of the Republic of Poland honoured it in 2013 with the title Guardian of the Republic’s Heritage’ (Custos Monumentorum Rei Publice).
3.3 Analysis of evidence

As indicated in 2 above, the history of the Property has been divided into two principal stages of development:

Phase I
1490 to 1600 ‘Medieval’ Mining (*referring to the character of the mining technology and techniques employed, whilst acknowledging that the period spans Late Medieval to Early Modern).

An extensive and complicated underground network of shallow adits, levels, chambers and small shafts, together with large areas of distinctively modified surface topography survive as testimony to numerous shallow, small-scale and independent mines that sold silver to State mints and, most importantly, exported 80 per cent of their lead production to sustain metallurgical processes in Central European silver mining centres, creating new trade routes that crossed the continent. By the 1530s, Tarnowskie Góry was the richest lead-silver ore field in Poland, and at times, in the world.

Phase II
1784 to 1910 Mining in the Industrial Revolution (here referring to the ‘German’ industrial revolution that was founded in Silesia during the last quarter of the eighteenth century).

The Friedrich Deep Adit system, and the extensive workings it served, survives together with the underground pumping halls and associated infrastructure at Adolph Shaft, and their corresponding surface structures. Directly associated surface mining features include adit components, shafts and a centralised ore-processing waste mound that is testimony to the large-scale output of lead and zinc during the nineteenth century. Some further, unusual and distinctive, cultural attributes comprise municipal parks that are early examples of the successful post-industrial community use of a mining landscape and that sensitively preserve a usually vulnerable feature of shaft hummocks and mine spoil.

The above is testimony to the mining and water management phase that spans the period 1784 to 1910, when the modern and large-scale, state-run, Friedrich Mine exploited the deeper zone of the orefield. Workings were drained, principally, by the Friedrich Deep Adit constructed 1821-34. Peak lead, zinc and silver production was achieved around the mid-19th century. It was also during this broader phase that steam technology was first imported from Britain (to facilitate adit construction) and the water supply system was initiated (1797), culminating in the Adolph Shaft Waterworks (1884, renamed Staszic in 1922).

Attributes that provide physical evidence that convey values that contribute to OUV, allow an understanding of it, and support authenticity (a prerequisite of OUV) have been subjected to detailed investigation in the field, underground wherever possible, and via thorough examination of archives including maps, plans, sections and documents. The disposition of attributes described in section below informed the boundary and buffer zone of the Property and will be the focus of protection and management actions.

3.4 Description of attributes

UNESCO Operational Guidelines refer to the attributes of a Site as expressing OUV, and the means of meeting the conditions of authenticity and integrity. When the conditions of authenticity are considered in preparing a nomination for a property, the State Party should first identify all of the applicable significant attributes of authenticity. The statement of authenticity should assess the degree to which authenticity is present in, or expressed by, each of these significant attributes. (Operational Guidelines, para 85).

LIST OF ATTRIBUTES

Arranged according to character areas as delineated for management purposes.

A1. UNDERGROUND

Underground includes the entire underground environment that consists of mined space (such as adits, shafts, galleries) and their architectural, technical and other cultural attributes together with natural features related to geology, mineralogy, hydrology and biodiversity.

0.1 Underground Workings

The principal drainage system is composed of individually named adits that were each driven at different dates, at different depths (successively deeper), and that were later united in terms of
vertical and lateral water management by the ‘Friedrich Deep Adit’ and ‘Central Adit’ systems. Numerous shafts connect vertically with the extensive horizontal network, but only two adit portals serve as level exit/entry points to this underground system and discharge water into respective adit ditches: Friedrich Deep Adit in the west, draining into the Drama River, and God Help Adit in the northwest, draining into the Stola River. Adit development, with the objective to drain the deeper horizons of lead-silver ore (and later, zinc ore) that were being successively exploited, resulted in progressive reductions in the water table and a complex layout of side adits that fed main adits; eventually being principally captured by the ultimate and deepest drainage level, the Friedrich Deep Adit.

The cumulative length of adits in Friedrich Mine is particularly great (over 50 km) since water inflow is excessive and the topography is shallow and gently undulating. Further, the adits are served only by two small rivers (Stola and Drama) to act as receivers to take discharge away from the mine, their beds being only just below that of the surrounding terrain. Adit portals are located at the lowest convenient elevations, at some distance from the main workings, with human-made ditches or channels being constructed in order to continue the gentle fall needed by flowing water before final discharge into rivers. Adits driven in the sixteenth and seventeenth centuries each originally measured well under 2 km (entering ore ground higher in the deposit) and some of these were re-used, adapted or extended in the late-eighteenth and early-nineteenth centuries to facilitate complex water catchment and routing requirements of the time. For example, God Help Adit was extended to over 3.4 km. New interconnecting sections were also created at that time: Reden (3.35 km), Heinitz (4.24 km) and Zufflucht (2.77 km).

An important and widespread attribute is the extensive network that represents the underground ore extraction system (stoping). A vast network of lead-silver workings that date to Phase I is located above the adit systems. Whilst some of this appears on mine plans, a large proportion remains unmapped and there remain considerable archaeological potential. During the nineteenth century miners were commonly afraid of entering this haphazard maze of tunnels and small shafts for fear of getting lost. From the bottom of shallow shafts, miners selectively followed veins that were rich but in many cases very small, their corresponding workings commonly being little bigger than that required to admit a man or boy. Subsequent mining, in Phase II, has in some cases (particularly for shallow zinc and iron ore) obliterated these workings as increased capital, mechanisation and ore-processing techniques meant that larger areas, and lower grade lead-silver and zinc veins, were exploited, together with a large quantity of iron ore. However, Phase II (late eighteenth, nineteenth and early twentieth century) workings were generally deeper, in more competent rock, and were designed to last longer, and were the subject of far greater capital investment and mechanisation. They usually manifest themselves in deeper, well cut, larger-section, rectangular and vertical shafts (suitable for use by steam-powered pumping and winding machinery), and levels (drives, crosscuts and adits) of greater and more consistent section that is straighter (often to take a tramway). Yet the stope (areas of ore extraction), like that of the earlier generations of miners, still seeks to remove as little waste as possible and so reflects the nature of the deposit in that it is relatively flat-lying with a low roof, albeit representing a larger space than its Phase I counterparts as greater mechanisation was involved, particularly in ore transport.

Many vertical shafts were sunk as part of the adit and mining system, aiding in their construction (access for miners and materials, driving in both directions from multiple shafts to speed overall construction, removal of waste rock, ventilation, pumping) and in their maintenance (air ventilation/circulation, pumping, and for continued access). There are numerous examples in Friedrich Mine, but the attributes listed below are selected for their highest historical significance and those required for current access and ventilation. They vary in terms of date, design and function. Whilst Phase I (1490-1600) shafts were small (typically around 1 m diameter) and shallow (typically less than 15 m deep), Phase II (1784-1910) shafts were larger and deeper. Phase I shafts have mostly collapsed as construction of the small shafts was rudimentary and predominantly sunk in near-surface friable lithologies. Phase II shafts, however, survive and are mostly accessible, either underground predominantly) or from surface (rarely, except for principal access shafts, otherwise others are capped for safety or ventilation purposes). Two principal types are reflected in different designs: oval or round smaller (1.2 m) diameter shafts (lichtloch, sunk for ventilation, for driving the adit level in both directions and for removing waste) and larger (3.5 m) rectangular ‘Machine’ shafts that contained steam pumping engine ‘pitwork’ (pumps, rising mains, balance boxes). The sinking of two shafts – in close proximity, but with spacing determined by ground conditions – is a common feature in Friedrich Mine, the technique being recognised as achieving disproportionately more drawdown of groundwater than a single shaft, something highlighted by such notable engineers as John Taylor (1779-1863, in the United Mines, Cornwall) and Robert Stephenson (1803-59, in British waterworks and tunnels).

Southern Adit System

After 1810, the potential of future large-scale development in Friedrich Mine remained principally with ore deposits located below the level of the Northern (Central) Adit System. It was decided to construct a new network that would drain the ore horizon located around 7 metres below Reden Level. The first plans for a fully-gravitational system were sketched by the mining supervisor Gerhard in 1812, however the Napoleonic Wars precluded any such investment. The project resumed in 1820, at first with the investigation of the Krakow Adit (of 1568) that had its portal in the Drama Valley. Upon investigation the adit was not serviceable and, moreover, if extended it would not reach the desired depth. Therefore, the design of a new deep adit commenced, located 1.8 metres vertically below the Krakow Adit and intended to be connected to the Northern (Central) Drainage System.

Friedrich Mine Southern Adit System was constructed between 1821 and 1834 as the deepest level under-draining the base of the ore horizon. The continuous length of main adit measures over 17 km. All sections of the adit are dateable, in detail, from historic plans and were excavated by first sinking a series of vertical shafts (pumping shafts and Lichtlocher = ‘light holes’) and then advancing levels from the bottom of each, in both directions, until each met the other: a technique that required precise survey work but facilitated speedier completion. This technique has also left a distinctive profile of increasingly high roofs in certain parts of the adit. These shafts also provided sumps to facilitate pumping, provided ventilation and allowed the removal of waste rock. Steam engines were moved from shaft to shaft as required, their services becoming mostly redundant when the Southern Adit System was complete, except for pumping dressing water at Peace (Frieden) Shaft and, on the Northern (Central) Adit System, for pumping municipal water from Reden and Kaehler shafts, the latter connected to the 2.5 km long Kaehler Adit.
1. Friedrich Mine Deep Adit (and associated levels and workings)

The design for the Southern Adit System was based on the Friedrich Mine Deep Adit. This initially involved driving a 4,570 metre long deep adit from the Drama Valley to Adolph Shaft, estimated to take 15 years. Mining masters Thürnagel and Eisleben were the authors of the design, which was approved by the State Mining Authority in December 1820.

On 21 April, 1821, earthworks began for the surface ditch, an integral functional component of the adit. It was designed at 888 metres long, 5 metres deep and 20 metres wide. Excavation took six months but in the following years the ditch was extended and reached around 1,400 metres. A parallel separation of the Drama River and the mine water channel was maintained to allow the required optimum volume of discharge and to permit drainage in winter when surface river water commonly froze and which would have therefore impeded discharge of mine water. Friedrich Mine Deep Adit Ditch remains an active water channel that receives remarkably clear, gravity-drained, underground mine water eventually discharged into the Drama River.

Driving of the underground section from the Portal to Adolph Shaft took 14 years. Employing the masterful skill of mine surveyors, adit driving consisted of advancing 14 faces simultaneously, progress being meticulously marked by stone plaques set into the adit wall that survive and closely correlate underground archaeology with archive plans. For ventilation and dewatering purposes, and to simultaneously excavate faces, 26 shafts (Lichtlocher), including two machine shafts, were sunk along the specified line. Two of these shafts are today used for visitor access whilst others may be located by their arched-over segments in the adit roof. Two steam engines were used for dewatering: a 24-inch engine working on Shaft No. 21 (accessible via a side level off the Deep Adit) and then Help Happiness (Glückhilf) Shaft (subsequently brick-lined as part of the Adolph Shaft Waterworks and accessible either via Deep Adit or Adolph Shaft), and a 40-inch engine working on Machine Shaft next to Adolph Shaft (accessible from Adolph Shaft Waterworks). Despite extremely adverse geological conditions of permeable soft rock strata combined with high water inflow, driving of the adit was completed in July 1834, one year before the planned date. During the final ten years, mining works were supervised by the Chief Inspector of the Tarnowskie Góry Mining Office, Rudolf Arwid Wilhelm von Carnall. Many kilometres of finely arched masonry linings, in many places rendered with extremely durable cement made at the mine, today remain as impressive testimony to the skill of these Prussian mining masters.

In December 1834 a northern wing of the adit was connected with the Reden Level located south of the Viper (Schlange) Shaft (these sections are accessible from both Viper Shaft and Adolph Shaft). Thus, the older Northern (Central) Drainage System was connected to the Friedrich Deep Adit. This breakthrough point is marked by a stone plaque visible next to Viper Shaft along the visitor route of the ‘Historic Silver Mine’. These connections were designed to drain water by gravity and shut down the last 60-inch and 32-inch steam engines installed on Reden Hill, thus saving 7,000 thalers per annum.

The ever-expanding mining fields forced the authorities to further extend the Friedrich Mine Deep Adit: work on the Grundstrecke Loop, ending at Help Happiness (Glückhilf) Shaft, progressed until the 1860s (most of this remains accessible from Adolph Shaft Waterworks, and from the dolomite quarry near the boundary of Segiet Reserve, though quarrying destroyed a section around Spes Shaft and flooded an adjoining section in the southeast). A northern section of the adit, reaching the area of the Municipal Park, was completed around 1880.
A 24-inch steam engine was located on Peace (Frieden) Shaft (its collar adjacent to Friedrich Mine Washing Tip, and accessible underground from Adolph Shaft Waterworks) to supply water to the Central Washer (ore-processing plant, marked by the Friedrich Mine Washing Tip), and worked until 1876. This second drainage system for the Friedrich mine, along with other auxiliary galleries, reached a total length of 14,752 metres.

1.1 Peace Shaft
Peace Shaft is a vertical and rectangular ‘machine’ shaft located in a shaft hollow adjacent to the southeast end of the central Freidrich Mine Washing Tip (Attribute 3.4, within which it is contained). It is capped at surface but accessible underground. Sinking began in April 1806 to facilitate adit construction along the great southeastern loop of the Friedrich Deep Adit near the intersection of Heinitz Strecke. The shaft is 53 m deep and enters dolomite almost immediately (and traversed it throughout its depth). Water was pumped by a 24-inch cylindered steam engine to surface for use in the centralised washing plant (until 1876). It was one of only two steam engines used on the mine that were retained for mining purposes.

1.2 Bohr Shaft
Bohr Shaft is located in the centre of a conspicuous mound of shaft-sinking waste rock, a typical feature of such shaft sites and therefore included within its surface property boundary, in open farmland around 2 km northwest of Peace (Frieden) Shaft. It also connects with the southern loop of Friedrich Deep Adit. The oval-shaped shaft (which contrasts with rectangular ‘machine’ shafts) dates from the initial shaft-sinking programme in the early 1800s, for the purpose of simultaneous adit construction in multiple directions. The stone masonry-lined shaft, capped with a ventilation/bat grille, is a well-preserved example of the lichtloch type.

1.3 Adolph and Machine Shafts
Adolph shaft(s) are located at the Adolph Shaft Waterworks (attribute 3.1), in mostly open countryside around 3 km south of Tarnowskie Góry. They connect with a major intersection of three parts of the Friedrich Deep Adit, thus subject to high water flow: that draining from the northern branch of the Friedrich Deep Adit, that draining from the eastern loop, and that continuing west towards Help Happiness Shaft and eventually to the adit portal. Adolph Shaft was originally sunk to 21 m from 1796-1822 and then deepened to 48 m. The larger and rectangular Adolph Machine Shaft was also completed in 1822 when a 40-inch cylinder steam engine was relocated from Reden Shaft (it was used at Adolph until 1834, when Friedrich Deep Adit was completed, and then sold to a mine in Zabrze). Adolph Machine Shaft was deepened to 52 m from 1874 in preparation for the Waterworks when horizontal steam engines were placed in specially constructed underground engine halls – next to the water table. In 1903 the shaft was deepened to its present depth of 72 m. Machine Shaft is oval in section (like other lichtloch shafts) and became the man-access shaft (originally operated by steam winder) for the Waterworks. An electrically operated shaft cage serves as access to the historic site today. Adolph Machine Shaft still contains substantial pumping ‘pitwork’. At surface, both shafts are contained within the boundary of the Adolph Shaft Waterworks.
1.4 Help Happiness Shaft
Help Happiness Shaft (Lichtlocher 24) is located in a small grassy and lightly wooded compound next to a road, approximately 3 km southwest of Tarnowskie Góry and around 1000 m west of Adolph shaft. It was completed in 1832 to a depth of 67 m, passing into dolomite at a depth of 8 m. It is located at the junction where the adit system branches with one level continuing east and one level south, eventually creating a great loop. A 24-inch cylindered steam engine was moved here from Adit Engine Shaft No. 22 (Karlik) in 1832. The edge of the wooded compound is used to delineate the surface property boundary, which includes within it the raised mound of shaft sinking waste that was likely re-sculpted when the shaft was adapted for use in conjunction with Adolph Shaft Waterworks.

1.5 Adit Engine Shaft No. 22
Adit Engine Shaft No. 22 is located on the edge of some rough woodland where it meets a small light industrial park next to a road. The shaft, marked by a ruinous masonry structure, is near the beginning of the straight northwestern outfall run of the Friedrich Deep Adit. It was begun in 1823 and housed the pumps for a 24-inch cylindered steam engine used (until 1832) whilst constructing the adit. The masonry remnant at Adit Engine Shaft No. 22 has a design that is strikingly similar to that recorded at other lichtloch shafts used for pumping on adit levels in Germany, for example in the Erzgebirge, no longer extant. Internally, the shaft (inaccessible from surface) is oval in section and lined with stone masonry. The surface property boundary includes the architectural structure and the associated mound of shaft sinking waste.

1.6 Adit Shaft No. 17
Adit Shaft No. 17 is located in woodland in Repty Park, on the northern valley slope above the Drama River. It was begun in 1823 and reached 30 m deep for facilitating construction of the northwestern straight run of the Friedrich Deep Adit that runs below the shallow Drama Valley. The 30 m deep shaft is surrounded by a circular walled and vented roofed building, being partially reconstructed in the 1950s when it first opened to the public as Black Trout Adit. Reconstruction used site-sourced stone to rebuild the missing upper elevation (above door and window level), with a new traditional shaft rotunda roof based on original drawings of such lichtloch structures at Friedrich Mine. Today, Sylwester Shaft continues (along with Ewa Shaft) as the principal tourist access (stone stairway) to the section of the Friedrich Deep Adit still known as Black Trout. Whilst the shaft collar and its functional (safety, security and weather protection) rotunda are included within the Property, the rotunda is only part-authentic, its original lower profile being easily distinguished by a change in masonry and mortar used in the reconstruction of its higher elevation.

1.7 Adit Shaft No. 13
Adit Shaft No. 13 is 20 m deep and located in the wooded Repty Park, on the northern valley slope above the Drama River. It was begun in 1822 as part of the succession of shafts sunk to begin driving the Friedrich Deep Adit in multiple directions. Its circular stonewalled shaft rotunda was partially
reconstructed and re-roofed in a traditional manner in the same way, and at the same date (1950s), as Adit Shaft No. 17 (Sylwester). It continues to operate as a companion shaft for visitors to the Black Trout section of the Friedrich Deep Adit. Whilst the shaft collar and its functional (safety, security and weather protection) rotunda are included within the Property, the rotunda is only part-authentic, its original lower profile being easily distinguished by a change in masonry and mortar used in the reconstruction of its higher elevation.

1.8 Adit Shaft No. 5
Adit Shaft No. 5 is located just into the woodland of Repty Park, bordered by open agricultural fields to the south. It is the closest (1500 m) shaft to the Friedrich Deep Adit Portal (attribute 1.9). Sinking began in 1822 and a substantial remnant of a circular stonewalled shaft rotunda remains. Internally (inaccessible from surface but accessible from a short side level that connects with the Friedrich Deep Adit, the shaft is oval in section and masonry lined. The shaft collar, ruined masonry rotunda (to be conserved as a ruin in contrast to the reconstructed rotundas at adit shafts 13 and 17) and the associated mound of shaft sinking spoil are included within the surface property boundary.

Northern Adit System
Friedrich Mine Northern (Central) Adit System comprises adits and levels that intersect the ore-ground at a higher level (up to 18m higher) than the, later, Southern Adit System. Two adits, St Jacob’s (mid-sixteenth century, and where considerable early archaeological potential exists) and God Help (mid-seventeenth century, extended and altered 1785 onwards), were in existence when Friedrich Mine was founded by the Prussian State in 1783.

Friedrich Mine (Friedrichsgrube) was established following the discovery of large deposits of lead-silver ore close to Rudolphina Shaft (the first new shaft located in the ‘Original Site of Friedrich Mine’), and which heralded the dynamic growth of mining in the Bobrowinki area. Massive amounts of water were soon encountered in the shafts and galleries, and dewatering of the mine by horse mills (kunst) was insufficient. Ore was located from 30 to 50 metres depth, whilst the technical capacity of horse mills allowed drainage from a maximum of 35 metres. The Kunst Rosche adit, 7 metres deep and 500 metres long, was constructed close to Bobrowinki. However, this soon proved insufficient and to enable the intense exploration and development of mining in various areas around Tarnowskie Góry a more innovative solution based upon gravity drainage of the entire orefield was needed. The first phase of this was the ambitious Northern (Central) Adit System constructed from 1785 to 1807. Progress of driving principal adits and levels is datable, in detail, from historic plans and these correspond closely to underground archaeology including verification by characteristic stone plaques that meticulously record date and distance.

The following ore zones were drained by their respective adits and levels: Sucha Góra (Trokenberg) by Zuflucht (2,770 metres, part accessible from Adolph Shaft); Bobrowinki (Bobrowniker) by Heinitz (Heynitz, 4,239 metres, accessible from Angel and Adolph shafts), the urban area (Stadt) by Reden (3,350 metres) and the Adit area (Stolln) by God Help Adit (3,151 metres, accessible from its portal). Additionally, Kaehler (2,469 metres, accessible from Kaehler Shaft, currently a water supply) and Sowitzglük (600 metres, accessible also from Kaehler Shaft) galleries were designed in order to
drain the area of Sowice. The works were carried out simultaneously in order to connect various production areas of the mine. Such a large and complex undertaking required the use of eight steam engines (improved Newcomen and Boulton & Watt) moved from shaft to shaft as required, their ‘temporary’ and mostly wooden engine houses leaving little trace. In July 1807 the entire system was completed when a 60-inch steam engine was set in motion in the engine shaft adjacent to Friedrich Shaft.

It was on the northern adit system, too, that pumping potable water, and for municipal fire purposes, was pioneered, first from Reden and Machine shafts (from 1797) and then from Kaehler Shaft (from 1835, and which is still in use in 2016).

The principal visitor facility within the Property (centred on Angel Shaft) is located in the southern sector of the Northern (Central) Adit System, together with nearby surface mining topography (sixteenth and nineteenth century) that lies above workings that overlay and were drained by the adit system.

2.0 God Help Adit (and associated adits, levels and workings)
God Help Adit (13 m above Friedrich Deep Adit), one of the two major water outlets in Friedrich Mine, has its origins in the mid-seventeenth century and was inspected early during the first operational period of Friedrich Mine. However, after attempting to refurbish the initial section of the adit, it turned out that only 40 metres was serviceable. Therefore, a new parallel section was excavated and the adit named God Help (German = Goethelf). Work began in 1785 and ‘Lichtlocher’ shafts were sunk to simultaneously progress tunnel faces from the bottom of each, in both directions, until each met the other. On completion of the adit, shafts were arched over in the adit roof using timber and stone masonry. Some of these remain readily apparent in the adit roof, and in masonry-lined sections of the adit there are buttressed masonry arches added for support.

In order to drain the concentration of water, a 20-inch steam engine was used, at first installed in shaft No. 11 and later successively moved to shaft No. 12 and shaft No. 22, following adit construction. In July 1803 a connection between shaft No. 25 and Friederike Shaft was made. Thus, the adit reached Reden Hill and marked the completion of the construction works at a total length of 3,151 metres.

The adit ditch, beginning at the adit portal, was an integral functional part of the system in that it completed the final segment of the gravity drainage route to connect with the Stola River.

2.1 Angel Shaft
Angel Shaft is located in the centre of the Property, 2 km SSW of Tarnowskie Góry. This is the hub of the Association’s visitor facilities and houses a museum first opened to the public in 1976, and substantially updated in 2012-2015. The Shaft is oval in section, masonry lined and 43 m deep (sinking began in 1798) and passes into dolomite after just over half its depth. It is equipped with an electrically operated cage and, after the descent, visitors are taken on a near-2 km route (average -40 m depth) of seventeenth to nineteenth century galleries, levels, shafts (including Viper and God Bless) and an adit; the latter a 270 m stretch by boat. The shaft collar, only, is included within the surface property boundary that is drawn tightly to exclude all other modern visitor and interpretive infrastructure, including the headframe.
2.2 Viper Shaft
Viper Shaft is located within a distinctive shaft mound in open farmland. It is 48 m deep, sinking beginning in October 1811, and intercepts a 3-way junction of Heinitz Level. From the 1970s, this shaft has been used as a ventilation shaft (down-cast) to mechanically blow fresh air into the visitor mine workings (Angel Shaft used as a natural up-cast shaft). The shaft is oval in section, brick lined and also contains a steel access man-way. The shaft collar is included within the surface property boundary, together with the original mound of shaft sinking spoil. Modern surface and within-shaft visitor safety/ventilation infrastructure (including fans/fan house/shaft manway) is excluded from the historic attribute.

2.3 God Bless Shaft
God Bless Shaft was sunk from 1815 to 43 m deep, passing into dolomite at just over half its depth. It is located on the Heinitz and Reden systems between Viper Shaft and Menzel Shaft (a straight that is parallel to the Friedrich Deep Adit). The shaft is visible from the tourist route off Angel Shaft. The shaft collar together with shaft sinking spoil is included within the surface property boundary.

2.4 Heinitz Shaft
Heinitz Shaft is located in a shaft hollow within the Original Site of Friedrich Mine area that also contains the historic commemorative and recreational post-mining landscape of Kunszt Park (attribute 3.5). The shaft, capped at surface, is 39 metres deep and enters the Heinitz Section that ultimately connects with Machine Shaft (7 metres above the floor of Engine Hall A) in the Adolph Shaft Waterworks (attribute 3.1). Heinitz Shaft was excavated in 1787 and was the deepest shaft on the Bobrowiwickie mining field, being named in honour of the Prussian Minister Frederic Anton von Heinitz who supervised the resumption of ore mining in Tarnowskie Góry. In 1792, next to Heinitz Shaft, Machine Shaft was excavated to accommodate a 48-inch steam-pumping engine. The shaft collars (marked by depressions) are contained within the surface property boundary that contains a number of other historic shafts and their important archaeological context.

2.5 Reden Shaft
The distinctive shaft mound, in which the capped Reden Shaft is located, lies close to a main road, 1.5 km SSW of Tarnowskie Góry. It was begun in 1794 and is 40 m deep. The shaft served the first Boulton & Watt (1797) steam engine and was used to pump water from the mine adit system to surface reservoirs and then by pipeline to Market Square in Tarnowskie Góry. As such, this is an important site in the history of steam pumping for the abstraction of mine water for public supply. The distinctive shaft sinking spoil mound that surrounds the shaft is used to delineate its surface property boundary.

2.6 Kaehler Shaft
Kaehler Shaft is located on Reden’s Hill, Opolska Street, around 1 km northwest of Tarnowskie Góry.
The shaft was begun in September 1808, is oval in section and masonry lined, and at 55 m deep served as a municipal water supply (operated by the town) from 1835 until 2000; today (2015) it has once more been re-used as a municipal water supply. The site is marked by a water tower (1926) within the Property of the Water Supply and Sewerage limited liability company (Przedsiębiorstwo Wodociągów i Kanalizacji sp. z o.o), who maintain the shaft and water supply. The shaft collar, only, is included within the surface property boundary that is drawn tightly to exclude all other modern water supply infrastructure, including the shaft house.

2.7 Frederica Shaft
Frederica Shaft (begun 1801) and Machine Shaft are located above the inner end of God Help Adit, which it meets at a depth of 43 m. The shafts descend another 6 m to connect with Reden Strecke, from which water was pumped by steam engine up to God Help Adit. Frederica Shaft is oval in section and masonry lined. The shaft collar, only, is included within the surface property boundary.

A2. FRIEDRICH MINE ADIT PORTAL AND DITCH
Friedrich Mine Adit Portal and Ditch contains the principal ‘deep adit’ outfall marked by an exceptional neoclassical masonry portal and water channel that was excavated to keep the mine water discharge separate from the Drama River. It is the end part of the Southern Adit System.

1.9 Friedrich Mine Adit Portal
Friedrich Mine Adit Portal is located in a shallow and narrow wooded valley, adjacent to the western boundary of Repty Park, and surrounded by open farmland around 6 km south-west of Tarnowskie Góry. Located in the west of the nominated Property, it is the principal discharge point for the main Friedrich Mine Adit Ditch. It opens into the Friedrich Deep Adit Ditch (attribute 1.10), which is an integral component of the adit system, just to the south of the shallow Drama Valley. The portal represents an exceptional example of Prussian (German) neoclassical adit portal architecture and compares with several surviving examples in Germany, such as the Rothschonberger (Freiberg) and the Tiefer Georg Stollen (Harz). It was built in 1834 from dressed limestone and marble. The date 1821 commemorates the commencement of the 4,568 m section to Adolph (Staszic) Shaft (which became the abstraction point for the Upper Silesian water pipeline). The crossed hammer and pick is a common Central European mining symbol and also appears in the (1562) coat of arms of Tarnowskie Góry. This is the principal mine water discharge point, the portal emptying up to 50,000 m³ of clear water per day.

1.10 Friedrich Mine Adit Ditch
The Friedrich Mine Adit Ditch (water discharge channel) was excavated in 1821 as the major surface component of the Friedrich Deep Adit in its discharge course that meets the Drama River. This then flows west, away from the ore-ground, into the Kłodnica River, the Oder and ultimately to the Baltic Sea. The course of the Drama River runs slightly obliquely to the ditch, before (now) joining
it. The Drama is one of two small rivers, only, that traverses the shallow undulating land surface in the Tarnowskie Góry area. Its riverbed courses at just a slightly lower elevation than surrounding meadows and woodland, and it has a corresponding very shallow river gradient. Such rivers, far from topographically ideal for receiving adit discharge, were the only option available to miners who wanted to open up the rich lead-silver deposits of Tarnowskie Góry. The Drama River was purposely kept separate from the Friedrich Mine Adit Ditch for over 1km in length, this parallel course being accentuated in the western end of the surface property by twin masonry bridges that pass under the road that forms (inclusively) the boundary. The Adit Ditch bridge is substantially larger than the Drama River bridge due to superior flow. The reason for such a long and unusual separation was due to providing a minimum of impeding extant surface flow and, crucially, that the adit system could discharge throughout winter in a comparatively ‘warmer’ and free-flowing discharge, whereas the Drama River may be expected to freeze.

A3. GOD HELP ADIT PORTAL AND DITCH

God Help Adit Portal and Ditch comprise the northern adit portal and outfall channel. It is the end part of the Northern Adit System.

2.8 God Help Adit Portal

God Help Adit Portal is located in the northwest part of the nominated Property (around 5 km northwest of Tarnowskie Góry) and discharges mine water into God Help Ditch (water channel). Water flow is, today, inconsequential because steam engines once pumped water from levels below adit and discharged into God Help Adit. These waters now drain freely via the Friedrich Mine Adit (deep adit). A classical masonry portal was formerly in poor condition and was reconstructed in 2000 (modern reconstruction therefore no longer part of the attribute).

Inside the portal there is a section of masonry walling constructed at the time the adit was first commenced in 1652 (when it was called ‘Support God’ Adit). Construction (with small dimensions as compared to the late eighteenth or early-nineteenth century adits) continued until 1695 when it was 866 m long, though no ore deposits had been reached at that time. It was extended from 1794 (re-named Gotthelf Stollen) to 2,192 m, and an increase to 25 airshafts, to function as the northern sector of the Friedrich Mine drainage system – part of which was used for water supply abstraction using steam-pumping engines. The flat topography and exceptionally shallow (cut and cover) character of the initial section of God Help Adit is apparent by a linear trough at surface running SSE from above the portal. This linear trough is only a little over a metre from the roof of the cut-and-cover section. The lower (portal end) section of the 17th century adit was replaced by a parallel adit driven from 1792.

2.9 God Help Adit Ditch

God Help Adit Ditch (water channel) is a well-engineered open trench, 0.5 km long and typically around 4 m wide x 2 m deep that is gently inclined to allow free water flow from God Help Adit.
Portal to the Stola River. It was likely first constructed around 1656, in association with what was then called Support God Adit, one of several adits (including St. Jacob’s) that discharged into the Stola River (from German Stollenwasser = adit water). In 1794, with rehabilitation and extension of the adit (renamed God Help), under Prussian organisation the Ditch was also likely refurbished. During the later 1790s/early 1800s it received mine water pumped from below, and into, God Help Adit by steam engines. After 1834, when Friedrich Mine Adit was completed to effectively under-drain the ore body by gravity, discharge lessened and consequently today’s outflow is minimal. The comparatively flat topography of Tarnowskie Góry, combined with only two small (and shallow-gradient) rivers to act as water receivers, necessitated the careful surface management of mine water via such ditches. In addition to the connection of adit portals with rivers, they also served pumping/kunst shafts, for example the ‘kunst rosche’ to be seen on old plans and still discernible in the landscape today.

Associated Attributes
A range of associated attributes, those at surface directly connected in the third dimension to the underground workings, include: The Mining Landscape of Silver Mountain, where the Property’s best evidence of sixteenth century lead-silver mining and nineteenth century zinc-lead-iron mining are found; the Original Site of Friedrich Mine where the eighteenth century re-discovery of lead-silver ore was made, exploited from below the water table using imported steam pumping technology, and commemorated with a memorial; the centralised ore-processing remains of the landform-scale Friedrich Mine Washing Tip, testimony, in particular, to nineteenth century zinc production; the pioneering Adolph Shaft Waterworks that was integrated with the Friedrich Mine Deep Adit; and the Municipal Park, the best example of a number of recreational parks in and around Tarnowskie Góry that utilised and preserved distinctive post-mining topography.

A4. ADOLPH SHAFT WATERWORKS
Adolph Shaft Waterworks comprises both surface and underground remains of the unique 1870s steam-powered water-pumping station that was integrated with the mining system.

3.1 Adolph Shaft Waterworks
The extensive underground network of adits, levels and shafts in the Friedrich Mine were so effective in removing water from their area of operations that they caused an acute water shortage in Tarnowskie Góry. This resulted in the drying out of wells and disused mineshafts used for water supply (36 in the 1780s); an occurrence for which the blame firmly rested with the Friedrich Mine. To remedy the water shortage, and at the mine’s expense, the first water pipeline became operational in 1797, a time when Britain’s Boulton & Watt engine made water pumping for public supply economically attractive. Subsequent shafts were used for water abstraction, Frederike (attribute 2.7) in 1810 and Kaehler Shaft (attribute 2.6) in 1835; Tarnowskie Góry city authorities taking over responsibility for the supply. The largest scale water supply facility was, however, established in
Introduction

The 1870s and is centred on Adolph (Staszic) Shaft (attribute 1.3) that intercepts the Friedrich Deep Adit. This was to supply the Upper Silesian Industrial Region (centred on Katowice, 24 km southeast of Tarnowskie Góry) that was being developed in an area of over 3,000 km². This enormous agglomeration, a precursor, then competitor, with the Ruhr, comprised a concentration of coal mining, iron and steel, chemicals and mechanical engineering, based on the northern part of the Upper Silesian Coal Basin. The desperate need for industrial water, and the surge in demand for drinking water in consequence of the dramatic population increase, forced the Prussian Treasury to create their own powerful water supply system; a system that remained in operation until 2001. Machine halls and a substantial abstraction infrastructure survive at Adolph Shaft and Machine Shaft on the Friedrich Deep Adit. Adolph Shaft, with operational cage and hoist access (see attribute 1.3 above), is maintained by the Upper Silesian Water Supply joint-stock company (Górnośląskie Przedsiębiorstwo Wodociągów S.A.). Stationary steam pumping engines, installed in 1921, remain in situ. Two horizontal engines, with central flywheel, have recently (2012) been conserved. Cast iron pipelines lead from abstraction points. In 1892 a further pump was installed to supply drinking water, via a 300 mm diameter pipeline, to the predominantly German Silesian mining town of Zabrze. In 1902-03 a third borehole penetrated the aquifer at a depth of 87 m, supplying a new 600 mm diameter pipeline. A brick-lined steam condensation cistern survives, that formerly received depleted steam expelled from the steam engines and which cooled from vapour to liquid.

At surface there are considerable remains, the original wall of the complex forming much of the surface property boundary. Whilst the steam pumping engines were located on the Friedrich Deep Adit, some 60 m below, the original complex of brick-built surface buildings survive. It includes two octagonal ‘Malakoff Towers’, on Adolph and Machine shafts, and the long central boiler house that provided steam that was piped underground for the pumping engines (and supplied the winding engines at surface). Brick-built winding houses (‘Malakoff Towers’) constructed in 1880 survive as part of the original Adolph Shaft Waterworks. The distinctive octagonal design, with its shallow hipped octagonal roof, was soon superseded elsewhere in Poland by steel head-frames. This design, however, importantly reflects the traditional octagonal timber buildings that once housed the prolific, horse-powered, ‘kunst’ machines that operated the water barrels or primitive pumps in the shafts of the Tarnowskie Góry lead-silver mines (up to 40 horses were stabled to operate each ‘kunst’). They were commonly constructed until the steam era became firmly established at the end of the eighteenth century. Two ‘Malakoff Towers’, and associated structures, are part of the technological ensemble that is testimony to the historic Upper Silesian water supply sourced from the Friedrich Mine. A ‘Lancashire’ type boiler (twin fire tubes), remains intact within the brick-built boiler house of 1880 that once housed a row of nine such boilers. A coal railway siding survives beside the boiler house, with a manual-hauling bollard for drawing wagons alongside bunker archways. A coal railway siding survives beside the boiler house, the course of the railway entering the complex by the main gate.

A5. MINING LANDSCAPE (19th CENTURY)

Mining Landscape (19th century) comprises an exceptional and coherent landscape of meadows dominated by surface mining topography (locally pingi and warpie) that was mined for lead-silver
in the 16th century and lead-silver and iron in the 19th century. It is a unique example of the Adolph Shaft Waterworks historic setting.

3.2 Mining Landscape (19th century)
Within the surface boundary associated with the Adolph Shaft Waterworks is a sub-rectangular north-south area of surface mining topography managed as meadow and part-farmland. It comprises shafts, mounds and openworks that form a distinctive man-made topography that reflects the shallow and sub-horizontally bedded lead-silver deposit, exploited during the sixteenth century, together with subsequent iron mining during the nineteenth century. The distribution of shaft hummocks is random, unlike linear patterns that may be seen in mining regions where steep veins outcrop and reveal a linear strike. The characteristic landscape around Tarnowskie Góry, locally termed ‘pingi’, marks the sites of shafts that more resemble the ‘bell pits’ seen in coal mining or flint mining landscapes. These landscapes also commonly share the flat-lying mineral deposit geometry and so also produce a dense yet random surface pattern that is laterally expansive. Miners at Tarnowskie Góry were compelled to use vertical shafts as the means of discovering horizontally bedded veins. 2,528 new shafts were sunk in 1556, alone, and by 1600 the number of new shafts recorded exceeded 19,000. Contemporary sketches and paintings show conical shaft mounds, a number of which may be seen in the area. The southern part of the Property is just west of Adolph Shaft Waterworks, and highlights the heavily mined nature of the ground in which the waterworks was constructed. A 19th century industrial railway embankment, and the road from the Waterworks to Help Happiness Shaft, cross the area.

A6. SILVER MOUNTAIN AND WASHING TIP
Silver Mountain and Washing Tip comprises the most extensive surviving area of 16th and 18th/19th century lead-silver workings, and 18th/19th century lead-silver and zinc workings, together with (in its northern sector) the washing tip of waste spoil derived from Friedrich Mine’s centralised 19th century ore-processing facility.

3.3 Mining Landscape of Silver Mountain
The Mining Landscape of Silver Mountain lies, immediately south of Friedrich Mine Washing Tip (attribute 3.4), partly in Tarnowskie Góry but mostly within Bytom. The boundary of the surface property (that is connected to the underground via numerous phase I and II shafts) has been drawn to include the principal ancient area of Phase I mining for lead-silver (predominantly in the north, east and south), and several of the largest Phase II zinc workings (predominantly in the south and the west). In addition, an area of abandoned 19th-20th century dolomite quarrying has been included within the central eastern property boundary as it overlaps with several historic shafts and shaft mounds, provides an excellent 50m vertical section of the geology that hosts the ore-ground, and is historically associated with lead-silver-zinc mining as it provided a flux for smelting at the Friedrichshutte (lead-silver smelter established in the late-18th...
century, to smelt the ore from Friedrich Mine). The northeastern sector of the surface property boundary includes Peace Shaft and the centralised 19th century Friedrich Mine Washing Tip (this ore-processing complex being supplied with water pumped from Peace Shaft).

The area is testimony to large surface, and near-surface, areas exploited for lead and silver during the fifteenth and sixteenth centuries; potentially even as far back as the late-thirteenth and fourteenth centuries. The ore, rich in silver near the surface, provided surges of considerable wealth that was reflected in the building of towns such as Tarnowskie Góry and Bytom and their substantially increased populations. Lead was transported large distances to supply the metallurgical complexes of central Europe, used extensively in the extraction of silver and gold. In the nineteenth century, the Silver Mountain area was again mined, especially for zinc-lead ores such as those exploited in the ‘Verona’ section of Friedrich Mine (located in the west of the area). As such, this is a complex landscape of several phases of activity, though much of the earliest, opencast workings remain (some dry, some flooded such as the mining excavations near Conrad Shaft, Segiet zinc mine) with later phases commonly extracting ore at greater depths accessed via shafts.

In the Middle Ages, once the mineral was broken from near-surface exposures in openworks, or brought to surface from numerous shafts, it was easily hand-hammered from waste and sorted – creating a characteristic hummocky landscape. It was then washed at one of a number of small ‘washeries’ located by some convenient water source. This might be baled or crudely pumped mine water that was routed away from the workings, adit discharge or natural streams and rivers (there were few). The ore was then ready for sale to smelters.

Perhaps the best and most extensive characteristic ‘hummocky’ terrain (locally pingi and warpie), often associated with lead mining in various countries, survives wholly intact in this area.

In the nineteenth century, industrialists mastered the practice of galvanising iron using zinc, thus protecting the iron from corrosion. Corrugated iron, caught on quickly and countless industrial, and domestic, buildings used it. A surge in output followed the expansion, in 1837, of Friedrich Mine that incorporated a number of established rich mines such as Verona and Segiet, included within the Mining Landscape of Silver Mountain.

3.4 Friedrich Mine Washing Tip

Friedrich Mine Washing Tip is a large mine tailings heap (site of the centralised ore-processing facility for Friedrich Mine) located 6 km south of Tarnowskie Góry. It is a conspicuous L-shaped elevated landmark, surrounded by farmland and topped by some small World War II lookout/bunkers, 300 m west of abandoned dolomite quarries. Some adjacent fields (to the south and west) are included within the Property boundary for management purposes.

This washer plant tailings dump dates from the 1830s, but it rapidly accumulated in scale with increased zinc production from the 1870s to the 1920s. The landform scale of the feature highlights the size of the Friedrich mining operation, the waste originating from the sorting and washing of ore-bearing dolomite from which lead, silver and zinc ores, together with iron ore, were separated.

In the late eighteenth century, when the Prussian state introduced a step-change in the organisation and finance of Upper Silesian mining, this was reflected in the scale of operations, and upon the legacy left by such activity. As previously evidenced, mechanised shafts and levels were much larger, facilitating greater volumes of ore to be extracted, more quickly and more cost-effectively.
From 1882–87, during the mine's most profitable years, between 20,000 and 30,000 tons of ore per year were produced. Such production yields a correspondingly large accumulation of waste from ‘washing’, a process that became centralised in the Friedrich Mine and to which its water supply was pumped directly, via Peace (Frieden) Shaft (attribute 1.1), from the Friedrich Deep Adit. Mining at Tarnowskie Góry continued after 1870 principally due to the growing demand for zinc ore that was mined in large quantities from the southern section of the mine. Upper Silesian zinc ore production peaked in 1910 when an output of 250,000 tonnes of metallic zinc was achieved. Today, a rare ‘calamine flora’ comprises zinc-tolerant plant species that thrive on the spoil.

A7. ORIGINAL SITE OF FRIEDRICH MINE

Original Site of Friedrich Mine contains the archaeological site of the earliest operations of the State-led Friedrichsgrube, together with the commemorative mound dedicated to the discovery of lead–silver ore.

3.5 Original Site of Friedrich Mine

The Original Site of Friedrich Mine contains an archaeological record of the beginnings and early development of Tarnowskie Góry’s state-run ‘model’ lead-silver-zinc operation that became Friedrich Mine. The field spatial arrangement remains clear, and archival documentation is invaluable to informed planned archaeological investigations that may enhance knowledge of key technological development (1784-1792) that began with three kunst (pumping ‘engines’ operated by horse-power), superseded by two Newcomen engines imported from Britain (the so-called ‘First and Fourth’ engines), together with their water receiving ditches that carried water away and which were latterly extended to supply the Friedrich Mine Washery adjacent to Frieden (Peace) Shaft contained in component part no. IV. Investigations will also aim to determine the layout of what became the residential Friedrichsgrube Colony, with its commemorative public park, now the Kunst Park. Later remains include the embankment (1850s) of the narrow-gauge mineral railway. The area contains some important shafts (in the south and west of the component part – capped at surface but either accessible, or with potential accessibility, underground): Rudolphine Shaft where, in 1784, the Prussian mining authority discovered large quantities of lead ore that effectively marked the resumption of mining in Tarnowskie Góry; Abraham Machine Shaft where the first steam engine in Silesia was put to work in 1788 following its import from Britain; Heinrich Machine Shaft (site of the ‘Fourth’ engine, a Newcomen type also imported from Britain); and Kunst Shaft (served by horse-powered pumps in 1785), Antonia and Erdmann shafts. Water-receiving/collection ditches are also discernible, including: the washer ditch (Stoly), the first watercourse (apart from adit ditches) regulated in the 18th century and which was deepened in 1784 to carry off water discharged by the first horse treadmills installed on Friedrich Mine; and the main drainage ditch (Haupt-Abzugs-Kanal) next to Rudolphine and Erdmann shafts which carried away water pumped from the ‘First’ steam pumping engine from 1788 and then, augmented by subsequent machines, to a new washery near Antonia Shaft. In 1808 it was extended to Frieden (Peace) Shaft Washery. A new section of ditch was dug along the Stoły River that flowed from the vicinity of Segiet Farm. The original discovery of ore was celebrated annually in Tarnowskie Góry and Strzyżynca on 16th July as a celebration of mining and metallurgy. In 1820, the area around Rudolphiine Shaft began to be arranged, the heap of shaft-sinking waste was rounded, and some trees planted to create the mining park of Friedrich Mine Colony, the place of annual mining ceremonies. There was also a monument erected in the form of a commemorative obelisk on top of the mound, which was subsequently (1910) moved to the city park and finally blown up at a time (1930) of the Silesian Uprisings. It’s inscription: Despite the skeptical attitude of the King, Count von Reden made the discovery of a rich deposit of lead ore in this place, July 16, 1783.

The commemorative and sculpted shaft mound, encircled by (now) mature (and protected) lime trees, survives in the northeast quadrant of the character area.

A8. MUNICIPAL PARK

Municipal Park is the best surviving, and most extensive and elaborate, of a number of recreational parks that were created on post-mining landscapes in and around Tarnowskie Góry during the 19th and early 20th centuries, preserving vulnerable mining topography.

3.6 Municipal Park

A distinctive topography of shaft hummocks has been preserved as a historic recreational post-mining landscape, a feature of Tarnowskie Góry’s 22-hectare municipal park. Constructed in 1903, the Stadtpark is an early example of the successful post-industrial re-use of a mining landscape, integrating a relict ‘waste’ landscape into a community that still retains mining as a central cultural characteristic. Characteristic undulating terrain of the park was greened with trees and shrubs, creating splendid close and more distant views, alleys and small glades. A small lake was created in the greatest concentration of hollows and a network of park paths, neatly incorporated in the varied terrain, seamlessly linked individual components of furnishings. A network of straight and intersecting roads superseded two initial roads in the second phase of the development of the park. Overall, two principal parts can be distinguished: the residential Friedrichsgrube Colony, the place of annual mining ceremonies. There was also a monument erected in the form of a commemorative obelisk on top of the mound, which was subsequently (1910) moved to the city park and finally blown up at a time (1930) of the Silesian Uprisings. It’s inscription: Despite the skeptical attitude of the King, Count von Reden made the discovery of a rich deposit of lead ore in this place, July 16, 1783.

The commemorative and sculpted shaft mound, encircled by (now) mature (and protected) lime trees, survives in the northeast quadrant of the character area.

Sporting facilities of the park also include a sports field, located to the southwest of the tennis courts, which
was converted to an ice rink in winter. To the north, near the sports field, there was a pavilion that served as a changing room. The Park has been enlarged several times due to donations and acquisition of lands. It now covers an area of 22 ha and hosts 50 species and varieties of trees and shrubs.
FORMS OF LEGAL PROTECTION

CULTURAL
- National Historic Monument “Tarnowskie Góry – Historical Silver Mine and Black Trout Adit underground”
- Landscape Park in Repty
- Former noble metal mine in Tarnowskie Góry (entry to the Register of Monuments as interpreted in the Local Development Plan)
- Cultural Park ‘Hałda Popłuczkowa’

NATURAL
- Natura 2000 Special Protection Area of the ‘Undergrounds of Tarnowskie Góry-Bytom’, (PLH 240003)
- Landscape Complex ‘Park in Repty and the Drama River Valley’
- Monument of Living Nature ‘Park Kunszt’
- Nature Reserve of the ‘Segiet’ forest

TARNOWSKIE GÓRY LEAD-SILVER-ZINC MINE AND ITS UNDERGROUND WATER MANAGEMENT SYSTEM

map 8 | FORMS OF LEGAL PROTECTION
CHARACTER AREAS

NOMINATED PROPERTY CHARACTER AREAS

A1. UNDERGROUND
0.1 UNDERGROUND WORKINGS
1.0 FRIEDRICH MINE DEEP ADIT
1.1 PEACE SHAFT
1.2 BOHR SHAFT
1.3 ADOLPH AND MACHINE SHAFTS
1.4 HELP HAPPINESS SHAFT
1.5 ADIT ENGINE SHAFT No. 22
1.6 ADIT SHAFT No. 17
1.7 ADIT SHAFT No. 13
1.8 ADIT SHAFT No. 5
2.0 GOD HELP ADIT
2.1 ANGEL SHAFT
2.2 VIPER SHAFT
2.3 GOD BLESS SHAFT
2.4 HEINITZ SHAFT
2.5 RITEN SHAFT
2.6 KAELER SHAFT
2.7 FREDERICA SHAFT

A2. FRIEDRICH MINE ADIT PORTAL AND DITCH
1.9 FRIEDRICH MINE ADIT PORTAL
1.10 FRIEDRICH MINE ADIT DITCH

A3. GOD HELP ADIT PORTAL AND DITCH
2.8 GOD HELP ADIT PORTAL
2.9 GOD HELP ADIT DITCH

A4. ADOLPH SHAFT WATERWORKS
A5. MINING LANDSCAPE (19TH CENTURY)
A6. SILVER MOUNTAIN AND WASHING TIP
A7. ORIGINAL SITE OF FRIEDRICH MINE
A8. MUNICIPAL PARK

UNDERGROUND NOMINATED PROPERTY
(SUBSET OF SURFACE MAP)
SURFACE NOMINATED PROPERTY
BUFFER ZONE
TARNOWSKIE GÓRY LEAD-SILVER-ZINC MINE AND ITS UNDERGROUND WATER MANAGEMENT SYSTEM

SURFACE NOMINATED PROPERTY
UNDERGROUND NOMINATED PROPERTY
(Projection at surface)

BUFFER ZONE

A1. UNDERGROUND
A2. FRIEDRICH MINE ADIT PORTAL AND DITCH
A3. GOD HELP ADIT PORTAL AND DITCH
A4. ADOLPH SHAFT WATERWORKS
3.1 ADOLPH SHAFT WATERWORKS
A5. MINING LANDSCAPE (19TH CENTURY)
3.2 MINING LANDSCAPE (19TH CENTURY)
A6. SILVER MOUNTAIN AND WASHING TIP
A7. ORIGINAL SITE OF FRIEDRICH MINE
A8. MUNICIPAL PARK

3 | ADOLPH SHAFT WATERWORKS
MINING LANDSCAPE (19TH CENT.)

| base map source: BDOT10+CGIK(3s.topo.c-ord.sys.1965) | map realization: National Heritage Board of Poland / World Heritage Unit-XII.2015
CHARACTER AREAS

NOMINATED PROPERTY CHARACTER AREAS

A1. UNDERGROUND
A2. FRIEDRICH MINE ADIT PORTAL AND DITCH
A3. GOD HELP ADIT PORTAL AND DITCH
A4. ADOLPH SHAFT WATERWORKS
A5. MINING LANDSCAPE (19TH CENTURY)
A6. SILVER MOUNTAIN AND WASHING TIP

3.3 MINING LANDSCAPE OF SILVER MOUNTAIN
3.4 FRIEDRICH MINE WASHING TIP

A7. ORIGINAL SITE OF FRIEDRICH MINE
A8. MUNICIPAL PARK
TARNOWSKIE GÓRY LEAD-SILVER-ZINC MINE AND ITS UNDERGROUND WATER MANAGEMENT SYSTEM

CHARACTER AREAS

A1. UNDERGROUND
A2. FRIEDRICH MINE ADIT PORTAL AND DITCH
A3. GOD HELP ADIT PORTAL AND DITCH
A4. ADOLPH SHAFT WATERWORKS
A5. MINING LANDSCAPE (19TH CENTURY)
A6. SILVER MOUNTAIN AND WASHING TIP
A7. ORIGINAL SITE OF FRIEDRICH MINE
A8. MUNICIPAL PARK

BASE MAP SOURCE: BDOT10K+GUGiK (ras.topo.c-ord.sys.1965) | MAP REALIZATION: NATIONAL HERITAGE BOARD OF POLAND / WORLD HERITAGE UN-XII.2015
4. Significance of the Property
**4.1 Draft Statement of Outstanding Universal Value for the Property**

**Brief synthesis**

Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System is located in the Silesian plateau of southern Poland, in one of Europe’s classic metallogenic provinces. It is the largest and most significant historic underground lead-silver-zinc mine in Poland, and possesses a monumental drainage network that features a uniquely integrated public water supply system that was both pioneering and the largest of its kind in the world. Constructed in technically challenging terrain, the underground mining and water system comprises over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, numerous ore-extraction chambers and shafts. Preserved with sustained access by a community association for over sixty years, this network is complemented by substantial remains of the principal water supply infrastructure (above and below ground) together with directly connected surface elements that comprise essential mining landscape features (such as adit portals and ditches, shafts and tips), and the most important examples of post-mining community commemorative and recreational sites that are a characteristic of the early preservation of Tarnowskie Góry’s distinctive mining topography.

Interrelated outstanding values include:

- The magnitude, geographical reach and international impact of the mine’s lead and (later) zinc production
- Mining began in the Middle Ages as numerous small-scale artisanal lead-silver mines funded by merchants and the local nobility, before becoming a large-scale ‘model’ royal lead-zinc mine during the period of concerted Prussian state-led industrialisation that began in the second half of the eighteenth century and which fostered, in Upper Silesia, the first major heavy industries in German territory. Lead exports from Tarnowskie Góry in the Middle Ages supported an extensive European metallurgical supply complex, in which the production of lead, copper and silver existed in the context of mutually inter-dependent intercontinental trade, and which brought European silver output to unprecedented levels in such major mining and smelting centres as Kutna Hora, Banská Štiavnica, Banská Bystrica, Nuremberg, Thuringia, the Tirol and the Erzgebirge. This contributed to the general economic and social development of Europe, and the consequent flow of silver bullion and specie to China, the most singularly important product that led to the birth of world trade. From the first recognition in Europe of zinc as a separate metal (Georgius Agricola’s ‘zincum’ observed in Silesia in the mid-sixteenth century), local production propelled Germany as the world leader throughout the nineteenth century, meeting almost half of global demand for this ‘architectural metal’.
- The ingenious technical ensemble of mine drainage and water supply illustrates the vigorous pan-European development and exchange of mining technology and demonstrates how mine water was managed in an innovative and environmentally sustainable manner that was ahead of its time
- The underground water management system reflects a masterpiece of hydraulic engineering, a 300-year development that adapted with changes in scale and technology to combat an unusually high water inflow of up to three times that commonly encountered in central European mines. The challenge was exacerbated by a gentle undulating topography with only two small rivers, at just slightly lower elevations and with corresponding shallow river gradients, to serve as mine water receivers. Dewatering developed in symbiosis with water supply from as early as 1797 when the mine adopted the first Boulton & Watt steam pumping engine exported for metal mining purposes on the European continent. This was followed by their purposeful limitation (and of earlier imported British Newcomen engines), a consequence of which was the foundation, in Silesia, of the German steam engine manufacturing industry that impacted substantially on global industrialisation. Whilst it was mining that engendered the development of the steam engine, it was mining, too, that provided the technical wherewithal for the development of the world’s first large-scale public water supply systems based on the steam-powered pumping of groundwater, mining engineers inadvertently contributing to the foundations of the modern water industry. The nominated site is a palimpsest that resulted in a complementary and sustainable relationship of mine drainage with water abstraction for local and regional supply and, later, of both potable and industrial water to sustain exponential population growth and development of the emergent Prussian (German) industrial revolution and the foundation of the Upper Silesian Industrial Agglomeration that was in its vanguard.

Conservation of industrial heritage

Tarnowskie Góry’s ‘Underworld’, abandoned by the 1930s, prompted an early conservation movement that continues to manage and assiduously care for the site that has been the focus of sustained conservation and public access for scientific, educational and tourism purposes by a community association since 1957. Such commitment shows not only the strength of mining and industry at the heart of the Silesian cultural tradition but also a further contribution to Poland’s conservation of some of the world’s most significant underground mining heritage.

Justification for inscription criteria

The site is nominated under four criteria for the justification for inscription:

(i) to represent a masterpiece of human creative genius

The extensive underground adit network, and its functional connecting elements of shafts and surface channels, together with the pioneering waterworks that was integrated with underground mine water management, are a masterpiece of mid-sixteenth to late-nineteenth century hydraulic engineering. They represent the peak of European skills in such dewatering technology at a time when mining engineering provided the technical wherewithal for the
development of the world’s first large-scale public water supply systems based on the steam-powered pumping of groundwater;

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

The colossal and accessible underground network, including the mine dewatering system, ore-extraction network and its topographical expressions at surface, together with the pioneering and integrated public water supply facility, are testimony to larger socio-technical world systems from the very beginning. They exhibit the interchange of technology, ideas and expertise in mining engineering, metallurgical systems and public water supply between leading mining and industrial centres in Saxony, Bohemia, Hungary, Britain and Poland;

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

The historic underground mining environment together with directly connected surface features, including commemorative public parks and nature reserves that reutilize yet preserve distinctive mining topography, are protected by a vibrant living culture with a long-standing commitment to conservation and public access. The Property is vivid testimony to a mining tradition with a 500-year-old pedigree, and commitment to it, from local to national levels, reflects a further contribution to Poland’s conservation of some of the world’s most significant underground mining heritage;

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

Substantial remains of the principal integrated public water supply infrastructure, together with an unusually accessible and monumental underground network of over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, shafts and extensive mined chambers, with the addition of directly connected surface and landscape features, are a unique and enduring technical ensemble of metal mining and water management. The ensemble is distinguished by a significant output of lead and zinc that sustained international metallurgical and architectural demands of the time, and a water system that ultimately drained the mine by gravity and met the needs of the most industrialized and urbanized region in Poland, and amongst the largest in Europe, providing a unique and early model of sustainable water management in the active mining environment.

Statement of integrity

The overall size of the Property provides a complete representation of all the significant attributes of the mine and its water management system, supporting historical and geographical-spatial integrity, as well as the structural and functional integrity. A substantial part of the Property is underground, and all surface features are linked directly to it in the three dimensions, and have been delineated at surface as discrete character areas.

Statement of authenticity

The cultural value of the nominated site is reliably and credibly expressed through the form and design of mining features both below and above ground, their materials and workmanship manifested by original and intact physical and structural remains, their use and function evidenced by archives and detailed archaeological investigation, and its location and setting still pervaded by highly authentic and characteristic mining features in the landscape.

Requirements for protection and management

The State Party has designated the Property for which the preservation is in the public interest and which it protects through various forms of legal protection. The World Heritage Centre of the National Heritage Board of Poland cooperates directly with the Management Coordination Team and the Steering Committee of the stakeholder group that is responsible for the protection and management of the site at the local level. A Management Plan guides protection, conservation and presentation of the attributes that carry Outstanding Universal Value.
4.2 Heritage cultural and natural values and their contribution to Outstanding Universal Value (OUV)

This Management Plan is based upon the concept of a values-led management approach, upon values attributed by all stakeholders, but particularly on the cultural significance of the Property to society, an approach deemed most appropriate for a World Heritage property. Values may be international, national, regional and local.

At an international level, the relationship and contribution of heritage values to Outstanding Universal Value can be objectively connected to the nominated criteria of justification for inscription: in this case, criteria (i), (ii), (iii) and (iv):

(i) to represent a masterpiece of human creative genius;

The extensive underground adit network, and its functional connecting elements of shafts and surface channels, together with the pioneering waterworks that was integrated with underground mine water management, are a masterpiece of mid-sixteenth to late-nineteenth century hydraulic engineering. They represent the peak of European skills in such dewatering technology at a time when mining engineering provided the technical wherewithal for the development of the world’s first large-scale public water supply systems based on the steam-powered pumping of groundwater;

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

The colossal and accessible underground network, including the mine dewatering system, ore-extraction network and its topographical expressions at surface, together with the pioneering and integrated public water supply facility, are testimony to larger socio-technical world systems from the very beginning. They exhibit the interchange of technology, ideas and expertise in mining engineering, metallurgical systems and public water supply between leading mining and industrial centres in Saxony, Bohemia, Hungary, Britain and Poland;

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

The historic underground mining environment together with directly connected surface features, including commemorative public parks and nature reserves that reutilize yet preserve distinctive mining topography, are protected by a vibrant living culture with a long-standing commitment to conservation and public access. The Property is vivid testimony to a mining tradition with a 500-year-old pedigree, and commitment to it, from local to national levels, reflects a further contribution to Poland’s conservation of some of the world’s most significant underground mining heritage;

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

Substantial remains of the principal integrated public water supply infrastructure, together with an unusually accessible and monumental underground network of over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, shafts and extensive mined chambers, with the addition of directly connected surface and landscape features, are a unique and enduring technical ensemble of metal mining and water management. The ensemble is distinguished by a significant output of lead and zinc that sustained international metallurgical and architectural demands of the time, and a water system that ultimately drained the mine by gravity and met the needs of the most industrialized and urbanized region in Poland, and amongst the largest in Europe, providing a unique and early model of sustainable water management in the active mining environment.

Table 2. Attribute values

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Outstanding Universal Value (OUV)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>A1. Underground</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G1 Underground Workings</strong></td>
<td>The Tarnowskie Góry ‘Underworld’. An outstanding technological ensemble that is a masterpiece of mid-16th to late-19th century underground hydraulic engineering, the source of lead-silver-zinc that made a substantial contribution to global metalliferous production, exhibiting key interchanges of technological development and bearing exceptional testimony to a cultural tradition. Water flow, and extensive access, remains an important value.</td>
<td>Underworld possesses a remarkable local significance, a tangible link to ancestors, inspiration for art, celebration and recreation. Popularization of knowledge about the mining culture of the eighteenth century; ‘historic’ tourism on the Historic Silver Mine. Place the potential, specialized tourist route.</td>
</tr>
<tr>
<td><strong>1.0 Friedrich Mine Deep Adit</strong></td>
<td>Culmination of underground water management system by gravity adit drainage, the longest (17km) and deepest level under-draining the entire orefield. Exceptional architectural qualities of many km of stone masonry arched linings, some extensive sections rendered with cement produced locally from the late eighteenth century.</td>
<td>Principal route for specialised access to shafts and workings in the Southern Drainage System. ‘Historic’ tourism on ‘Black Trout’. Inspiration for art. The landscape of mining in its final section, due to run along the Drama river.</td>
</tr>
</tbody>
</table>

Table continued...

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Table continued...

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### Table 2. Attribute values, cont.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>Characteristic</td>
<td>Criteria for inscription</td>
</tr>
<tr>
<td>1.1 Peace Shaft</td>
<td>Underground water management system – centralised water abstraction from Friedrich Deep Adit by steam pumping, engine for ore processing. Adjacent to, and intimately related to, Friedrich mining Watering Tank, attribute 3.4. Capped but located in a shaft depression. Accessible underground and containing various shaft infrastructure including extensive metalwork.</td>
<td>Preserved underground pieces of equipment associated with the operation of 24 steam engines for powering a central washer.</td>
</tr>
<tr>
<td>1.2 Bohr Shaft</td>
<td>Used in the establishment of underground water management system. ‘Lichtloch’, historically for ventilation and multiple rapid adit driving. Fine masonry lining, capped with ventilation/bat grille, surrounded by typical shaft-sinking spoil mound (lightly vegetated with small trees) set in open farmland (mosaic of fields, and clearly visible from road).</td>
<td>Element of the post-mining landscape, scenic lookout (shafts, heaps).</td>
</tr>
<tr>
<td>1.3 Adolph and Machine Shafts</td>
<td>Culmination of underground water management system by steam pumping. Two shafts (one being served by a steam engine 1822-34) for driving Friedrich Deep Adit, and that served the principal Waterworks from 1874, and remain key access to the system. Brick-built shaft houses: ‘Malakoff towers’. Centrepieces of the buildings ensemble of overall high integrity, with high authenticity. Shafts, internally, possess substantial ‘pitwork’ and other shaft infrastructure, extensive metalwork, principally relating to waterworks.</td>
<td>Group of exceptional architectural buildings – Malakoff towers. Preserved pieces of equipment associated with the operation of water supply systems.</td>
</tr>
<tr>
<td>1.4 Help Happiness Shaft</td>
<td>Underground water management system. ‘Lichtloch’ shaft, completed 1832, steam engine relocated here in 1832. Capped with ventilation grille, located in a shaft-sinking spoil mound, within compound area containing associated borehole related to Adolph Shaft Waterworks (attribute 3.3).</td>
<td>Element of the post-mining landscape. Preserved pieces of equipment associated with the operation of water supply systems.</td>
</tr>
<tr>
<td>1.5 Adit Engine Shaft No. 22</td>
<td>Underground water management system. Engine shaft (1823-32) used to pump water whilst constructing Friedrich Deep Adit. Rare lightloch engine shaft surface structure in poorly stabilised condition, with adjacent shaft-sinking spoil mound.</td>
<td>Element of the post-mining landscape. Area of the planned archaeological excavations.</td>
</tr>
</tbody>
</table>

| Table 2. Attribute values, cont. |  |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 1.6 Adit Shaft No. 17 | Underground water management system. ‘Lichtloch’ shaft, begun 1823, for ventilation and multiple rapid adit driving. Today used for visitor access. Reconstruction (for functional purposes) of shaft rotunda on original remnant. | ‘Historic’ tourism on ‘Black Trout’ – the key point. | Hydrological values. The occurrence of trout and other fish species. |
| 1.7 Adit Shaft No. 13 | Underground water management system. ‘Lichtloch’ shaft, begun 1823, for ventilation and multiple rapid adit driving. Today used for visitor access. Reconstruction (for functional purposes) of shaft rotunda on original remnant. | ‘Historic’ tourism on ‘Black Trout’ – the key point. | Hydrological values. The occurrence of trout and other fish species. |
| 1.8 Adit Shaft No. 5 | Underground water management system. Rare architectural value in shaft rotunda. ‘Lichtloch’ shaft, begun 1822, for ventilation and multiple rapid adit driving. Substantial original remnant of masonry shaft rotunda survives on shaft sinking spoil. Fine masonry side level at Friedrich Deep Adit level. | Element of the post-mining landscape. | Hydrological values. The occurrence of trout and other fish species. |
| 2.0 God Help Adit | Initial refurbished adit to serve the late-18th–early-19th century underground water management system by gravity adit drainage. 17th century section. Architectural qualities of stone masonry arched linings, with arched-over lightloch shafts in roof. | The potential, specialized tourist route. | Element of the post-mining landscape in its final section. |
| 2.1 Angel Shaft | Shaft started in 1798. Principal access for tourists since 1796. Serves as present-day up-cast ventilation. | ‘Historic’ tourism mine – the key point. | Access to the largest MVT deposit of lead-silver-zinc in Europe, with varied geodiversity. |
| 2.2 Viper Shaft | Shaft started 1811. Serves as present-day down-cast ventilation. | The occurrence of lichens and fungi. | Element of the post-mining landscape, scenic lookout (shafts, open landscape). Inspiration for art. |
| 2.4 Herritz Shaft | Shaft started 1787. Deepest shaft on the Bobrownickie mining field. Machine Shaft (adjacent) was served by a steam engine in 1792. | Element of the post-mining landscape in the setting – an area of planned archaeological excavations. | Hydro logical values. |
| 2.5 Reden Shaft | Underground water management system. Shaft started 1794. Served first Boulton & Watt steam engine in Europe (for metal mining) in 1796, pumping municipal water supply from mine. | Element of the post-mining landscape – an area of planned archaeological excavations. | Hydrological values. |
Table 2. Attribute values, cont.

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</tr>
</thead>
<tbody>
<tr>
<td>2.6 Kaehler Shaft</td>
<td>Underground water management system. Begun 1808, served as a municipal water supply (operated by City) from 1835 until 2000. Resumed operation 2015.</td>
<td>Preserved pieces of equipment associated with the operation of water supply systems.</td>
<td>Hydrological values.</td>
</tr>
<tr>
<td>2.7 Frederica Shaft</td>
<td>Underground water management system. Begun 1801, with Machine Shaft adjacent, above inner end of God Help Adit – prior to Friedrich Mine Deep Adit. Steam pumping engines used to pump water into God Help Adit, and also for ore-crushing/processing. Access features relating to later water management.</td>
<td>Preserved pieces of equipment associated with the operation of pumps (currently unavailable).</td>
<td>Hydrological values.</td>
</tr>
</tbody>
</table>

A2. Friedrich Mine Adit Portal and Ditch

1.9 Friedrich Mine Adit Portal 
Underground water management system. Exceptional example of Prussian (German) neoclassical adit portal architecture, designed to be monumental and showy/prominently visible. Compares with classic surviving examples in Germany, such as the Rothschenbürger (Freiberg) and the Tierfr Georg Stollen (Harz). Integral and adjacent original ornamental structures.

1.10 Friedrich Mine Adit Ditch 
Excavated 1821 as an essential functional component of the Friedrich Deep Adit water management system. Essential to maintain free water flow. Original course and visibility in the landscape (particularly view from portal). Relationship to Drama River.

A3. God Help Adit Portal and Ditch

2.8 God Help Adit Portal 

2.9 God Help Adit Ditch 
Integral to Underground water management system. Excavated 1652 as an essential component of the God Help Adit water management system.

Table 2. Attribute values, cont.

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<tbody>
<tr>
<td>A4. Adolph Shaft Waterworks</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Adolph Shaft Waterworks</td>
<td>Exceptional, 1870s state-initiated/owned, culmination of the Friedrich Mine underground water management system. Extensive surface complex, high integrity with substantially complete buildings ensemble within original site perimeter, walls (e.g. two ‘Malakhoff towers’ and boiler house with one Lancashire boiler surviving) and complete underground, structural survival of engine halls, substantial infrastructure and some in situ equipment (with potential to reinstate some removed for safe-keeping). High authenticity and substantial integrity.</td>
<td>A fragment of the narrow gauge railway track (Wodociągowa Street), and a clear course of tracks in the Adolph Shaft Waterworks. Area of the planned architectural and archaeological research.</td>
<td>Hydrological values. Biodiversity – preserved part of the old orchard accompanying residential buildings of Adolph Shaft Waterworks.</td>
</tr>
</tbody>
</table>

A5. Mining Landscape (19th century)

3.2 Mining Landscape (19th century) 
Pingi and ‘warpie’ from shallow 16th c lead-silver mining, overlain with 19th c iron mining by Friedrich Mine. Characteristic, distinctive – even iconic – Silesian ‘mining meadows’.

A6. Silver Mountain and Washing Tip

3.3 Mining Landscape of Silver Mountain 
Extensive lead-silver mining landscape of 15th/16th c, with 19th c zinc and lead mining. Extensive mining topography of ‘pingi’ and ‘warpie’, flooded and dry openworks, and modern (1940s) large-scale shaft spoil tips. High ecological, geological (and paleontological) and recreational value.

Recreational value. The historic name ‘Silver Mountain’ is a local reminder of the mining origins of Tarnowskie Góry. High scientific potential (archaeological and natural). Geo-diversity in mine spoil and openworks. Biodiversity, rare flora, lichens, orchids etc., water habitats. The occurrence of calamine flora of high biodiversity (the ‘Segiet’ forest reserve). The diversity of fauna including habitats of many protected species of vertebrates, amphibians and reptiles. Protected sites for reproduction of amphibians.
3.4 Friedrich Mine Washing Tip

Began 1830s, 1870s-1920 considerably enlarged, particularly due to large output of zinc ore. Served by underground water management system. Related to Peace Shaft, attribute 1.1. Community symbolic value (high visibility in open landscape), ecological values.

Bunkers associated with WWII that demonstrate a typical use of mining-related formations for lookout and defensive purposes. Element of the post-mining landscape (heap, shafts Peace (Frieden), Shaft and Sophia, place of washer). Recreative ‘park’ and scenic lookout. Geo-diversity in spoil tip. The occurrence of calamine flora with particular emphasis on the calamine grasslands (Natura 2000 Habitats 6130) – rare zinc-lead metallophyte flora.

3.5 Original Site of Friedrich Mine

Archaeological site of high significance to the re-discovery of silver-lead and the establishment of the state-run Friedrich Mine and the introduction of steam-pumping technology to Silesia. Surviving commemorative mound from 1820s. Shaft sites, drainage ditches (Kunst and steam pumping), river course, and likely undiscovered features.

Commemorative mining park with historic and contemporary symbolic significance. Significant archaeological site. Element of the post-mining landscape; a fragment of the narrow gauge railway embankment. Place associated with the history and traditions of mining – there took place the annual festivities held by the Mine Company (Knappschaft). The potential value of recreation.

3.6 Municipal Park

Constructed from 1903, an early example of the successful post-industrial re-use of a mining landscape, integrating a relict ‘wasteland’ into a historic community recreational facility still widely used and valued today by the people of Tarnowskie Góry. Extensive ‘games’ and ‘warps’, many arranged in ‘horseshoe’ shape around shaft sites, railway embankment, all influencing the post-industrial designed landscape and providing opportunities for distinctive features such as the (shaft tower inspired) gazebo on a shaft mound, with steps and overlooking iron-framed rose arbour. Original pavilion, tennis court layout. High ecological value in arboretum, matured from original design.

Community, recreational and symbolic significance, representing a number of historic parks utilising post-mining sites with distinctive topography – in Tarnowskie Góry and elsewhere in Upper Silesia. Element of the post-mining landscape. Preserved part of the narrow gauge railway embankment. Ranked present in historical iconography of the city. The traditional place of rest and recreation residents and a place of memory. Recreation for residents.
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1. Purpose and status of the document
The Conservation Management Plan (CMP) is one of the three parts that constitute the Management Plan (MP) that was commissioned for the Property by the National Heritage Board of Poland, as a way to assist the stakeholder group in preparation and management as a candidate World Heritage Site.

The CMP is a living document that is based on the values of the Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System and explains how this significance will be sustained in management, repair, alteration and any new use.

The CMP aims at detailed identification of the Property and its values, legal protection of the Property’s assets and conservation of the attributes that reflect its values for the benefit of current and future generations.

The CMP differs from traditional management plans in that it is explicitly driven by significance, in this case ultimately by Outstanding Universal Value (OULV). CMPs take a holistic approach to a site, useful for sites with multiple assets and multiple values. They offer guidance for a range of scenarios such as: a new building in a heritage setting, balancing recreation with heritage in a natural habitat; industrial structures and machinery.

The heritage management planning process has brought stakeholders together and shared understanding of the significance of the Property. Current and projected issues have been explored initially, but will continue to be examined on a case-by-case basis guided closely by the CMP. The CMP will be implemented by stakeholders and coordinated, monitored and reviewed and by Tarnowskie Góry Land Lovers’ Association and the City Hall of Tarnowskie Góry.
2. Vision, aims and objectives
We believe that by protecting, conserving and enhancing the Outstanding Universal Value of Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System that it will ensure that the proud memory of the achievements of our ancestors remains vivid, and that the heritage left to us passes on – in its fullest possible form – to future generations.

Every effort will be made to share and promote this vision, and to ensure the consultation and participation of local communities in the protection and conservation of their local heritage.

Aims that declare the overall intention of the CMP:

- To conserve the OUV of Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System for current and future generations through a values-led approach.
- To ensure that an appropriate level of legal protection for the Property is supported by effective protection, active conservation and, where possible, enhancement of authenticity, integrity and historic character.
- Gather all stakeholders and parties interested in the heritage of Tarnowskie Góry for a better understanding, sharing and promotion of the values of the Property and to promote community involvement and its benefits, encouraging heritage at the center of community life.
- Integrate cultural and natural values of the Property, in order to better understand the relationships and dependencies between these values thus contributing to an increase in the overall quality of the landscape.

Objectives that identify specific steps towards achieving our aims and act as milestones for evaluation:

1. Identify the nominated property’s principal conservation and management needs and issues, and develop policies and strategic management objectives to address them.

2. Share actions and responsibilities with appropriate stakeholders to optimise capacity and resource potential, to manage change carefully so as not to damage what is special, and to promote sustainable opportunities for heritage-led regeneration and activity.

3. Build and maintain strong partnerships between the community, site owners, local, regional, national and international organisations, making sure everyone shares an understanding of what matters, and why, before any major decisions are taken, and to provide strategic and day-to-day guidance for relevant practitioners.

4. Ensure that programmes for conservation of the Property are integrated into policies for economic development and into regional and national planning, where appropriate, and develop guidelines for future heritage-led interventions at significant sites to promote a sustainable approach that integrates conservation with the needs of communities and visitors.

5. Develop a strategic fund-sourcing tool for conservation of the Property, providing reassurance that any finance granted will benefit a heritage of international significance and for future generations of all nations.
3. Legal measures and a framework for the protection and conservation
3.1 Legal regulation for the conservation and protection of the Property and its buffer zone

The Property is subject to protection pursuant to several independent, yet complementary, legal regulation systems. The important features of the current principles and forms of protection of the Property are the relationship between the systems of protection of natural and cultural heritage, and overlapping forms of protection that build a solid foundation for the creation and implementation of a comprehensive, multidimensional and participatory management plan.

Protection of monuments and cultural heritage

The Act on the protection of monuments and their care specifies the purpose, scope and forms of protection of monuments and care for them, the principles of establishment of a national program for the protection of monuments and the financing of conservation, restoration and construction works at the monuments, as well as the organization of monument protection authorities.

According to Article 4 of the Act, protection of monuments, in particular, consists in taking action by government bodies to:

1) provide legal, organizational and financial information allowing permanent conservation of monuments and their development and maintenance,
2) prevent risks that could cause damage to the monuments’ value,
3) prevent destruction and misuse of the monuments,
4) prevent theft, loss or illicit export of monuments abroad,
5) control the state of preservation and purpose of monuments,
6) take into account the protection tasks in spatial planning and development and in shaping the environment.

In accordance with Article 5, monument care exercised by the owner or the holder is, in particular, to ensure the conditions for:

1) scientific research and documentation of the monument,
2) conducting conservation, restoration and construction works at the monument,
3) protection and maintenance of the monument and its surroundings in the best possible condition,
4) the use of a monument in a way that ensures permanent preservation of its value,
5) promotion and dissemination of knowledge on the monument and its significance for the history and culture.

According to the Act a heritage asset is a heritage structure or a movable cultural object, their parts or complexes being the work of humans, or connected with their activity, and constituting a testimony of the past epoch or event, the preservation of which is in the social interest because of historical, artistic, or scientific value (Art. 3).

Article 6 says that the protection and care shall cover, regardless of the state of preservation:

1) immovable monuments being, in particular:
   a) cultural landscapes,
   b) urban systems, rural and construction complexes, Protection and Management of the Property
   c) works of architecture and construction,
   d) works of defence construction,
   e) technical objects, and especially mines, steel mills, power plants and other industrial plants,
   f) cemeteries,
   g) parks, gardens and other forms of designed greenery,
   h) places commemorating historical events or activities of prominent personalities or institutions.

2) movable monuments being, in particular:
   a) works of fine arts, handicrafts and applied arts,
   b) collections forming sets of objects collected and sorted according to the concept of people who create these collections,
   c) collector coins and historical souvenirs, especially militaria, flags, seals, badges, medals and orders,
   d) the products of technology, especially devices, means of transport and machinery and tools being evidence of material culture, characteristic of the old and new forms of economy, documenting the level of development of science and civilization,
   e) library materials referred to in Article 5 of the Act of 27 June 1997 on libraries (Journal of Laws of 2012, item 642 and 908 and of 2013, item 829),
   f) musical instruments,
   g) the products of folk art and handicrafts, and other ethnographic objects,
   h) objects commemorating historical events or activities of prominent personalities or institutions.

3) archaeological sites being, in particular:
   a) the terrain remains of prehistoric and historical settlement,
   b) graveyards,
   c) barrows,
   d) the relics of economic, religious and artistic activity.

Protection can also cover geographical, historical or traditional names of a building, square, street or settlement unit.

According to the Article 7 of the Act, there are the following legal forms of protection:

- entries in the register of monuments,
- recognition as a national historic monument (Pol: pomnik historii),
- establishing a cultural park,
- the local preservation agreement in the matter of spatial development, or in the decisions about localisation of public investment, building conditions, privilege to deliver road investment, localisation of rail line, or consent to deliver local public airport.
Under Article 89, there are the following monument protection authorities:
1) the minister responsible for culture and protection of national heritage, on behalf of whom the tasks and competences in this field are performed by the General Monument Conservator;
2) voivodeship governor on behalf of whom the tasks and competences in this field are performed by the voivodeship monument conservator.

Protection of natural heritage
Nature is part of our national heritage and wealth. Taking care of it is the duty of public authorities, legal persons and other organizational units and natural persons. The principles of its protection are determined in the first place by the Act of 16 April 2004 on Nature Conservation (Journal of Laws of 2004, No. 92, item 880). According to the Act, nature protection consists of maintaining, sustainable utilization and renovation of resources, objects and components of wildlife such as wild plants, animals and fungi, plants, animals and fungi under species protection, wandering and migratory animals, natural habitats, endangered habitats, rare and protected species of plants, animals and fungi, objects of animate and inanimate nature, and fossil remains of plants and animals, landscape, greenery in cities and villages, and woodlots (Act of 16.04.2004, Journal of Laws 2004 No. 92, item 880, Art. 2, par. 1).

The purpose of nature protection, in accordance with Article 1(2) is as follows:
1) maintenance of ecological processes and ecosystem stability,
2) preservation of biodiversity,
3) preservation of the geological and paleontological heritage,
4) ensuring continuity of species of plants, animals and fungi, and their habitats, by maintaining or restoring favourable protection status,
5) protection of landscape features, greenery in towns and villages and woodlots,
6) maintaining or restoration of the proper status of protection of natural habitats, as well as other wildlife resources, objects and components,
7) forming the right human attitudes towards nature through education, information and promotion in the field of protection of the nature.

Article 3 says that nature protection targets are reached by:
1) taking into account the requirements of nature protection strategies, programs and programming documents referred to in Article 14(1) of the Act of 27 April 2001 Environmental Protection Law (Journal of Laws of 2013, item 1232, as amended), environmental programs adopted by local government bodies, the concept of national spatial planning, voivodeship development strategies, voivodeship spatial development plans, municipal development strategies, studies of conditions and directions of spatial development of municipalities, local spatial development plans and development plans of internal sea waters, territorial sea and exclusive economic zone and in business and investment,
2) covering wildlife resources, objects and components with forms of nature protection,
3) development and implementation of the provisions of protection plans for areas protected by law, programs to protect species, habitats and migration routes of protected species,
4) implementation of protection programs and sustainable use of biological diversity with a plan of action,
5) conducting educational activities, information and promotion in the field of nature protection,
6) conducting research on issues related to nature protection.

According to the Nature Conservation Act (Art. 6), there are the following forms of protection:
1) national parks;
2) nature reserves;
3) landscape parks;
4) protected landscape areas;
5) Natura 2000 sites;
6) monuments of nature;
7) documentary stations;
8) ecological areas;
9) nature and landscape complexes;
10) species protection of plants, animals and fungi.

Border areas valuable in terms of nature can be designated for joint protection by agreement with the neighbouring countries.

In accordance with Article 91, there are the following authorities in the field of nature protection:
1) minister responsible for the environment,
1a) General Director for Environmental Protection,
2) Voivodeship governor,
2a) Regional Director for Environmental Protection,
2b) marshal of voivodeship,
2c) national park director,
3) staroste,
4) commune administrator, mayor or city president.

Legal governance of underground mineworkings

Until 31 December 2014 tourist routes of the Historic Silver Mine and Black Trout Adit in Tarnowskie Góry were not subject to supervision by the Higher Mining Office. They were not included in closed down underground mines to which provisions of the Geological and Mining Law apply in accordance with Ordinance of the Minister of Environment of 16 December 2011 (Dz. U. No. 286, item 1686).

Now, tourist routes of the Historic Silver Mine and Black Trout Adit in Tarnowskie Góry are subject to mining supervisory authorities, due to the entry into force on 1 January 2015 of a new Geological and Mining Law and Act amending the Geological and Mining Law and several other acts of 11 July 2014 (Dz. U. of 2014, item 1133).

In accordance with Article 21 of the Act amending the Geological and Mining Law and several other acts, ‘an entity who on the date of entry of this act into force conducts an activity referred to in Article 2 (1) (2) of the Act referred to in Article 1, as amended by this Act, within 2 years from the date of entry of this Act into force shall be obliged to:
1) adapt an activity to requirements specified in the Act referred to in Article 1, as amended by this Act,
2) conclude a contract for the establishment of mining usufruct; failure to conclude a contract shall mean using of mining property without a required title.”

In accordance with Article 2 (1) of the Geological and Mining Law of 9 June 2011, ‘Provisions of the Act, except of Chapter III, shall apply to:
1) construction, expansion and maintenance of drainage systems of liquidated mining plants,
2) the excavation works carried out in closed underground mining plants for purposes other than those specified by law, in particular, in touristic, curative and recreational purposes,
3) underground works conducted for scientific, research, experimental and training purposes for the needs of geology and mining,
4) tunnelling by using mining techniques,
5) decommissioning of entities, equipment and installations referred to in points 1-4. 2. (…) 3. Provisions of the Act concerning the entrepreneur shall apply mutatis mutandis to the entities which have obtained decisions other than a concession, constituting the basis for undertaking the activities regulated by the Act.

Whereas, in accordance with Article 6 (12) of this Act, ‘a mining operation – means the performance, maintenance, protection or closing down of mining excavations or tipping overburden in open pit mining plants in relation to the activities regulated by the Act.”

In accordance with Article 168 (1) of the Geological and Mining Law of 9 June 2011, ‘The mining supervisory authority exercises supervision and control over the mining plants activities, in particular:
1) industrial safety,
2) fire safety,
3) emergency rescue teams,
4) management of mineral deposits in the process of their extraction,
5) environmental protection and deposits management, including exercising by the entrepreneurs the obligations determined by separate provisions according to the criterion,
6) damage prevention,
7) construction and closure of a mining plant, including the land reclamation after the mining activity. 2. In regard to designing and performing the construction works, as well as maintaining the mining plant buildings, the mining supervisory authorities perform tasks related to the architectural and building administration and building control.’
The role of local authorities in the heritage protection system

For the execution of tasks connected with the protection of heritage both government administration, and self-government units of all levels, are responsible.

In light of the Act on the commune self-government (Journal of Laws of 2013 position 594, as amended) matters of spatial order, environmental protection and nature, culture and protection of historic monuments and care of monuments are included in the commune’s own tasks. The Act on the district self-government (Journal of Laws of 2013 position 595 and 645 and of 2014 position 379) provides that the district executes tasks concerning communal character and, among others, in environmental and nature protection, culture and of historic monuments and care of monuments. These tasks have a complementary character and concern those that are not possible to carry out at the level of the commune.

In case of cultural heritage, it should be emphasized that above-mentioned provisions relate to the protection of monuments, as well as the care of monuments, because self-government units are also an owner of a large percentage of immovable monuments and are obliged to care for them. Further, the commune is entitled to a pre-emption right in case of the sales of real estate entered in a register of monuments or right of perpetual usufruct of such a real estate. In this process self-government units, equally with remaining owners, are obliged to care for entrusted objects.

Besides its own tasks, significant competence in the execution of heritage protection tasks was handed over to self-government units. Self-government units, implementing decisions concerning programs of care of monuments (monuments protection strategy), complement the activities of the State in the field of legal protection of monuments: communes have competence in designating cultural parks, keeping municipal inventory of historic monuments and introduce monument protection in local spatial development plans. A special role is played here by heritage protection strategies, developed and implemented at all levels of local government, which constitute a very important part of managing the cultural heritage of the area.

In the case of nature conservation, self-government units, apart from pursuing its objectives through relevant provisions in planning documents, have competence in establishing forms of the conservation of nature. Establishing landscape parks and areas of protected landscape is in the competences of the voivodeship assembly. Concerning monuments of nature, documentary sites, area of ecological use or nature and landscape complexes, these are established under the resolution of the commune council.
Form of protection of attributes

Protection of cultural and natural heritage is performed by various forms of legal protection under the Act on monument conservation and monument care and the Nature Protection Act, as well as their secondary legislation. A list containing information on the forms of protection for each attribute is attached as appendix 3.

An analysis of the forms of protection of natural and cultural heritage, as stipulated in the Act on monument conservation and monument care and the Nature Protection Act has indicated that the majority of areas and buildings of the Property possess proper forms of protection, which guarantee their safety and regulate the measures implemented in these areas or in buildings included in the record. A procedure for entry to the Monument Register was opened for the Adolph Shaft Waterworks (3.1) in 2015 and the Municipal Park (3.6) in 2013. It is planned to establish formal legal protection for following attributes: the Mining Landscape of Silver Mountain (3.3) and Mining Landscape (19th century, 3.2), the Original Site of the Friedrich Mine (3.5) and the Friedrich Mine Adit Portal and Ditch (1.9, 1.10) and the God Bless Adit Portal and Ditch (2.9). For these attributes was prepared documentation necessary to start the procedure of entry into the register of monuments.

Apart from this, numerous buildings and areas are listed on the Municipal Inventory of Historic Monuments. Although this is not a form of legal monument protection, in the light of the effective regulations, however, a record in the Municipal Inventory of Historic Monuments is an important element of the monument protection system. Pursuant to the Act on monument conservation and monument care, protection of ‘other immovable monuments listed in the municipal inventory of historic monuments’, similarly to movable monuments listed in the register and their environments (setting), as well as cultural parks, the municipal land development and zoning plans (art 19) are taken into account. It is similar to the decision establishing the location of a public purpose decision, the planning permit decision, the decision on the permit to commence a road investment, the decision establishing the location of a railway line, or the decision on the permit to commence a public airport investment (art 19(2a)). Pursuant to the Construction Law of 7 July 1994 (Journal of Laws of 1994, No. 89, item 414, as amended), in the case of buildings and non-building structures and areas which are not listed in the Monument Register, but entered to the Municipal Inventory of Historic Monuments, a building or demolition permit can only be issued by a pertinent authority in agreement with the Voivodeship Conservator of Monuments (art 39, cl. 3). Mining landscape of Silver Mountain (3.3) and the God Bless Adit Portal and Ditch (2.9) must be entered to the Municipal Inventory of Historic Monuments.

Another crucial element of the monument protection system, referring to the function and usage of the monument, are the provisions of the municipal land development and zoning plans as well as local land development plans, which constitute local law. Pursuant to the Act on land development plans of 27 March 2003 (Journal of Laws, 2003, No. 80, item 717, as amended) ‘land development and zoning plans shall particularly take into account (…) the requirements for protection of cultural heritage and contemporary culture properties’ (art 1, cl. 2(4)). The municipal land development and zoning plan shall ‘consider the conditions resulting in particular (…) from the condition of the cultural heritage and monuments as well as contemporary culture properties’ (art 10 cl 1(4)) and shall ‘define in particular (…) the areas and principles of protection of cultural heritage and monuments and contemporary culture properties’ (art 10, cl. 2(4)). The pertinent Voivodeship Conservator of Monuments shall draw up an assessment of the solutions adopted in the plan (art 11, cl. 6). Local land development plans shall specify, among others, ‘the principles of protection of cultural heritage and monuments, including cultural landscapes and contemporary culture properties (art 15 cl. 2(4)). Local plans must be approved by the pertinent Voivodeship Conservator of Monuments in terms of shaping the development (art 17, cl. 6). The pertinent monument preserver shall also approve municipality resolutions setting forth the principles and conditions of location of small architecture items, advertising boards and devices, as well as fences, their sizes, quality standards and types of construction materials, from which they can be made (art 7 a, b). Apart from this, pursuant to the Act ‘a landscape audit shall be drawn up for the voivodeship once every 20 years at the rarest’. The audit shall identify the landscapes, specify their characteristic features and assess their value (art 38 a, b).

For the purposes of the plan, an analysis of the provisions regarding the permissible forms of use in local land development plans has been carried out in reference to particular attributes, as illustrated in the table in appendix 4.

An analysis carried out on the basis of effective local legislation indicated that the provisions of the plans generally do not pose any threats to the buildings and areas constituting an element of the Property and specify the safe forms of their use. It should be added that local land development plans have not been drawn up for the areas, in which attributes 2.7 and 3.3 are located (plan drafts must be monitored at the stage of their development in the future). All possible drafts of amendments to local land development plans, aiming at amending the effective legislation, must be monitored. Apart from this, particular attention must be paid to decisions issued under plans for the areas, in which attributes 1.5, 3.4 and the environment of the Reden shaft (2.5).

Buffer zone and special layers of protection

Buffer zone

Pursuant to the provisions of Operational Guidelines for the Implementation of the World Heritage Convention, ‘Wherever necessary for the proper protection of the Property, an adequate buffer zone should be provided’. The document specifies that ‘For the purposes of effective protection of the nominated property, a buffer zone is an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the Property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the Property and its protection’. According to the Operational Guidelines ‘Although buffer zones are not part of the nominated property, any modifications to or creation of buffer zones subsequent to inscription of a property on

1 Operational Guidelines for the Implementation of the World Heritage Convention, United Nations Educational, Scientific and Cultural Organization, Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, WHC. 12/01, February 2012, pt. 103
2 Ibidem, pt. 104
the World Heritage List should be approved by the World Heritage Committee using the procedure for a minor boundary modification (see paragraph 164 and Annex 11)\(^3\).

A study published by UNESCO, titled *World Heritage and buffer zones*, emphasizes that the role of a buffer zone is to protect the World Heritage property against all measures which could threaten its cultural values. What is important is that a buffer zone does not constitute Outstanding Universal Value, but can protect the OUV of a World Heritage property; its purpose not to provide protection of the buffer zone itself\(^4\).

A buffer zone was established for the Property that overlaps in the primary part with the Nature 2000 Special Protection Area for the Tarnowskie Góry-Bytom Undergrounds, PLH 240003. The area was created on November 13, 2007 by means of European Commission decision 2008/25/EC of 13 November 2007. The area is 3 490.8 ha and is located in the following municipalities: Radzionków, Tarnowskie Góry, Zbrosлавie village, Bytom municipality with poviat rights.

The Nature 2000 Special Protection Area for the Tarnowskie Góry-Bytom Undergrounds has been created to protect mammal species (*Myotis myotis*, code: 1324), as well as natural habitats (*Dentario glandulosae-Fagenion, Galio odorati-Fagenion* habitats, code: 9130). This is the second largest bat hibernation site in Poland. 10 species were identified here, out of which 1 (*Myotis myotis*) is listed in Annex II to Council Directive 92/43/EEC. The population of bats inhabiting the undergrounds is at least in the tens of thousands, the system also inhabited in summer. Threats include disturbance of the bats’ hibernation in the winter, burying of ventilation inlets, subsidence and landslides.

The unit in charge of supervision is the Regional Nature Protection Director in Katowice. By means of Regulation of the Regional Director of 24 April 2014, a plan of protective measures was established for the Nature 2000 Special Protection Area. Pursuant to art 28 of the Nature Protection Act of 16 April 2004 for Nature 2000 areas, a protective measure plan is obligatorily drawn up by means of a regulation of the regional environment protection director for a period of 10 years. The plan specifies multiple threats and safeguards, which should be the basis for joint discussions and undertakings made in reference to the Nature 2000 area and the candidate UNESCO World Heritage Site. This refers in particular to urban pressure, uncontrolled underground penetration, littering, or destruction of adit and shaft outlets, blocking free access to the undergrounds for the bats.

The primary buffer zone is 2,774.35 ha and is located in the following municipalities: Radzionków, Tarnowskie Góry, Zbrosławice village, Bytom municipality with poviat rights. The ownership structure of the buffer zone is diverse, from state-owned areas, to private properties. Furthermore, state-owned plots are administered by various institutions and entities. More than 61,000 people reside in the buffer zone.

The boundary of the buffer zone overlaps with the boundary of the Nature 2000 Special Protection Area including two variations:

- limiting the zone in the south to the area located to the south of the Segiet Forest,
- expanding the zone in the north to include the area from the God Help Adit Portal to the Stoła river.

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\(^3\) Ibidem, pt. 107

NATURAL
- Natura 2000 Special Protection Area of the 'Undergrounds of Tarnowskie Góry-Bytom', (PLH 240003)
- Landscape Complex 'Park in Repty and the Drama River Valley'
- Monument of Living Nature 'Park Kunszt'
- Nature Reserve of the 'Segiet' forest

FORMS OF LEGAL PROTECTION

CULTURAL
- National Historic Monument 'Tarnowskie Góry – Historical Silver Mine and Black Trout Adit underground'
- Landscape Park in Repty
- Former noble metal/mine in Tarnowskie Góry (entry in the Register of Monuments as interpreted in the Local Development Plan)
- Cultural Park 'Hałda Popłuczkowa'

- Landscape Park in Repty and the Drama River Valley
- Monument of Living Nature 'Park Kunszt'
- Nature Reserve of the 'Segiet' forest

PROPERTY ADMINISTRATIVE UNITS LOCATION IN SILESIAN VOIVODESHIP

TARNOWSKIE GÓRY LEAD-SILVER-ZINC MINE

AND ITS UNDERGROUND WATER MANAGEMENT SYSTEM

map 8 | FORMS OF LEGAL PROTECTION

- UNDERGROUND NOMINATED PROPERTY PROTECTION AT SURFACE
- SURFACE NOMINATED PROPERTY BUFFER ZONE

map scale = 1 : 20,000 at Ad: layout format
TARNOWSKIE GÓRY LEAD-SILVER-ZINC MINE AND ITS UNDERGROUND WATER MANAGEMENT SYSTEM

SPECIAL LAYER OF PROTECTION

SURFACE NOMINATED PROPERTY

SPECIAL LAYER OF PROTECTION

base map source: BDOT10k+GUGiK/ras.topo.c-ord.sys.1965 | map realization: National Heritage Board of Poland / World Heritage Unit-XII.2015
Special layers of protection have been designated due to the protection of OUV borne by selected attributes. Hence, an essential aspect is to maintain valuable view interconnections and views ‘to and from the monument’, which, despite the transformations related to the development of the city and the municipality, remain legible and shape the contemporary perception of this post-mining landscape. Apart from this, sites with high scientific and research potential were identified, among others, due to the presence of historical mining development in these areas. An important criterion for establishing the special layer of protection was to identify areas in which use is significant to the Property and its protection. This refers to selected elements of the post-mining landscape, for which today’s forms of use, admitted, among others, in local land development plans, do not pose a potential threat and which should be maintained. Furthermore, after initial recognition, sites were indicated which bear strong community and symbolic significance and which are important to the local community and to visitors (places for walking, leisure, recreation, and memory sites). The subject requires further, detailed anthropological research.

Table 2. Specification of the special layers of protection

<table>
<thead>
<tr>
<th>Special layer of protection</th>
<th>Attributes identification number</th>
<th>Important view protection</th>
<th>Protection of potential area of scientific research, including archeological research</th>
<th>Usage and functional significance to the Property and its protection</th>
<th>Genius loci, public identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.2, 1.4, 2.2, 2.3, 2.4, 3.1, 3.2, 3.4, 3.5</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>2</td>
<td>1.8, 1.9, 1.10</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>3</td>
<td>2.5</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>4</td>
<td>3.6</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>5</td>
<td>1.5</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

An analysis of the provisions of adopted land development plans indicated several issues which should be monitored with due diligence. For special layer of protection no. 1 and 2, the provisions of local land development plans for particular areas should be observed. In the case of special layer of protection no. 3, pursuant to the provisions of the local land development plan, the strict environment of the Reden shaft, including shaft-sinking waste heap, can be developed in the northeastern part as ‘service development areas with large-area commercial facilities as the primary purpose’. Apart from that, in the eastern part, which is an area of high housing-service potential (historical site of the steam machine building), ‘housing-service development’ was admitted. In the northern and southern parts – ‘single-family housing development’ was specified. ‘Public access road areas’ were marked out in the course of the railway embankment to the South of the Reden shaft.
In terms of special layer of protection no. 4, attention must be paid to the area adjoining the northwestern part of the Municipal Park, listed on the map as ‘group garage and parking lot areas’, as well as areas to the south of the Municipal Park, marked as ‘service development areas including public and commercial services’, as well as ‘housing-service development areas’. An important aspect is to maintain the post-mining landscape with fragments of the railway embankment and military structures in the vicinity of the Municipal Park.

In the case of special layer of protection no. 5, the plot fragments adjoining the remains of the shaft superstructure above the machine shaft no. 22, the land development plan admits the implementation of an investment in accordance with the provision ‘service development areas with commercial services as the primary purpose’. Monitoring and guidance for decision-making, and proper development of the area with transportation infrastructure is important for the aforementioned areas to maintain the view and historical interconnections.

A fundamental objective of special layers of protection is systematic monitoring of conservation status, monitoring of the planning policy at local, regional and national level, and monitoring of decisions issued and zoning assumptions. A mechanism to enable communication and proper workflow between the World Heritage Site Coordinator and pertinent units developing plans and issuing decisions must be developed. Each amendment and drafts of local land development and zoning plans, as well as all negotiations with owners and potential investors of areas situated within the limits of special layers of protection should be consulted on at draft stage with the World Heritage Site Coordinator and the National Heritage Board of Poland. When changing the land development assumptions for the area of special layers of protection, detailed visual inspections and analyses must be performed to maintain the valuable sights to and from the monument and view interconnections between the particular property elements. Attention must be paid to the fact that potential archeological survey sites are present within the limits of the Property and its buffer zone.

### 3.2 Ownership

The ownership structure of individual attributes of the Property is varied: from the Treasury, which owns the underground, to local authorities and private owners.

The undergrounds constitute the Property of the State Treasury. Organized underground tourist routes (Historic Silver Mine and Black Trout Adit) have been administered by the Tarnowskie Góry Land Lovers’ Association since 1954. According to the law, the remaining parts of the undergrounds are administered by the Silesian Voivodeship Management Board. Above-ground buildings and lands have diverse ownership structure, as illustrated by the following table.

In a general approach, 11 attributes of the Property constitute sole State property; whereas 17 constitute mixed properties (State- and private-owned). Respectively, 92.64% of the Property of 1,672.76 ha is owned by the State, 0.34% of the Property is private-owned, and 7.02% of the Property constitutes mixed property (State and private).
Table 3. Ownership and management structure

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Ownership</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State</td>
<td>Voivodship/</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>County/district</td>
</tr>
<tr>
<td></td>
<td>Treasury</td>
<td>Tarnowskie Góry</td>
</tr>
<tr>
<td></td>
<td>Municipality</td>
<td>Katowice</td>
</tr>
<tr>
<td></td>
<td>Voivodship/</td>
<td>Bytom</td>
</tr>
<tr>
<td></td>
<td>County/district</td>
<td>Kommuna Zbrosławice</td>
</tr>
<tr>
<td></td>
<td>State Forests</td>
<td>PWiK</td>
</tr>
<tr>
<td></td>
<td>PKP S.A.</td>
<td>SMZT</td>
</tr>
<tr>
<td></td>
<td>Individual owners</td>
<td></td>
</tr>
</tbody>
</table>

0.1 Underground Workings
- Silesian Voivodship Management Board
- Marshal’s Office of the Silesian Voivodeship
- Regional Directorate for the Environmental Protection in Katowice
- Tarnowskie Góry Land Lovers’ Association
- Upper Silesian Water Supply joint-stock company in Katowice
- Tarnogórski Club of Cave Exploration

1.0 Friedrich Mine Deep Adit
- Silesian Voivodship Management Board
- Marshal’s Office of the Silesian Voivodeship
- Regional Directorate for the Environmental Protection in Katowice
- Tarnowskie Góry Land Lovers’ Association
- Upper Silesian Water Supply joint-stock company in Katowice
- Tarnogórski Club of Cave Exploration

1.1 Peace Shaft
- City Hall in Tarnowskie Góry
- Silesian Voivodship Management Board
- Marshal’s Office of the Silesian Voivodeship
- Regional Directorate for the Environmental Protection in Katowice
- Bicycle Routes Association

1.2 Bohr Shaft
- Private owner
- City Hall in Tarnowskie Góry
- Silesian Voivodship Management Board
- Marshal’s Office of the Silesian Voivodeship
- Regional Directorate for the Environmental Protection in Katowice
- Bicycle Routes Association

1.3 Adolph and Machine Shafts
- Upper Silesian Water Supply joint-stock company in Katowice
- Regional Directorate for the Environmental Protection in Katowice
- Bicycle Routes Association

1.4 Help Happiness Shaft
- Upper Silesian Water Supply joint-stock company in Katowice
- Regional Directorate for the Environmental Protection in Katowice
- Bicycle Routes Association

1.5 Adit Engine Shaft No. 22
- Private owner
- City Hall in Tarnowskie Góry
- Silesian Voivodship Management Board
- Marshal’s Office of the Silesian Voivodeship
- Regional Directorate for the Environmental Protection in Katowice
- Bicycle Routes Association

1.6 Adit Shaft No. 17
- Tarnowskie Góry Land Lovers’ Association
- City Hall in Tarnowskie Góry
- Silesian Voivodship Management Board
- Marshal’s Office of the Silesian Voivodeship
- Regional Directorate for the Environmental Protection in Katowice
- Bicycle Routes Association

3.3 Key stakeholders

In addition to owners, managing authorities and authorities at various levels that care for the Property, and for the goals established in the Management Plan, non-governmental organizations and citizens perform an extremely important function. Their commitment, knowledge about the Property and the region and a constant presence in the area included within the Property boundaries and its buffer zone is an important part of protecting property values and their popularization.
Table 4. Property owners, managers and stakeholders, cont.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Key stakeholders</th>
</tr>
</thead>
</table>
| 1.7 Adit Shaft No. 13          | - Tarnowskie Góry Land Lovers’ Association  
   - City Hall in Tarnowskie Góry  
   - Silesian Voivodeship Management Board  
   - Marshal’s Office of the Silesian Voivodeship  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Bicycle Routes Association |
| 1.8 Adit Shaft No. 5           | - Tarnowskie Góry Land Lovers’ Association  
   - City Hall in Tarnowskie Góry  
   - Silesian Voivodeship Management Board  
   - Marshal’s Office of the Silesian Voivodeship  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Bicycle Routes Association |
| 2.0 God Help Adit              | - Silesian Voivodeship Management Board  
   - Marshal’s Office of the Silesian Voivodeship  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Bicycle Routes Association  
   - Tarnowskie Góry Land Lovers’ Association |
| 2.1 Angel Shaft                | - Tarnowskie Góry Land Lovers’ Association  
   - City Hall in Tarnowskie Góry  
   - Upper Silesian Narrow Gauge Railways Association  
   - Bicycle Routes Association |
| 2.2 Viper Shaft                | - Tarnowskie Góry Land Lovers’ Association  
   - City Hall in Tarnowskie Góry  
   - Bicycle Routes Association  
   - Tarnowskie Góry Land Lovers’ Association |
| 2.3 God Bless Shaft            | - Private owner  
   - City Hall in Tarnowskie Góry  
   - Tarnowskie Góry Land Lovers’ Association  
   - Bicycle Routes Association |
| 2.4 Heinitz Shaft              | - City Hall in Tarnowskie Góry  
   - Tarnowskie Góry Land Lovers’ Association  
   - Upper Silesian Narrow Gauge Railways Association  
   - Bicycle Routes Association |
| 2.5 Reden Shaft                | - Private owner  
   - City Hall in Tarnowskie Góry  
   - Tarnowskie Góry Land Lovers’ Association  
   - Bicycle Routes Association |
| 2.6 Kaehler Shaft              | - Water Supply and Sewerage limited liability company in Tarnowskie Góry  
   - Bicycle Routes Association |
| 2.7 Frederica Shaft            | - Silesian Voivodeship Management Board  
   - Marshal’s Office of the Silesian Voivodeship  
   - Private owner  
   - Tarnowskie Góry Land Lovers’ Association  
   - Bicycle Routes Association |
| A 2 Friedrich Mine Adit Portal and Ditch | - Silesian Voivodeship Management Board  
   - Marshal’s Office of the Silesian Voivodeship  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Zbrosławice Commune Office  
   - Bicycle Routes Association |

Table 4. Property owners, managers and stakeholders, cont.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Key stakeholders</th>
</tr>
</thead>
</table>
| 1.10 Friedrich Mine Adit Ditch | - Zbrosławice Commune Office  
   - Private owner  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Bicycle Routes Association |
| A 3 God Help Adit Portal and Ditch | - Silesian Voivodeship Management Board  
   - Marshal’s Office of the Silesian Voivodeship  
   - City Hall in Tarnowskie Góry  
   - Bicycle Routes Association  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Bicycle Routes Association |
| 2.8 God Help Adit Portal       | - Silesian Voivodeship Management Board  
   - Marshal’s Office of the Silesian Voivodeship  
   - City Hall in Tarnowskie Góry  
   - Bicycle Routes Association  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Bicycle Routes Association |
| 2.9 God Help Adit Ditch        | - City Hall in Tarnowskie Góry  
   - Bicycle Routes Association  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Bicycle Routes Association |
| A 4 Adolph Shaft Waterworks    | - Upper Silesian Water Supply joint-stock company in Katowice  
   - Bicycle Routes Association |
| A 5 Mining Landscape (19th century) | - City Hall in Tarnowskie Góry  
   - Polish State Railways  
   - Private owner  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Society to Preserve Fortified Monuments ‘Pro Fortalicium’  
   - Bicycle Routes Association |
| 3.1 Adolph Shaft Waterworks    | - Upper Silesian Water Supply joint-stock company in Katowice  
   - Bicycle Routes Association |
| A 6 Silver Mountain and Washing Tip | - Brynek State Forest District  
   - City Hall in Bytom  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Upper Silesian Narrow Gauge Railways Association  
   - Bicycle Routes Association  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Society to Preserve Fortified Monuments ‘Pro Fortalicium’  
   - Bicycle Routes Association |
| 3.3 Mining Landscape of Silver Mountain | - Brynek State Forest District  
   - City Hall in Bytom  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Upper Silesian Narrow Gauge Railways Association  
   - Bicycle Routes Association  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Society to Preserve Fortified Monuments ‘Pro Fortalicium’  
   - Bicycle Routes Association |
| 3.4 Friedrich Mine Washing Tip | - City Hall in Tarnowskie Góry  
   - Private owners  
   - Regional Directorate for the Environmental Protection in Katowice  
   - Upper Silesian Narrow Gauge Railways Association  
   - Bicycle Routes Association  
   - Society to Preserve Fortified Monuments ‘Pro Fortalicium’  
   - Bicycle Routes Association |
| A 7 Original Site of Friedrich Mine | - City Hall in Tarnowskie Góry  
   - Private owner  
   - Upper Silesian Narrow Gauge Railways Association  
   - Bicycle Routes Association |
| 3.5 Original Site of Friedrich Mine | - City Hall in Tarnowskie Góry  
   - Private owner  
   - Upper Silesian Narrow Gauge Railways Association  
   - Bicycle Routes Association |
| A 8 Municipal Park              | - Tarnowskie Góry District  
   - City Hall in Tarnowskie Góry  
   - Private owner  
   - Bicycle Routes Association |
| 3.6 Municipal Park              | - Tarnowskie Góry District  
   - City Hall in Tarnowskie Góry  
   - Private owner  
   - Bicycle Routes Association |
3.4 Decision-making process in managing change in the current state of conservation

As mentioned above, areas and buildings with diverse ownership structure – from State-owned sites (the undergrounds) to private-owned sites – are located within the limits of the Property. A constructive and effective management plan for a World Heritage Site must therefore be based on cooperation of the owners, the authorities and other stakeholders in the development of a system that will ensure effective conservation, monitoring and co-participation in change management in the Property. Main stakeholders selected for each of the areas and attributes will perform an essential role of contact points, implementation coordinators for particular areas comprising the Property, and persons or institutions in charge of the measures.

The Steering Committee is a consultative-advisory board comprising: a representative of the institution in charge of implementing the UNESCO Convention, representatives of services in charge of protecting the cultural and natural heritage, as well as representatives of local authorities and the owners. The Committee will assemble once a year and in crisis situations to make strategic decisions, to perform supervision on the implementation of the Management Plan, to assess and approve possible amendments to the Plan and all other measures taken by the World Heritage Site Coordinator. It was assumed that the Steering Committee will be set up and a letter of intent will be signed in the first months of 2016. The regulations for the operation of the Committee will be drawn up on the first Committee meeting.

The Coordinating Team comprises members of the Tarnowskie Góry Land Lovers’ Association and the Tarnowskie Góry City Hall. The parties signed a letter of intent concerning cooperation for coordinating all measures related to the management of the UNESCO World Heritage Site. The responsibilities of this team include, among others, implementing the adopted Management Plan, representing the Property with outside organizations and conducting an archive. The Coordinator will have an office and fixed working hours.

The working group will comprise representatives of the owners, local authorities, of heritage protection services and other stakeholders, appointed to implement particular measures of the Management Plan. During inception meetings, the group will establish detailed principles of cooperation and a distribution of responsibilities.

Other taskforces will be appointed if necessary.

Framework cooperation scheme for the implementation of the World Heritage Site Management Plan
3.5 Current and favourable future uses of the Property

An important issue for the preservation and protection of OUV is retaining the land use forms within the boundaries of the Property and its buffer zone, considered of being safe, and a possible change of the land use principles in favour of those that do not pose a threat to the values which determined the entering of this property on the World Heritage List.

Table 5. Current and favourable future uses of the Property

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
<th>Current use and function</th>
<th>Future favourable use and function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Friedrich Mine Deep Adit</td>
<td>An active drainage adit for mine workings, now reverted to a semi-natural function. Tourist accessibility – adit currently available on a 600-metre stretch between shafts nos. 17 and 13.</td>
<td>Conservation of drainage from mine workings, maintaining WH values of the Water Management System, security and archaeological and natural research. The section called Black Trout Adit, with a length of 600 m between the Shafts No. 17 (Sylwester) and No. 13 (Eve), will continue to be available for educational and tourism purposes.</td>
<td></td>
</tr>
<tr>
<td>1.1 Peace Shaft</td>
<td>A 53-metres deep machine shaft, located next to Friedrich Mine Washing Tip. Enters the eastern part of the Friedrich Mine Deep Adit. The facility is not available to tourists.</td>
<td>The shaft does not perform any functions. Inaccessible.</td>
<td>Conservation and interpretation as an element of landscape, available to tourists only on the surface.</td>
</tr>
<tr>
<td>1.2 Bohr Shaft</td>
<td>An example of well-preserved shaft linked with the underground system of Friedrich Mine Deep Adit. Casing made of limestone. A mound visible on the surface, partially wooded, with a ventilation grill on top. Provides access of bats to the underground parts. The facility is located on two private plots, unavailable to tourists.</td>
<td>The shaft is used to ventilate Tarnowskie Góry mine and to provide access for bats. Inaccessible.</td>
<td>Conservation as an element of landscape visible from selected venues.</td>
</tr>
<tr>
<td>1.3 Adolph and Machine Shafts</td>
<td>Brick shaft buildings of Malakoff type, forming a part of the 19th century waterworks complex that delivers water to the Upper Silesian Agglomeration. The site is located on the area belonging to the State Treasury and is managed by Upper Silesian Water Supply joint-stock company in Katowice.</td>
<td>The shafts are used as ventilation shafts and as transport routes to underground chambers of Adolph Shaft Waterworks, and for specialist members of the Association to large areas of the underground. Currently inaccessible.</td>
<td>Conservation as an element of a larger architectural complex for interpretation, education, transport and tourism purposes.</td>
</tr>
<tr>
<td>1.4 Happiness Shaft</td>
<td>The deepest (67 m) shaft on the main gallery of the Friedrich Mine Deep Adit. Shaft enclosure made of bricks with a ventilation grill on top. Surface part of the complex in a form of a mound is available to tourists. There are a few trees surrounding the shaft. The facility is located right at the national road No. 78.</td>
<td>The shaft is used to ventilate Tarnowskie Góry mine. Inaccessible.</td>
<td>Ventilation shaft, conservation and interpretation as an element of landscape; available to tourists only on the surface.</td>
</tr>
<tr>
<td>1.5 Adit Engine Shaft No. 22</td>
<td>An authentic remainder of the machine shaft in which a 24-inch steam engine was installed. The structure, commonly referred to as ‘Karlik’, is made of limestone. This historic structure is located on a private plot and is unavailable to tourists.</td>
<td>The shaft does not perform any functions. Inaccessible.</td>
<td>Conservation as an element of landscape visible from selected venues.</td>
</tr>
<tr>
<td>1.6 Adit Shaft No. 17 (Sylwester)</td>
<td>Two shafts linked together by an underground drainage gallery, which is a part of the Friedrich Mine Deep Adit. In 1939 a tourist route, consisting of an underground boat tour, was opened between the shafts. There is pendulum service between the shafts. This attraction was named Black Trout Adit. Each shaft contains a staircase leading to an underground marina with boats for tourism services. The shafts are located on plots belonging to the Association of the Friends of Tarnowskie Góry, which form a part of the natural and landscape complex ‘Repty and Drama River Valley’.</td>
<td>The shafts are used for access and to ventilate Tarnowskie Góry mine. Accessible for tourists.</td>
<td>Conservation and enhancement for education and tourism purposes</td>
</tr>
<tr>
<td>1.7 Adit Shaft No. 13 (Eve)</td>
<td></td>
<td></td>
<td>Conservation and enhancement for education and tourism purposes</td>
</tr>
</tbody>
</table>
### Table 5. Current and favourable future uses of the Property, cont.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
<th>Current use and function</th>
<th>Future favourable use and function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.8</strong> Adit Shaft No. 5</td>
<td>An authentic surface remainder of the shaft in the shape of a rotunda. The shaft is popularly called Adam. The ruins of the historic shaft are located on the borders of the natural and landscape complex ‘Repty Park and Drama River Valley’, not far from an outlet of the Friedrich Mine Deep Adit. The site is located on a plot belonging to the State Treasury, administered by the Poviat Starost Office in Tarnowskie Góry. Access to the facility is difficult due to dense stocks of trees.</td>
<td>The shaft does not perform any functions. Inaccessible.</td>
<td>Conservation and interpretation to make the shaft available to tourists only on the surface.</td>
</tr>
<tr>
<td><strong>1.9</strong> Friedrich Mine Adit Portal</td>
<td>A portal to the underground part of the Friedrich Mine Deep Adit, in a form of a classical gate made of sandstone and limestone dressed stone, called ‘Gwarek’s Gate.’ The date ‘1821’ placed on top of the portal commemorates the year the adit drilling began.</td>
<td>The site is used to drain water from mine workings and for ventilation purposes. Inaccessible.</td>
<td>Conservation as an architectural element, interpreted and made available for education and tourism purposes.</td>
</tr>
<tr>
<td><strong>1.10</strong> Friedrich Mine Adit Ditch</td>
<td>An artificial bed, popularly called adit rosche, draining groundwater from the Friedrich Mine Deep Adit to the Drama river. The site is located on a plot in Žbrosławice commune. The site is not currently available to tourists.</td>
<td>The site is used to drain water from mine workings. Limited access.</td>
<td>Conservation as an element of landscape and mining engineering, continuance of the Water Management System, interpreted and made available for education and tourism purposes.</td>
</tr>
<tr>
<td><strong>2.0</strong> God Help Adit</td>
<td>The adit is 3151m long, drilled in the rock with locally-preserved stone protective cover and modern portal at the mouth of the adit. Water flowing from the adit is drained through the God Help Adit Ditch to the river Stola.</td>
<td>A drainage adit for mine workings. Not available for tourists.</td>
<td>Conservation for drainage mine workings, security, archaeological research.</td>
</tr>
</tbody>
</table>

2.1 Angel Shaft  
Angel, Viper and God Bless mining shafts were driven for the purposes of the Friedrich state ore mine put in operation in 1784. In 1976 an underground tourist route between the shafts, known as a Historic Silver Mine, was opened. This is the only Polish tourist route that leads visitors through unique underground paths to make them familiar with former silver and lead mining. Its shape is similar to a triangle, the apexes of which are formed by the abovementioned shafts. The length of the route is 1,740 metres, out of which 270 metres long section is covered by boat. Before the opening of the tourist route, an elevator was installed on the site to transport tourists from the shaft top building to the underground route. The site is located on a plot belonging to the Tarnowskie Góry Land Lovers’ Association. Viper Shaft is currently a ventilation shaft, in which a ladder compartment was installed for evacuation purposes. The historic shaft, located on a private plot, has been fenced and protected, both on and underneath the surface. The site is located on a plot belonging to the Association of the Friends of Tarnowskie Góry. The facility is not available to tourists on the surface. God Bless Shaft is located on a private plot and does not serve any tourism function at present. However, the shaft situation is a charming place. A bucket hung on a metal rail for transporting spoil bears a testimony of the shaft’s former use. At the shaft, there is an underground marina with mooring boats used for travelling to Viper Shaft, located nearly 300 metres from the marina. The surface part of the shaft in a form of a mound is located on a private plot and is unavailable to tourists. | The shafts are used to ventilate Tarnowskie Góry mine. Sites accessible for tourists. | Conservation for education, transport and tourism purposes. |

2.2 Viper Shaft  

2.3 God Bless Shaft  
### Table 5. Current and favourable future uses of the Property, cont.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
<th>Current use and function</th>
<th>Future favourable use and function</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4 Heinitz Shaft</td>
<td>The deepest shaft in Bobrowniki mining fields regions, driven in 1797. In 1799 a machine shaft was drilled next to it, served by a 48-inch steam engine. A shaft mound with stocks of trees visible on the surface. The site is consistent with the post-mining landscape of the Kunszt Park.</td>
<td>The shaft does not perform any functions. Site inaccessible.</td>
<td>Conservation as an element of landscape, interpreted and made visible from selected venues.</td>
</tr>
<tr>
<td>2.5 Reden Shaft</td>
<td>This 40 metres deep shaft was driven in 1794. Three years later a Boulton &amp; Watt steam engine was installed in this shaft; and the first municipal waterworks in Tarnowskie Góry were put in operation. Owing to steam technology, groundwater was pumped to surface reservoirs and then pumped to the city by means of a pipeline. The site is located near Tarnowskie Góry bypass. It is located on a private, unfenced plot. Limited accessibility.</td>
<td>The shaft does not perform any functions. Limited tourist accessibility.</td>
<td>Conservation as an element of landscape visible from selected venues.</td>
</tr>
<tr>
<td>2.6 Kaehler Shaft</td>
<td>Located on the Reden Hill, Kaehler Shaft is 55 metres deep. The site still functions as a water intake. At first, water was delivered through a system of pipelines to municipal reservoirs called ‘kashnias’ and partially to households. In 1926 the surviving water tower was built. It has constituted a characteristic landmark ever since. The site is managed by Water Supply and Sewerage limited liability company in Tarnowskie Góry.</td>
<td>The site functions as a potable water intake. Site inaccessible for tourists.</td>
<td>Conservation of the site for technological purposes (potable water intake) without granting access to tourists.</td>
</tr>
<tr>
<td>2.7 Frederic Shaft</td>
<td>Enters God Help gallery 43 metres underground. The site is located on a private plot and is unavailable to tourists.</td>
<td>The shaft does not perform any functions. Site inaccessible for tourists.</td>
<td>Conservation for future archaeological research without tourist accessibility.</td>
</tr>
<tr>
<td>2.8 God Help Adit Portal</td>
<td>God Help Adit’s outlet in a form of a temporarily reconstructed gate. The site is located near the national road No. 11.</td>
<td>The site is used to drain water from mine workings and is used for ventilation purposes as well. Site accessible for tourists.</td>
<td>Conservation as an architectural element, interpreted and made available for education and tourism purposes.</td>
</tr>
<tr>
<td>2.9 God Help Adit Ditch</td>
<td>An artificial bed of nearly 500 metres in length, popularly called adit rosche, draining groundwater from the God Help Adit to the Stola river. The Stola valley is situated 254 m AMSL and is the lowest point locally.</td>
<td>The site is used to drain water from mine workings. Limited tourist access.</td>
<td>Conservation as an element of landscape and mining engineering, maintenance of the Water Management System, interpreted and made available for education and tourism purposes.</td>
</tr>
</tbody>
</table>

### Table 5. Current and favourable future uses of the Property, cont.

| 3.2 Mining Landscape (19th Century) | The hilly areas bordering the Adolph Shaft waterworks are an authentic and well-preserved remainder of the former mining activity. A characteristic post-mining landscape, marked by numerous objects locally called ‘warpe’ and ‘pingi’ | Conservation as an element of landscape, interpreted and made visible from selected venues. |
| 3.3 Mining Landscape of Silver Mountain | Post-mining landscape covering the Silver Mountain area that comprises part of the Segiet Reserve situated on the border between Tarnowskie Góry and Bytom. The reserve with an area of nearly 25 ha is located in peak parts of Srebrna Góra (347 AMSL). It was established to protect a fragment of a beech wood in the area where silver, lead, iron and zinc were mined. It was established by Order of the Minister of Forestry on 27 April 1953. (Official Gazette of the Republic of Poland [Monitor Polski] of 1953, No.42, item 570) | Conservation as an element of landscape, archaeological investigation, interpreted and made available for education and tourism purposes. |
| 3.4 Friedrich Mine Washing Tip | An ore-processing waste tip of the former Friedrich Mine. The site was created due to accumulation of dolomite waste during the lead-silver-zinc mining prosperity era in the second part of the 19th century. Towards the end of World War II the tip was included in the Silesian defence system by installing a network of shooting bunkers on its top. The tip now serves as a vantage point. It contains benches and tables. In October 2006, by Decision of the City Council of Tarnowskie Góry, this area was transformed into a ‘Washing Tip’ Cultural Park subject to protection. The site is located on a plot belonging to Tarnowskie Góry municipality and is accessible to tourists. | Protected cultural landscape; accessible to tourists. Conservation as an element of landscape, interpreted and made available for education and tourism purposes. |
### 3.1 Adolph Shaft Waterworks

A waterworks station of 1884, consisting of two brick shafts (Adolph and Machine), a boiler house, a porter’s lodge with workshop and a transformer station. The complex is surrounded by a brick wall. Underground one may find three massive engine and pumping halls with built-on installations for supplying the pipeline with water (steam-run in the past, presently operating on electricity). The installations were used for pumping underground waters to the surface and transporting them to Królewska Huta (present-day Chorzów) via the system of pipelines.

The site operates as Water Station; inaccessible for tourists.

Conservation and interpretation to grant access for education and tourism purposes.

### 3.5 Original Site of Friedrich Mine

The initial site of the Friedrich mine. A characteristic mound commemorated the 100th anniversary of the mine opening. A park has been established on the part of the area. By Resolution of the City Council of Tarnowskie Góry of 02.12.2004, the ‘Kunszt Park’ was established as a natural monument, covered by protection on the basis of Resolution No XXXIV/302/2004. It covers a historic stand of trees in a form of 10 small-leaved limes.

The site is used partly as a nature park and partly as agricultural land; partly accessible for tourists.

Conservation to grant access for education and tourism purposes as well as future archaeological works to inform understanding and interpretation. In part, retaining agricultural function.

### 3.6 Municipal Park

The Tarnowskie Góry Municipal Park was established in 1903 on rehabilitated post-mining areas in the centre of the city. It is one of the few European examples of successful revitalisation of post-industrial areas converted into recreation site. The park serves as a recreation centre and also includes tennis courts, which opened at the beginning of the 20th century. Moreover, there is a sports field for various team sports as well as street workout equipment. Roller-skaters, joggers and Nordic walking enthusiasts enjoy many of the park’s paths and lanes. The park also includes a playground and a sledging hill.

The facility operates as a municipal public space (park); accessible for tourists.

Conservation and interpretation to grant access for recreation and tourism purposes.

### 3.6 Revenue sources for conservation and management

Day-to-day maintenance of the Property is financed from the ordinary and annual budgets held by individual owners or institutions managing the Property. Substantial capital works for conservation, preservation (mining), or for liquidation of damages requiring considerable financial input, shall be implemented with the support of external funding. Current potential financial sources for the preservation, conservation and popularization of knowledge of the cultural and natural heritage are available at international, domestic, regional and local levels. The list of potential funding sources being further investigated is presented in appendix 5.

Founded in 1954, the Tarnowskie Góry Land Lovers’ Association has been supported by their own funds acquired for the implementation of statutory objectives, activities related to acquisition, renovation works and enhancement, and the dissemination of knowledge concerning Tarnowskie Góry’s heritage.
4. Current state of conservation
The historic lead, silver and zinc mine in Tarnowskie Góry, along with its underground water management system is the best preserved, the largest and most easily accessible site of this type in Poland, as well as one of the largest sites of this type in the world. Within the Property boundary there are various elements that reflect the rich history of this place and the complex system related to the excavation of ores, dewatering and water supply as well as use of post-mining areas for recreation purposes.

The characteristic mining landscape of Tarnowskie Góry comprises prolific visible traces of mining works, which represent a source of knowledge about the exploitation of metal ores in these areas. Among numerous landscape elements are: heaps of tailings, shafts, ditches, channels, shallow shafts, railway embankments and buildings related to mines. The most valuable and best-preserved components of the mining landscape of Tarnowskie Góry have been included in the nominated property.

4.1 Current condition of attributes

After the suspension of the mine operation no works that would interfere in the original substance within the historical part of the underground mine have been performed (except modernisation works that were conducted in the operational Adolph Shaft Waterworks). Conservation and construction activities, as well as interpretive reconstructions, activities improving safety and adapting the site to tourism were only performed in underground tourist routes of the Historic Silver Mine and Black Trout Adit.

The underground areas are subject to natural processes connected with air movement and water penetration, which, with proper management and monitoring, do not adversely influence the preservation of the Property; indeed the chemical action of calcium carbonate precipitation predominantly enhances the structural condition of masonry arches and walls in levels and shafts. Conservation-building restoration activities, which improve security and facilitate underground tourist access, were only conducted within underground tourist routes of Historic Silver Mine and Black Trout Adit.

In surface architectonic facilities one may observe defects, commonly caused through lack of maintenance or neglect, including: cracks of walls, damages and defects of bricks and mortar, damages and defects of stone and mortar, damages and defects of interior decor, biological corrosion and graffiti/inscriptions that have taken place over many decades.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>State of conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 Underground Workings</td>
<td>**</td>
</tr>
<tr>
<td>1.0 Friedrich Mine Deep Adit</td>
<td>**</td>
</tr>
<tr>
<td>1.1 Frieden Shaft</td>
<td>**</td>
</tr>
<tr>
<td>1.2 Bohr Shaft</td>
<td>**</td>
</tr>
<tr>
<td>1.3 Adolph and Machine Shafts</td>
<td>**</td>
</tr>
<tr>
<td>1.4 Help Happiness Shaft</td>
<td>**</td>
</tr>
<tr>
<td>1.5 Adit Engine Shaft no.22</td>
<td>**</td>
</tr>
<tr>
<td>1.6 Adit Shaft no.17</td>
<td>**</td>
</tr>
<tr>
<td>1.7 Adit Shaft no.13</td>
<td>**</td>
</tr>
<tr>
<td>1.8 Adit Shaft no.5</td>
<td>**</td>
</tr>
<tr>
<td>1.9 Friedrich Mine Adit Portal</td>
<td>**</td>
</tr>
<tr>
<td>1.10 Friedrich Mine Adit Ditch</td>
<td>**</td>
</tr>
<tr>
<td>2.0 God Help Adit</td>
<td>**</td>
</tr>
<tr>
<td>2.1 Angel Shaft</td>
<td>**</td>
</tr>
<tr>
<td>2.2 Viper Shaft</td>
<td>**</td>
</tr>
<tr>
<td>2.3 God Bless Shaft</td>
<td>**</td>
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<tr>
<td>2.4 Heinitz Shaft</td>
<td>**</td>
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<td>2.5 Reden Shaft</td>
<td>**</td>
</tr>
<tr>
<td>2.6 Kaehler Shaft</td>
<td>**</td>
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<tr>
<td>2.7 Frederica Shaft</td>
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<td>2.8 God Help Adit Portal</td>
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<td>2.9 God Help Adit Ditch</td>
<td>**</td>
</tr>
<tr>
<td>3.1 Adolph Shaft Waterworks</td>
<td>**</td>
</tr>
<tr>
<td>3.2 Mining Landscape (19th century)</td>
<td>**</td>
</tr>
<tr>
<td>3.3 Mining Landscape of Silver Mountain</td>
<td>**</td>
</tr>
<tr>
<td>3.4 Friedrich Mine Washing Tip</td>
<td>**</td>
</tr>
<tr>
<td>3.5 Original Site of Friedrich Mine</td>
<td>**</td>
</tr>
<tr>
<td>3.6 Municipal Park</td>
<td>**</td>
</tr>
</tbody>
</table>

* None or single cracks of the ceilings and pillars no collapses.
** Local collapses with small range, occurrence of cracks of ceilings and pillars, partially destroyed walls.
*** Collapses with large range, strongly cracked ceilings, pillars and walls, destructed walls.
Protection of UNESCO World Heritage and preservation of this heritage for future generations is the most important objective of all measures undertaken.

A strategy of protective activities includes:
- scientific and research work,
- inventories and documentation,
- conservation work,
- cooperation at developing planning documents,
- cooperation at developing documents and activities of Regional Directorate for Environmental Protection and Directorate of National Forests
- monitoring,
- activities related to education concerning World Heritage.

**URBAN PLANNING dimension**

The underground system and surface elements of the site are located in the area of the city of Tarnowskie Góry, along with the areas of Tarnowskie Góry municipality, rural commune of Zbrosławice and city with poviat rights of Bytom. The area of the site and its buffer zone includes urban areas, agricultural land, parks and forests.

Attributes and features are located underground (shafts, adits, galleries, workings, chambers, wells) and on surface (shaft casings, heaps, buildings of Adolphe Shaft Waterworks, portals with architectural enclosures of drainage adit outlets, ditches, parks). Underground elements and their conservation status have a large impact on the city’s safety, due to geological and mining conditions (for example the prevention of cave-ins) as well as the water system (system patency). The conservation status and processes, lack of protection of stands of trees, lack of conservation of architectural structures and other. At surface, apart from small elements such as shafts with shaft tops and accompanying ground structures, the Property includes tracts of the historic mining landscape, including large areas of Tarnowskie Góry and Bytom and Zbrosławice commune (Mining Landscape of Silver Mountain (3.3), Friedrich Mine Washing Tip (3.4), Mining Landscape (19th century) (3.2), Adolphe Shaft Waterworks (3.1), Original Site of Friedrich Mine (3.5), Municipal Park (3.6), outlets of Friedrich and God Help adits along with ditches (1.6, 1.10, 2.8, 2.9).

Local plans in Tarnowskie Góry clearly announce the presence of areas related to historical mining activities, comprising an underground system of adits, galleries, chambers and shafts, which require relevant safeguards of planned buildings that are adapted to impacts of mining activities. The plans include divisions into areas of varied geological and mining conditions taking account of methods of protecting building structures (Local spatial development plan for southern districts of the city of Tarnowskie Góry - Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and ‘Przyjaźń’ housing estate; Resolution No. XLVII/SSI/2009 of 28.10.2009. (Journal of Laws of the Silesian Voivodeship of 2010, No. 14, item 232) and attribute 3.4 Friedrich Mine Washing Tip (Local spatial development plan of a former mining area of Górnicze Zakłady Dolomitowe S.A. in Siewierz and Bobrowniki-Blachówka dolomite mine, within the administrative borders of the city of Tarnowskie Góry, Resolution No. LVII/494/2006 of 02.03.2006 (Journal of Laws of the Silesian Voivodeship of 2006 No. 49, item 1404) decisions that can be issued in the future due to acceptable usufruct for service and commercial purposes linked with development, need to be monitored.

**ARCHITECTURAL dimension**

The Property includes varied architectural structures, mainly from the 19th century, which reflect a technical and artistic level of the mining culture of the era, together with associated structures. The architectural resources of the site can be divided into:
- a system of underground workings (0.1),
- various types of buildings (3.1, 3.6),
- shaft tops (1.3, 1.5, 1.8),
- adit casings (0.1 in part)
- shaft casings (1.2, 1.3, 1.4, 1.6, 1.7, 1.8, 2.1, 2.2, 2.3, 2.6, 2.7)
• underground chambers (3.1),
• portals on adit outlets (1.9, 2.8 – reconstructed),
• architectural setting of the initial fragment of the Friedrich Mine Deep Adit ditch (1.9, 1.10),
• bridges (1.10),
• bunkers from World War II (3.4, 3.2)

When it comes to surface architectural facilities, we can generally observe some negative aspects such as: cracks in walls, damages and losses of bricks and joints, damages and losses of stone and joints, damages and losses in interior, biological corrosion, damages – inscriptions, graffiti to a variable extent.

When it comes to the underground part, concerning the architectural and structural aspects of adits and shafts as well as chambers (to the extent explored by members of the Association) we can observe cracks in walls, damages and losses of bricks and joints, damages and losses of stone and joints, and damage of wooden elements.

Issues and needs

A significant problem for the architectural resources is the lack of precise research, inventories and professional evaluation of the conservation status. Performance of research and documentation work is a condition for the preparation of relevant conservation programmes and commencement of conservation work. This process also requires approval and active cooperation of site owners and authorities.

At the moment not all elements of the Property are covered by legal protection but the entry procedure has commenced.

NATURAL ENVIRONMENT dimension

Geology and mineralogy

The geological structure and lithology of the Tarnowskie Góry mining region, and the physical conditions under which ore occurred, had a profound effect on the character and development of every aspect of mining activity, together with resultant modified landscape and permanently altered hydrology. It is therefore fundamental to the Property. Friedrich Mine is located in one of Europe’s classic metallic provinces: the Upper Silesian Orefield, the largest so-called Mississippi Valley Type lead-zinc deposit in the world.

The Tarnowskie Góry-Bytom trough is the principal geological structure that hosted lead-silver-zinc-iron ores, part of the largest Mississippi Valley Type (MVT) ore deposit in the world. As the Upper Silesian Orefield, the deposit extends over 80 km from east to west, with a width ranging from 10 to over 20 km. The land surface is a characteristically flat to gently undulating plateau at an elevation of around 270-300 m above sea level.

The principal rock types comprise a group of Mesozoic Era sedimentary strata: typically unconsolidated sands, gravel and clay at the top, followed by ore-bearing karstified dolomite of the Middle Triassic Muschelkalk Series (shelly limestone), underlain unconformably by impermeable Carboniferous strata. This strata is exposed in underground workings (including vertical sections of strata in shafts) and at surface in dolomite quarries which, again, provide accessible vertical sections of the strata.

The ore is of hydrothermal origin (epigenetic, ‘Mississippi Valley Type’) and principally comprises galena (lead sulphide) that was silver bearing, smithsonite (zinc carbonate, ZnCO3) and common limonite (iron oxides). The galena, containing (but not necessarily yielding) 86% lead metal, also held a relatively small proportion of silver (0.20-1.2%) in solid solution.

Lead ore occurs in veins and ‘flats’ at a comparatively, and advantageously, shallow depth (30-50 m), with a large number of outcrops. The non-sulphide (carbonate-oxide) zinc ore (‘calamine’ = English, French, Belgian; ‘galmei’ = German; ‘galman’ = Polish) occurred in exceptionally rich deposits in the southern section of Friedrich Mine, in the vicinity of Bytom (Beuthen = German).

Scientific interest in Friedrich Mine is also represented by the notable ‘Type Locality’ species Tarnowitzite (Plumboan argonite).

In the undergrounds of Tarnowskie Góry, one can see some interesting karst formations. This geological process results in dripstone deposits which cover large areas of the ceiling, floors and the corridor walls. These formations include various kinds of stalactites and stalagmites, cave columns, flowstones, draperies, basins, cave pearls or milk of lime.

Natural and cultural landscape, and its values

The state of each landscape is a synthesis between natural processes and a group of others – historical, economic and political, taking place in the past and in our time. Tarnowiecki Plateau is extremely diverse with its landscapes. 800-year-old mining activity, which had been growing and dying in phases, has a significant impact on its topography. After the cessation of mining activities, settlement processes have been changing the landscape of these territories to the greatest extent. Renaturalization processes of the mining centres are the second factor. This area, intensively used by the humans, is characterized by a greater sensitivity on anthropogenic changes.

As a result of the exploitation of mineral raw materials and the consequent modification of hydrology, surface topography has been subsiding within the area of underground mining and has produced a hydrological cone of depression. Lasting over centuries mining exploitation led to the consolidation of initiated changes in the environment, and its impact on natural components do not end with the cessation of mining activity. At the exploitation site and its setting, new landscape, ecological and anthropogenic processes are initiated, leading to creating a completely new and different set of values.

A common feature, distinguishing the post-mining landscapes, is their morpho-and geological diversity, which is the result of a process of occurrence, development and disappearance of mining and processes of renaturalizations, differing in age and stage of their development. Surface deformations within built-up areas were gradually levelled, and in wooded areas and wasteland were subject to natural erosional and levelling processes. Thanks to anthropological transformations of natural elements of the terrain, a high landscape and natural diversity of the Property has arisen. The most important areas in this respect are: Mining Landscape (19th century) (3.2), Mining Landscape of Silver Mountain (3.3), Friedrich Mine Washing Tip (3.4) and Municipal Park (3.6).

Mining activity has led to the appearance of new morphological terrain forms across the Property and its setting, including: open pits, ring-like spoil heaps, mine shafts and tunnels, and dump mounds. All of these have a significant influence on plant and animal communities, and more specifically include: ore-bearing dolomite spoil (with heavy metal concentrations in soluble forms of zinc and lead) of the Friedrich Mine Washing Tip (Attribute 3.4); the pingo and warpie of Segiet Forest, the Verona (and other) zinc (and lead) mining terrain within the Mining Landscape of Silver Mountain.
(Attribute 3.3); meadows, partly agricultural, with increased geochemical background levels in the Mining Landscape (19th century; Attribute 3.2), adjacent to Adolph Shaft Waterworks; and the iron-ore/dolomite quarries (also within the Mining Landscape of Silver Mountain (Attribute 3.3), adjacent to central-eastern edge of Segiet Forest. Such widespread habitats are commonly unsuitable for agriculture, thus assisting in their preservation, and consist of steep, uneven rocky terrain, hollows with characteristic microclimates and adjacent heaps of waste rock, and processing/washing waste tips of sandy spoil with low water capacity and overall substrate concentrations of large quantities of soluble forms of zinc and lead – poisonous for most plants. Plants which inhabit these areas must show a number of features and adaptations to enable them to grow in these unfavourable or even toxic conditions. Plant species which grow on ground rich in heavy metals have been in the scope of interest of botanists and others for many years now, acquiring an identifying label to underscore their special character – metallophytes. The metallophytes are protected by legislation Europewide. This protection strengthens conservation and can contribute to the restoration of metallophyte vegetation. Under the EU Habitats Directive Annex I (Fauna-Flora-Habitat), heavy-metal vegetation is coded as Calaminarian grasslands of the order Violetalia calaminariae under Code 6130.

The soil of calamine areas is characterized by neutral or mildly alkaline pH, high carbonate content and high concentration of trace elements (zinc, lead, cadmium), related to the zinc and lead beds in Triassic formations, particularly in ore-bearing dolomite and limestone containing a range of rock-forming minerals. Anthropologically transformed warpie soils are characteristically red-brownish in colour, abundant in dolomite, sometimes limestone, with rare ore-bearing matrix. These areas are overgrown by exceptional plants.

The area of the former ore mines in the Silver Mountain with still visible traces of mining (craters, shafts hollows and waste heaps) is covered with beech forest from historical times, where trees are now of the age between 100-190 years, with individuals of more than 300 years. In 1953, in the light of great importance landscape qualities, as well as scientific and educational significance, almost homogeneous beech forest of approx. 25 hectares tinged with individual items of other species, situated at the peak of Silver Mountain, was declared a nature reserve. The nature reserve is to protect, above all, a fragment of thermophilous beechwood with orchids (Fagus sylvatica – Crucia glabra community) which had retained its natural features. The tree stand has beech as the dominant species with admixtures of fir (Abies alba), sycamore (Acer pseudoplatanus), spruce (Picea abies) and pine (Pinus sylvestris). The undergrowth of the beech forest is sparse, containing chiefly hazel (Corylus avellana), common elder (Sambucus nigra), red elder (Sambucus racemosa), rowan (Sorbus aucuparia), guelder rose (Viburnum opulus), and shrubs of Rhamno – Prunetea class: dogwood (Cornus sanguinea), hawthorn (Crateagus monogyna), and buckthorn (Rhamnus cathartica). The herb layer abounds in species which are under legal protection throughout Poland, such as ramsons (Allium ursinum), European cumbine (Aquilegia vulgaris), asarabacca (Asarum europaeum), stemless carline thistle (Carlina acaulis), may lily (Convallaria majalis), mezereon (Daphne mezereum), sweet woodruff (Galium odoratum), ivy (Hedera helix), liverleaf (Hepatica nobila), martagon lily (Lilium martagon), interrupted clubmoss (Lycopodium annotinum), common periwinkle (Vinca minor), as well as many orchid species: including lady’s slipper orchid (Cypripedium calceolus), broad-leaved helleborine (Epipactis helleborine), dark red helleborine (E. atrorubens), and butterfly orchid (Platanthera bifolia). The flora of the reserve is also interesting because of
its mountain plant species, occurring only at some sites within the Silesian Upland. Among these mountain species, the following are of note: variegated monks-hood (Aconitum variegatum), Haller’s cardaminopsis (Cardaminopsis halleri), wood spurge (Euphorbia amygdaloides), least bedstraw (Galium rotundifolium), and whorled Solomon’s-seal (Polygonatum verticillatum).

The Friedrich Mine Washing Tip (Attribute 3.4) is the site where succession of vegetation is very slow. The local conditions are very difficult because of high concentrations of heavy metals in the substrate and alkaline pH. The next group of factors limiting plant growth is low moisture content in the substrate and strong insolation. In spite of such adverse conditions, in the dolomite heap site, no less than 120 species of vascular plants appear, representing 95 genera and 45 families, along with 7 species mosses and 36 species of lichens. These are generally native meadow or grassland species, thermophilous and light-demanding. The calamine grassland on the heap top is composed mainly of the following species: sheep’s-fescue (Festuca ovina), purple-stem cat’s-tail (Phleum phleoides) and by sand rock-cress (Cardaminopsis arenosa), hairy hawkbit (Leontodon hispidus), common bird’s-foot-trefoil (Lotus corniculatus), common milkwort (Polygala vulgaris), common thyme (Thymus pulegioides), goldenrod (Solidago virgaurea) and inflated catchfly (Silenus vulgaris). The plants growing in this area are of dwarfed appearance, have thick leaves with a small surface and they are often hairy. The plants themselves have improved tolerance to dry conditions, low levels of nutrients and the increased concentrations of heavy metals in the substrate, apart from common species, some plants covered by legal protection in Poland can be found there. These include, for example, common centaury (Centaurium erythraea), steamless carline thistle (Carlina acaulis), and broad-leaved helleborine (Epipactis helleborine).

Underground spaces incurred as a result of the mining were settled by bats. The underground system within the boundaries of the Property and its buffer zone, a total length of over 200 km, is protected under international law and national legislation on the protection of the environment, nature and natural heritage.

Issues and needs

The status of a generally low awareness of the importance of the natural environment of the post-mining areas, in particular calamine flora, requires interpretive, educational and promotional activities. The main task will be to develop a system of cooperation between depositories, authorities and institutions responsible for the protection of monuments and nature in accordance with the relevant provisions of law and the rules. We should consider forms of protection of calamine grasslands. One should pay attention to the broader economic importance of the calamine grasslands and research on it. Calamine forms of the species can be used in reclaiming land polluted by heavy metals. The waste-heap populations of these species are particularly valuable since they have genetically established traits that allow them to grow under the harsh and pioneering conditions prevailing on waste heaps rich in zinc and lead.

SOCIO-ECONOMIC dimension

UNESCO World Heritage properties affect our surrounding world in many ways. This also applies to socio-economic reality, which may have a direct or indirect impact in the local, regional and national scale. Among an extensive range of impacts are: creating income and jobs (safeguarding of the Property, its interpretation and access), building an economy based on knowledge and creativity, and developing social and human capital. Other important directions of development in the areas of UNESCO World Heritage sites are those involving tourism and culture. Tourism is one of the fastest growing sectors of the economy that allows multidimensional development of municipalities and communes. It affects, among others: development of infrastructure, entrepreneurship (especially in the area of tourism services), active and educated population, improving living standards, labor market (job creation), regional policy (which allows among other things to compensate the socio-economic differences), strengthening social cohesion and local identity. It is predicted that integrated recreation areas will be the main direction of development of tourism in the 21st century. Similarly, the cultural and creative industries, which is indicated as one of the fundamental nexus boosting economic processes throughout the world. Extremely important is the impact on the level and quality of life, which is associated with participation in culture, the leisure activities offer, or use of public spaces. Through the sites it is also possible to build and strengthen a sense of identity, relationships, pride, which in turn is the basis for conducting social dialogue and constructing the image of the place. Tangible and intangible cultural heritage is also directly or indirectly part of the processes of revitalization and sustainable development.¹

¹ After: Monika Muzyn-Kupińska, Wpływ przedsięwzięć związanych z odnową obiektów i miejsc zabytkowych na gospodarkę lokalną i regionalną, (in:) Ochrona Zabytków no 1-4, 2010, p. 139-140
4.2 Positive and negative factors affecting OUV

The CMP assesses the positive and negative factors that affect OUV through impact on attributes.

Implementation of the CMP will seek to mitigate the negative factors and threats to its OUV and other values, and maximise the opportunities presented by inscription as a WHS. These positive and negative factors have been distilled into issues that are each accompanied by strategic policies that are detailed in Section 5 and 6.

The CMP determine the positive and negative factors that have affected values in the past, in particular the OUV. The table containing the results is attached as annex 6.
5. Conservation and management policy
5.1 Conservation and management principles

Conservation and management is a legal responsibility of World Heritage Convention, is fully incorporated into national strategy, and policy will be guided by the following principles that are fundamental to World Heritage properties, and that will form the foundation for the management system and behaviour:

**Outstanding Universal Value (OUV) and significance**, the pillar of the World Heritage Convention and central to its very definition of heritage.

OUV and significance will be a core consideration in all conservation and management actions. OUV, in this case, refers to cultural significance that is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. OUV is the highest level of significance of the Property but there will, of course, be other levels of significance that relate to national, regional or local values, which are still important. Any proposed changes to the Property, in particular – attributes, shall be examined in terms of its potential impact on OUV and significance, in effect a Heritage Impact Assessment (HIA).

**Authenticity**, a condition of OUV.

All conservation management actions should respect the authenticity and integrity of the Property, in the spirit of the Nara (Japan) document on authenticity of 1994. Authenticity is very relevant to host communities as well as to conservation of World Heritage sites. Interventions should not adversely impact the physical fabric, or the character and ‘spirit’ of sites and the authenticity of experience (surface and underground). Consideration will be given to a capacity to serve substantially increased visitor numbers without a negative impact upon the site, both physically and in terms of spirit of the place.

The intellectual authenticity of information that guides conservation actions is paramount in the protection of cultural values. This should be based on evidence gathered through accepted, multidiscipline, scientific and scholarly methods; the preservation of documentary records, archives, building or site plans and sections being encouraged. All levels and aspects of significance should be clearly distinguished and dated in respect of successive phases and influences in sustainable site development.

**Integrity**, a condition of OUV.

Whilst the overall integrity of the nominated property is, of course, of great importance, the conservation of the industrial heritage depends on the preservation of functional integrity, in particular, and interventions should therefore aim to maintain – and even enhance – this as far as possible. Integrity can be diminished if components or machinery are removed, or subsidiary elements which form part of a whole site are destroyed (for example the waste rock spoil heaps, or dumps, that are intimately associated with mine shafts, or an adit ditch that was essential to the function of the adit). Preservation in situ should always be given priority consideration. Dismantling and relocating a building or structure are only acceptable when the site is in danger of being destroyed through unavoidable action, or overwhelming economic or social needs. If equipment can be returned to its original location and position, as long as it is not under threat or its conservation conditions are unsuitable, and can enhance the understanding of the site then this may be desirable.

**Protection and Management**, a requirement of OUV.

The basis of the management system for the Property will be inclusive and coordinated management on behalf of the stakeholder group, thus upholding the WH Convention requirement that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage... to give the cultural and natural heritage a function in the life of the community and to integrate that heritage into comprehensive planning programmes. (Art. 5, WH Convention, 1972).

**Accessibility**

The communication of the values of the Property will be done in a way that minimises barriers that may otherwise prevent actual, or potential, visitors and users from gaining the optimum benefit from their engagement. There are, of course, and for reasons of safety, conservation and ownership, various restrictions to access, particularly and predominantly underground. Specialised access has, in the past, facilitated scientific and archaeological studies to remote portions of the mine – fully supported by experienced personnel and a back-up rescue team. It is intended that greater controlled access to these extensive and highly significant areas of the system will be developed, for example special guided expeditions and extreme adventure tours.

With regards to the general principle, however, barriers to accessibility may include:

- **Organisational**, for example information on the Property may not be available in the appropriate format or language, or staff at a site may not be able to respond to the needs of all visitors.
- **Physical**, for example steps or ground surfaces that may prevent some people from experiencing a site. However, avoiding, or removing, all physical barriers may be difficult if not impossible. Particularly where safety, and conservation issues apply, this also may not be appropriate, desirable, nor would be considered reasonable. In such cases, it is important to consider whether alternative ‘access’ can be provided, for example video, or web-based remote access.

**Sustainability**

The concept of sustainable development refers to a pattern of resource use that balances the fulfillment of basic human needs with the wise use of finite resources so that they can be passed on to future generations for their use and development. Three mutually supportive elements comprise environmental protection, economic growth and social equity, delivered via effective governance that includes a participatory multi-stakeholder approach to policy and implementation. In terms of cultural World Heritage, the resource is the heritage itself, to be sustained and transmitted to future generations. And this resource, and its conservation, can make positive contributions to environmental, social and economic wellbeing.
The adaptation of an industrial site or building to a new, viable use to ensure its conservation is
usually acceptable, except in the case of sites of especial historical significance. New uses should
respect the significant material and maintain original patterns of circulation and activity, and should
be as compatible as possible with the original or principal use. Continuing to adapt and use industrial
buildings avoids wasting energy and contributes to sustainable development.
Interventions should be reversible and have a minimal negative impact, and an optimum positive
impact. Any unavoidable potentially negative changes should be documented and significant
elements that are removed should be recorded and stored safely. Many industrial processes confer
a patina that is integral to the authenticity and ‘spirit’ of the site.
Reconstruction, or returning to a previous known state, should be considered an exceptional
intervention and one that is only appropriate if it benefits the integrity of the whole site.

5.2 Conservation and management issues, and corresponding
policies

Positive and negative factors affecting the Property have been distilled into issues that are each
accompanied by strategic policies.

Issue 1. Consistent, coordinated management can be a problem in many properties, particularly
where there are many owners and management authorities.

Policy 1: Consistent, coordinated management will be achieved through a stakeholder
partnership with a values-led approach, supporting Objective 1.

Issue 2. Ongoing conservation and management needs can sometimes be difficult to identify,
particularly where multiple owners are concerned, and can present a challenge in terms of
effective action.

Policy 2: Ongoing conservation and management needs will be addressed by shared
responsibility amongst stakeholders to identify needs and to implement effective
action, supporting Objective 1.

Issue 3. Resources, human and financial, to implement the CMP can be a great challenge, both
financially and in terms of capacity, and in many cases cannot demonstrate an economic
return on investment.

Policy 3: Resources, human and financial, to implement the CMP will be the responsibility of
all stakeholders to optimise capacity and resource potential, supporting Objective 2
and the overall state of conservation of the Property.

Issue 4. Legal and practical protection can often be very different in theory and practice.

Policy 4: Increasing legal and practical protection will be pursued and reviewed where
appropriate in all relevant stakeholder plans and activities, supporting Objective 3.

Issue 5. Residential and commercial development is one of the greatest threats to World Heritage
properties.

Policy 5: Residential and commercial development within the Property and its immediate
setting will be controlled to limit change to protect and conserve and, if possible,
enhance OUV, supporting Objectives 3 and 4.

Issue 6. Agriculture is commonly a suitable land-use, but can sometimes cause damage to
archaeological sites.

Policy 6: Agriculture is often a suitable and desirable land-use for parts of the Property and
it’s setting and will be encouraged to have regard for heritage values (for example
pingi and warpie) and natural values (for example calamine flora), assisted by specific
guidance for specific sites (for example the Original site of Friedrich Mine) developed
by the stakeholder group, supporting Objectives 3 and 4.

Issue 7. Mining and quarrying can be historic industrial activities with significant values, but their
continuance can, in many cases, be severely damaging to the historic environment.

Policy 7: Mining and quarrying is an inappropriate activity within the nominated property
due to the nature of attributes (particularly underground, structurally), the status
and nature of the mineral resource (depleted in terms of metalliferous deposits), the
vulnerability of the water management system, and biodiversity (particularly bats and
calamine flora) and will not be permitted, supporting Objectives 3 and 4.

Issue 8. Roads and railways, particularly in terms of new development, scale and appearance,
can be physically and aesthetically damaging to the historic environment, and natural
ecosystem.

Policy 8: Roads and railways within the Property have a mostly related historic origin, and new
development will have regard to this, as well as to attributes and their setting, and
the structural capacity of the underground environment, and options for heritage and
environmentally sensitive visitor movement will be sought, supporting Objectives 3
and 4.

Issue 9. Heritage-led sustainable development can often be a concept that is misunderstood and
consequently neglected.

Policy 9: The potential for heritage-led sustainable development within the Property will be
evaluated, propagated and encouraged, supporting Objective 4.
**Issue 10.** Conservation and maintenance can often be a long-term problem, particularly beyond capital-intensive short-term projects, and interventions can, in some cases and whilst being well intended, be detrimental if not properly informed.

**Policy 10:** Conservation and maintenance will be undertaken on a continuous basis, to the highest standards and with respect to authenticity, and will be supported by guidelines for heritage-led interventions, supporting Objective 4.

**Issue 11.** Owners of archives and collections sometimes suffer from a lack of awareness of the relevance or importance of their material, which may also be in poor condition, kept in poor conditions (or both) and may be inaccessible and vulnerable to long-term guardianship.

**Policy 11:** Archives and collections related to the site will be identified, qualified and quantified, and be protected, conserved, curated and made accessible where possible or appropriate, supporting Objective 4.

**Issue 12.** Physical and intellectual access can often be barriers to significant parts and aspects of sites, and to particular audiences.

**Policy 12:** Physical and intellectual access will be promoted where appropriate, sustainable and consistent with the values of the site, supporting Objective 4.

**Issue 13.** Coordinated marketing is often difficult to achieve where multiple features, destinations, political divisions or businesses are involved.

**Policy 13:** Coordinated marketing will be informed by the interpretation and tourism strategy to ensure a consistent and responsible use of the site, together with efficient use of resources, supporting Objective 4.

**Issue 14.** Research and increasing knowledge is often ignored once a nomination is submitted, or a site inscribed on the World Heritage List.

**Policy 14:** Research and increasing knowledge of the site will be pursued and encouraged, based on a developing, and ongoing, research strategy that will enhance our understanding of cultural significance as a result of new information, supporting Objectives 4 and 5.

**Issue 15.** Works of hydraulic engineering are a key element of the Property and represent a showcase of ingenuity where continuity of process may be difficult to sustain.

**Policy 15:** Water management will be sustained to allow the ‘natural’ function of the system to continue, allowing continued access and helping to preserve the historic environment and contributing a value in itself, and water abstraction and use in line with original function and purposes will be encouraged, supporting Objective 4.

**Issue 16.** Related monuments and sites in the setting can often be lost, diminishing the opportunity for wider associated activity and a wider benefit to the local economy.

**Policy 16:** Related monuments and sites in the setting of the Property will be inventoried, assessed and conserved where possible, desirable and feasible, supporting Objectives 4 and 5.
6. Action plan and the principles of its implementation
For each strategic objective a series of actions has been developed and agreed by the Coordinating Team and the key stakeholders. They are presented in the table below.

### Table 7. Action plan

<table>
<thead>
<tr>
<th>Action point</th>
<th>Action</th>
<th>Lead co-ordinator</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td><strong>Consistent and coordinated management</strong></td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td>Establishment of the Steering Committee and signing of a letter of intent between its members concerning the participation in Committee work and involvement of persons and institutions in working groups’ work</td>
<td>Coordinating Team</td>
<td></td>
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<tr>
<td>2</td>
<td>Establishment of full-time position (WHS Coordinator)</td>
<td>Coordinating Team</td>
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<tr>
<td>3</td>
<td>Organisation of the WH Site coordination office</td>
<td>Coordinating Team</td>
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<tr>
<td>4</td>
<td>Specification of common minimum budget for the office operations and execution of basic objectives compliant with CMP</td>
<td>Coordinating Team, City Hall in Tarnowskie Góry, Zbrosławice Commune Office, City Hall in Bytom, County Starost Office in Tarnowskie Góry, Silesian Voivodeship Management Board</td>
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<tr>
<td>5</td>
<td>Conducting information meetings with all owners and signing a declaration of cooperation by owners</td>
<td>Coordinating Team</td>
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<tr>
<td>6</td>
<td>Carrying out a series of training courses focusing on World Heritage and the Property (site and buffer zone owners)</td>
<td>Coordinating Team, National Heritage Board of Poland</td>
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<tr>
<td>P2</td>
<td><strong>Conservation and management needs</strong></td>
<td></td>
<td></td>
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<tr>
<td>1</td>
<td>Increasing safety and monitoring of the Washing Tip (3.4), outlet of the Friedrich Mine Deep Adit with Portal (1.9) and Ditch (1.10) and a 19th-century mining landscape (3.2)</td>
<td>Coordinating Team, Silesian Voivodeship Monuments Protection Office in Katowice</td>
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<tr>
<td>2</td>
<td>Carrying out necessary expert opinions, preparation of conservation programmes arranged with the Voivodeship Office for the Protection of Historic Heritage and execution of conservation works for the remains of the Machine Shaft No. 22 top building (1.5)</td>
<td>Coordinating Team, Silesian Voivodeship Monuments Protection Office in Katowice</td>
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<tr>
<td>3</td>
<td>Carrying out necessary expert opinions, preparation of conservation programmes arranged with the Voivodeship Office for the Protection of Historic Heritage and execution of conservation works for the remains of the Machine Shaft No. 5 top building (1.8)</td>
<td>Coordinating Team, Silesian Voivodeship Monuments Protection Office in Katowice</td>
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<tr>
<td>4</td>
<td>Carrying out necessary expert opinions, preparation of conservation programmes arranged with the Voivodeship Office for the Protection of Historic Heritage and execution of conservation works for the Friedrich Mine Deep Adit outlet with Portal and architectural setting of the initial part of the Ditch (1.9, 1.10)</td>
<td>Coordinating Team, Silesian Voivodeship Monuments Protection Office in Katowice</td>
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<tr>
<td>P3</td>
<td><strong>Financial and human resources</strong></td>
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<tr>
<td>5</td>
<td>Carrying out necessary expert opinions, preparation of conservation programmes arranged with the Voivodeship Office for the Protection of Historic Heritage and execution of conservation works for the Adolph and Machine Shaft top buildings and historic buildings of the Adolph Shaft Waterworks (1.3, 1.3)</td>
<td>Coordinating Team, Silesian Voivodeship Monuments Protection Office in Katowice</td>
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<tr>
<td>6</td>
<td>Preparation of design and implementation of tending of stocks of trees and low bushes for the Peace Shaft (1.1), Bohr Shaft (1.2), Glück Shaft (1.4), Machine Shaft No. 22 (1.5), Shaft No. 5 (1.8), Viper Shaft (2.2), God Bless Shaft (2.3), Heinitz Shaft (2.4), Reden Shaft (2.5), Washing Tip (3.4), 19th-century post-mining landscape (3.2), Friedrich Mine Deep Adit outlet with Portal and architectural setting of the initial part of the Ditch (1.9, 1.10) as well as green areas along the adit to the extent indicated on the basis of research</td>
<td>Coordinating Team, Regional Directorate for Environmental Protection in Katowice</td>
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<tr>
<td>7</td>
<td>Carrying out expert opinions, design and implementation of construction and conservation works of a damaged fragment of the Friedrich Mine Deep Adit, close to the adit outlet</td>
<td>Coordinating Team, Regional Directorate for Environmental Protection in Katowice, Silesian Voivodeship Monuments Protection Office in Katowice, State Mining Authority</td>
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<tr>
<td>8</td>
<td>Identification of risks associated with remaining workings and development of guidelines for the prevention of impacts exerted by these risks (geological and mining opinions, geological and mining expert opinion, technical methods)</td>
<td>Coordinating Team, Regional Directorate for Environmental Protection in Katowice, Silesian Voivodeship Monuments Protection Office in Katowice, State Mining Authority</td>
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</tbody>
</table>

### Table 7. Action plan, cont.

| 5 | Carrying out necessary expert opinions, preparation of conservation programmes arranged with the Voivodeship Office for the Protection of Historic Heritage and execution of conservation works for the Adolph and Machine Shaft top buildings and historic buildings of the Adolph Shaft Waterworks (1.3, 1.3) | Coordinating Team, Silesian Voivodeship Monuments Protection Office in Katowice | | |
| 6 | Preparation of design and implementation of tending of stocks of trees and low bushes for the Peace Shaft (1.1), Bohr Shaft (1.2), Glück Shaft (1.4), Machine Shaft No. 22 (1.5), Shaft No. 5 (1.8), Viper Shaft (2.2), God Bless Shaft (2.3), Heinitz Shaft (2.4), Reden Shaft (2.5), Washing Tip (3.4), 19th-century post-mining landscape (3.2), Friedrich Mine Deep Adit outlet with Portal and architectural setting of the initial part of the Ditch (1.9, 1.10) as well as green areas along the adit to the extent indicated on the basis of research | Coordinating Team, Regional Directorate for Environmental Protection in Katowice | | |
| 7 | Carrying out expert opinions, design and implementation of construction and conservation works of a damaged fragment of the Friedrich Mine Deep Adit, close to the adit outlet | Coordinating Team, Regional Directorate for Environmental Protection in Katowice, Silesian Voivodeship Monuments Protection Office in Katowice, State Mining Authority | | |
| 8 | Identification of risks associated with remaining workings and development of guidelines for the prevention of impacts exerted by these risks (geological and mining opinions, geological and mining expert opinion, technical methods) | Coordinating Team, Regional Directorate for Environmental Protection in Katowice, Silesian Voivodeship Monuments Protection Office in Katowice, State Mining Authority | | |

### P3 Financial and human resources

| 1 | Development of consistent financial resourcing for the protection, property management and popularisation system (natural and cultural heritage) | Coordinating Team | | |
| 2 | Development of a scheme of acquiring funds at the local, national and international level (list, principles, key role of an owner, etc.) | Coordinating Team | | |
| 3 | Carrying out a series of training courses focusing on UNESCO and the Property (owners, authorities, protection services, residents, voluntary workers, journalists, guide groups) and acquisition of funds | Coordinating Team, National Heritage Board of Poland | | |
| 4 | Arranging the principles of using the WH emblem (contracts, fees) | Coordinating Team | | |
| 5 | Developing principles of cooperation with business entities (contracts, donations) | Coordinating Team | | |
### Table 7. Action plan, cont.

<table>
<thead>
<tr>
<th>Action point</th>
<th>Action</th>
<th>Lead co-ordinator</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 4Legal and practical protection</td>
<td>Covering the following by legal protection: post-mining landscape of the Silver Mountain (3.3), Mining Landscape (19th-century) (3.2), Original Site of Friedrich Mine (3.5) and Commemorative Mound on the Rudolphina Shaft, Friedrich Mine Deep Adit Portal and architectural setting of the initial part of the Ditch (1.9,1.10), God Help Adit Portal outlet with a ditch (2.8,2.9), post-mining landscape – Shaft tips of the Bohr Shaft (1.2), Glück Shaft (1.4), Viper Shaft (2.2), God Bless Shaft (2.3), Heinitz Shaft (2.4), Reden Shaft (2.5)</td>
<td>Coordinating Team</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>2 Protection of calamine grasslands and other valuable natural elements indicated after appropriate survey.</td>
<td>University of Silesia in Katowice</td>
<td>Regional Directorate for Environmental Protection in Katowice</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>3 Develop a plan to protect the Property in the event of armed conflict and crisis situations</td>
<td>National Heritage Board of Poland</td>
<td>Municipalities Protection Office in Katowice</td>
<td></td>
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</tbody>
</table>

### Table 7. Action plan, cont.

<table>
<thead>
<tr>
<th>P 6 Agriculture</th>
<th>Action</th>
<th>Lead co-ordinator</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Promoting current use and extensive agriculture within the boundaries of the Property and its buffer zone</td>
<td>City Hall in Tarnowskie Góry</td>
<td>Zbroślawice Commune Office</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>2 Assessment of conditions and development of recommendations for amendments in current spatial documents (studies of conditions and directions of spatial development, local spatial development plans) concerning potential exclusion of the most significant archaeological areas from agricultural or other use</td>
<td>City Hall in Tarnowskie Góry</td>
<td>Zbroślawice Commune Office</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>3 Developing good practice notes and establishing sources for financial support, addressed to land owners, promoting extensive agriculture and including calamine grasslands and meadows within a system of ecologically important open areas</td>
<td>City Hall in Tarnowskie Góry</td>
<td>Zbroślawice Commune Office</td>
<td></td>
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<td>*</td>
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</tbody>
</table>

### Table 7. Action plan, cont.

<table>
<thead>
<tr>
<th>P 7 Mining and quarrying</th>
<th>Action</th>
<th>Lead co-ordinator</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Monitoring of the site and buffer zone conservation status</td>
<td>Tarnogórski Club of Cave Exploration</td>
<td></td>
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<td>*</td>
</tr>
</tbody>
</table>

### Table 7. Action plan, cont.

<table>
<thead>
<tr>
<th>P 8 Roads and railways</th>
<th>Action</th>
<th>Lead co-ordinator</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Monitoring of plans related to the construction of new roads and motorways as well as railroads</td>
<td>Coordinating Team</td>
<td></td>
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<td>*</td>
<td></td>
</tr>
<tr>
<td>2 Carrying out negotiations with Polish State Railways and Upper Silesian Narrow Gauge Railways Association on the protection of narrow gauge railway embankments and a possibility of using railway heritage for tourist purposes</td>
<td>Coordinating Team</td>
<td>Upper Silesian Narrow Gauge Railways Association</td>
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</tbody>
</table>

### Table 7. Action plan, cont.

<table>
<thead>
<tr>
<th>P 9 Heritage-led sustainable development</th>
<th>Action</th>
<th>Lead co-ordinator</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Development of principles and guidelines for heritage-led sustainable development for the Property and its buffer zone</td>
<td>National Heritage Board of Poland</td>
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</table>
### Table 7. Action plan, cont.

<table>
<thead>
<tr>
<th>Action point</th>
<th>Action</th>
<th>Lead co-ordinator</th>
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<tbody>
<tr>
<td>2</td>
<td>Arrangement of commercial, including tourist, development</td>
<td>Coordinating Team</td>
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<td></td>
<td>principles with stakeholders, as regards the Property and its buffer</td>
<td>Zone</td>
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<td></td>
<td>zone</td>
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<td>3</td>
<td>Developing a system of patronage</td>
<td>Coordinating Team</td>
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<tr>
<td>P 10</td>
<td>Conservation and maintenance</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Development of conservation guidelines for each attribute, determining</td>
<td>Coordinating Team, Silesian Voivodeship Monuments Protection Office in Katowice,</td>
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<tr>
<td></td>
<td>acceptable interventions, conservation standards and acceptable forms</td>
<td>National Heritage Board of Poland</td>
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<td></td>
<td>of usufruct and tourist use</td>
<td></td>
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<tr>
<td>2</td>
<td>Development of a set of indicators for measuring state of</td>
<td>Coordinating Team, Regional Directorate for Environmental Protection in Katowice,</td>
</tr>
<tr>
<td></td>
<td>conservation of each individual attribute and quality of the</td>
<td>Silesian Voivodeship Monuments Protection Office in Katowice, National Heritage</td>
</tr>
<tr>
<td></td>
<td>landscape</td>
<td>Board of Poland</td>
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<tr>
<td>P 11</td>
<td>Archives and collections</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Research</td>
<td>Coordinating Team</td>
</tr>
<tr>
<td>2</td>
<td>Preparation of a computer database concerning the Property</td>
<td>Coordinating Team</td>
</tr>
<tr>
<td></td>
<td>(software, standards, training course for responsible person(s))</td>
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<tr>
<td>3</td>
<td>Development of an archive digitalisation programme and its implementation</td>
<td>Coordinating Team</td>
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<tr>
<td>4</td>
<td>Safeguarding budget for the purchase of archive materials</td>
<td>Coordinating Team</td>
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<tr>
<td></td>
<td>and acquisition of copies of selected materials from archives,</td>
<td></td>
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<tr>
<td></td>
<td>museums and private collections</td>
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<tr>
<td>P 12</td>
<td>Physical and intellectual access</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Development of an access plan specifying where and on what terms</td>
<td>Coordinating Team, Owners, Authorities, Stakeholders</td>
</tr>
<tr>
<td></td>
<td>particular attributes will be available to visitors</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Finding a premise for the TGLL Association’s archives</td>
<td>Coordinating Team</td>
</tr>
<tr>
<td>3</td>
<td>Professional inventory and study of the TGLL Association’s archives</td>
<td>Coordinating Team</td>
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<tr>
<td>4</td>
<td>Purchase of a domain and creation of a web portal through</td>
<td>Coordinating Team</td>
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<tr>
<td></td>
<td>which the popularisation of knowledge and archives will be possible</td>
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<td>5</td>
<td>Web portal management (administration, edition)</td>
<td>Coordinating Team</td>
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<tr>
<td>6</td>
<td>Preparation and printing of information materials (posters, leaflets,</td>
<td>Coordinating Team</td>
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<td></td>
<td>folder, books, tickets, etc.)</td>
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### Table 7. Action plan, cont.

<p>| | | |</p>
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<thead>
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<tbody>
<tr>
<td>7</td>
<td>Preparation of a design and introduction of a uniform fencing</td>
<td>Coordinating Team, Owners</td>
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<tr>
<td></td>
<td>indicating a shaft outlet (1.1) or surrounding a plot with</td>
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<td></td>
<td>shaft tips (1.2, 1.4, 2.2) – increased safety and improved</td>
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<td></td>
<td>presentation</td>
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<td>8</td>
<td>Replacement of a ventilation grill – uniform model agreed with</td>
<td>Coordinating Team, Regional Directorate for Environmental Protection in Katowice</td>
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<td></td>
<td>Regional Directorate for Environmental Protection (1.3, 1.4)</td>
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<td>P 13</td>
<td>Coordinated marketing</td>
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<tr>
<td>1</td>
<td>Development of a marketing plan</td>
<td>Coordinating Team</td>
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<tr>
<td>2</td>
<td>Development of a visual identification system for the Property</td>
<td>Coordinating Team</td>
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<tr>
<td>P 14</td>
<td>Research and increasing knowledge</td>
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</tr>
<tr>
<td>1</td>
<td>Development of a research strategy</td>
<td>Coordinating Team, National Heritage Board of Poland</td>
</tr>
<tr>
<td>2</td>
<td>Preparation and execution of archaeological research and</td>
<td>Coordinating Team, National Heritage Board of Poland</td>
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<tr>
<td></td>
<td>archaeological and architectural research within the area of</td>
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<td>the Original Site of Friedrich Mine (3.5), as regards Machine</td>
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<td></td>
<td>Shaft No. 22 (1.5), Shaft No. 5 (1.8), Reden Shaft (2.5), on</td>
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<td>the other side of the road) and Adolph Shafts Waterworks (3.1)</td>
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<td>3</td>
<td>Inventory of the Machine Shaft No. 22 (1.5), Shaft No. 5 (1.8),</td>
<td>Coordinating Team, National Heritage Board of Poland</td>
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<td></td>
<td>buildings of the Adolph Shafts Waterworks (3.1), Friedrich Mine</td>
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<td>Deep Adit Portal and architectural setting of the initial part</td>
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<td>of the Ditch (1.9, 1.10), God Help Adit Portal (2.8)</td>
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<td>4</td>
<td>Developing a concept of more detailed inventory and</td>
<td>Coordinating Team, State Mining Authority</td>
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<td></td>
<td>documentation of the underground</td>
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<tr>
<td>5</td>
<td>Preparation and execution of anthropological research</td>
<td>Coordinating Team, National Heritage Board of Poland</td>
</tr>
<tr>
<td></td>
<td>concerning the cultural heritage of Tarnowskie Góry and the</td>
<td></td>
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<td></td>
<td>region</td>
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<td>6</td>
<td>Preparation and performance of research concerning calamine</td>
<td>Coordinating Team, University of Silesia in Katowice</td>
</tr>
<tr>
<td></td>
<td>grasslands meadows</td>
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<td>P 15</td>
<td>Water management</td>
<td></td>
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<tr>
<td>1</td>
<td>Water system monitoring</td>
<td>Coordinating Team</td>
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<tr>
<td>P 16</td>
<td>Related monuments and sites in the setting</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Preparation of the analysis of historical, functional and viewing</td>
<td>Coordinating Team</td>
</tr>
<tr>
<td></td>
<td>connections between attributes and other historic objects within</td>
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<td></td>
<td>the buffer zone as well as special protection layers</td>
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7. Monitoring and review
7.1 Introduction

The function of monitoring, beyond its immediate usefulness to Site management (reviewing progress of meeting stated objectives), is also a mandatory requirement under the terms of the World Heritage Convention. The UNESCO Periodic Reporting requirement stipulates that all WHSs submit State of Conservation reports on a six-yearly basis, and as part of a group submission of similar reports from other Sites in the same geographical world region, Tarnowskie Góry is located within the Europe and North America region.

Respective WHS Management Plan policies refer to each monitoring subheading to aid cross-referencing of management objectives. In addition to providing descriptive information relating to the indicators, the monitoring status will also be given for each monitoring theme or topic indicator, and an explanation of data gaps where these exist.

As mentioned above, monitoring is a key responsibility of guardians of World Heritage sites. One of the key actions over the life of the Management Plan is to develop and enhance a comprehensive set of monitoring indicators, including a measurement of the objectives and the impact of the implementation plan (effects). These indicators can be divided into two categories:

- quantitative indicators,
- qualitative indicators (often through evaluation studies which interpret the quantitative data in the context of our stated Vision, Aims and Objectives).

For some straightforward short timescale objectives both types of measurement will be reported annually. For longer term objectives or initiatives the qualitative performance measuring and reporting intervals may have to be longer, perhaps as part of the 5 yearly World Heritage Site Management Plan review. The process for collecting qualitative data could be based on a system of annual returns, where the WHS Coordinator circulates pre-agreed forms to the Partners and key agencies, which are returned and then analysed by the WHS Coordinator and published in an annual report to the Steering Committee.

In relation to visitors and users of the Property, the marketing strategy will establish current baseline performance information that can then be used to set targets and compare subsequent performance figures against.

7.2 Current monitoring arrangements

Currently, the Tarnowskie Góry Land Lovers’ Association performs specialist monitoring of the level of underground waters for tourist routes of the Historic Silver Mine and Black Trout Adit in terms of security of tourist traffic and facilities. The amount of underground waters flowing around the tourist route of the Historic Silver Mine is measured every day; readings are made on water meters in the Angel Shaft’s sump and in God Bless Shaft. As regards the Black Trout Adit tourist route, the water level of the Friedrich Mine Deep Adit is measured every day in the sump of the Sylvester Shaft.

Inspection results are entered to a special water level book. A safe water level for the Historic Silver Mine has been established at 70-80 cm, while for the Black Trout Adit a maximum safe water level amounts to 110 cm (if this level is exceeded, the tourist traffic is suspended).

The level of underground waters is monitored and measured also on water gauges in the Staszic (Adolph) Shaft by GPW workers.

For times a year, scientific workers of the University of Silesia conduct water measurements (water flow, water level, pollution level) for the Friedrich Mine Deep Adit in three points (Staszic (Adolph) Shaft, Sylvester Shaft, adit outlet). Measurement results are documented and transferred to the main hydrological authority of tourist routes of the Historic Silver Mine and the Black Trout Adit. The Association carries out a customary monitoring of the Property conservation status outside its management scope. It concerns, among others, adit outlets, tunnels and shafts. At the same time, the Association carries out customary monitoring of changes in planning documents in terms of conservation of the mining landscape.

The City Office conducts an ongoing review of the Municipal Park, Kunszt Park and Washing Tip cultural park status.

The Management plan for the Natura 2000 Special Protection Area ‘Tarnowskie Góry and Bytom Undergrounds’ identifies existing and potential threats to the conservation of a proper protection status of natural habitats and animal species and their habitats covered by protection. Activities concerning the monitoring of status of objects of protection and monitoring of the execution of protective activities for Natura 2000 area include:

- annual inspection of shaft/inlet patency, technical condition, safeguards condition and conservation of access opening and grille (e.g. replacement of lock/padlock, anti-corrosion protection, painting),
- winter monitoring and inspection of conservation status of corridors. In accordance with the Chief Inspectorate for Environmental Protection monitoring. Monitoring takes place at least once in four years.

The supervisory authority for the abovementioned activities is the Regional Directorate for Environmental Protection in Katowice.

Monitoring in the scope of protection of historic objects is performed by Silesian Voivodeship Monuments Protection Office in Katowice (particularly facilities and areas entered to the Register of Historic Monuments) and Poviat Monument Conservator (particularly objects and areas entered to the Municipal Inventory of Historic Monuments).

The Tarnowskie Góry Land Lovers’ Association is responsible for monitoring of underground tourist routes of the Historic Silver Mine and Black Trout Adit in the field of security of tourist traffic and facilities.
7.3. Monitoring framework and key indicators

The main categories and thematic groups were defined in relation to international standards and identified threats. In the course of the current Management plan implementation the task is to gather and analyse available data relevant to the protection, conservation and presentation of the Property. The collected data will be used to determine a baseline (reference) information and develop specific, key monitoring indicators, qualitative and quantitative, including indicators for measuring objectives and the Management Plan implementation (effects). The next step will be to launch systematic monitoring of the Property’s state of conservation in accordance with agreed principles. The list of proposed key indicators and monitoring rules will be subject to wider consultations.

The Coordinator and specialist units and authorities will play a key role in the monitoring process. Apart from monitoring selected problems, the Coordinator’s task will be to meet monitoring deadlines, organise work of persons and units physically performing certain inspections as well as to store relevant protocols and reports.

Table 8. Indications for monitoring arrangements and its organisation

<table>
<thead>
<tr>
<th>Monitoring categories</th>
<th>Monitoring themes</th>
<th>Measurement method</th>
<th>Frequency</th>
<th>Main responsible body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring the state of conservation of the Property</td>
<td>Monitoring of geological and engineering processes and phenomena</td>
<td>Monitoring of specialist units - monitoring of surface transformations (inspection of vertical and horizontal shifts of land, both constant and temporary), - monitoring of deep shifts of the rock mass, - monitoring of hydrogeological phenomena, - air quality and gas emission monitoring system, - verification and evaluation of safety as well as identification of and combating risks and other issues related to post-mining areas.</td>
<td>data gathered continuously and systematically; reported on a yearly basis</td>
<td>State Mining Authority</td>
</tr>
<tr>
<td>Evaluation of the conservation status of buildings and conservation postulates</td>
<td>Monitoring by specialist units - documentation of conservation condition, describing a building’s status, taking account of a degree and type of damage of particular parts of the facility (among others, foundations, walls, vaults, ceilings, roofs, equipment, installations, building statics), - verification of historic building’s exposure conditions (among others, geotechnical conditions, weather conditions, environmental pollution, usufruct, urban planning pressure), - specification of destructive factors, including sources of dampness (among others, types of bacteria, salinity level, structure of crusts), - conservation postulates resulting from the analysis of conservation condition, specifying basic forms of object protection and postulates concerning usufruct, if usufruct has been assessed as improper, - photographic documentation.</td>
<td>data gathered continuously and systematically; reported on a yearly basis</td>
<td>Silesian Voivodeship Monuments Protection Office in Katowice National Heritage Board of Poland Coordinator</td>
<td></td>
</tr>
</tbody>
</table>
Table 8. Indications for monitoring arrangements and its organisation, cont.

<table>
<thead>
<tr>
<th>Monitoring categories</th>
<th>Monitoring themes</th>
<th>Measurement method</th>
<th>Frequency</th>
<th>Main responsible body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection of status of green areas and wooded areas</td>
<td>Monitoring by specialist units - monitoring of species included in plant communities, - monitoring of plant health, particularly woody plants, - monitoring of development of surroundings of property attributes in terms of their potential impact on habitat conditions within and around the Property elements, - identification of factors that adversely influence the environmental condition, - recommendations concerning necessary protective activities (conservation and management).</td>
<td>data gathered continuously and systematically; reported on a yearly basis</td>
<td>Regional Directorate for Environmental Protection in Katowice</td>
<td>Coordinator (Bytom)</td>
</tr>
<tr>
<td>Monitoring of spatial policy</td>
<td>Inspection of planning documents</td>
<td>- review and photographic documentation of site attributes - review of planning documentation and projects - review of issued decisions and permits - analysis of satellite photos</td>
<td>data gathered continuously and systematically; reported on a yearly basis</td>
<td>City Offices and Commune Councils (Tarnowskie Góry, Zbrosławice, Bytom)</td>
</tr>
<tr>
<td>Ownership changes</td>
<td>- monitoring ownership changes (new owners and stakeholders, division of area entered to the register of historic buildings)</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>City Offices and Commune Councils (Tarnowskie Góry, Zbrosławice, Bytom)</td>
<td>Coordinator (Bytom)</td>
</tr>
<tr>
<td>Changes in site and area functions</td>
<td>- monitoring changes in site and area functions</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>City Offices and Commune Councils (Tarnowskie Góry, Zbrosławice, Bytom)</td>
<td>Coordinator (Bytom)</td>
</tr>
<tr>
<td>Monitoring of risks</td>
<td>Monitoring of key risks (floods/draughts, fires, collapse/landslide, natural succession, vandalism, lack of protection and conservation activities, urban planning pressure)</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>Coordinator</td>
<td>Coordinator</td>
</tr>
</tbody>
</table>

Table 8. Indications for monitoring arrangements and its organisation, cont.

<table>
<thead>
<tr>
<th>Monitoring of research and documentation of a site and conservation and protection efforts</th>
<th>Scientific research, seminars, meetings, lectures, conferences</th>
<th>- list of scientific researches, seminars, meetings, lectures, conferences (date, organising entity, financing sources, topics, schedule, photographic documentation, publications)</th>
<th>data gathered continuously and systematically; reported at the end of the CMP circle</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrying out documentation and stock-taking</td>
<td>- list of documentations and inventories conducted</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>Coordinator</td>
<td></td>
</tr>
<tr>
<td>Conservation work</td>
<td>- list of conservation works (a survey on a range of works, performance date, financing sources, contractors) - participation of a coordinator’s representative in approving programmes and acceptance of works</td>
<td>data gathered continuously and systematically; reported on a yearly basis</td>
<td>Coordinator</td>
<td></td>
</tr>
<tr>
<td>Legal protection</td>
<td>- list of decisions and applications for entry in the register of monuments and decision and submitted applications relating to other forms of protection</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>Coordinator</td>
<td></td>
</tr>
<tr>
<td>Monitoring of access</td>
<td>Tourism density</td>
<td>- counting tourists at key sites - number of school visits</td>
<td>data gathered continuously and systematically; reported on a yearly basis</td>
<td>City Offices and Commune Councils (Tarnowskie Góry, Zbrosławice, Bytom) Silesian Voivodeship Monuments Protection Office in Katowice National Heritage Board of Poland Regional Directorate for Environmental Protection in Katowice</td>
</tr>
</tbody>
</table>
Table 8. Indications for monitoring arrangements and its organisation, cont.

<table>
<thead>
<tr>
<th>Monitoring categories</th>
<th>Monitoring themes</th>
<th>Measurement method</th>
<th>Frequency</th>
<th>Main responsible body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourist information/publications</td>
<td>- a bibliographic list of publications related to a site - number of visits to the website</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>Coordinator</td>
<td></td>
</tr>
<tr>
<td>Accessibility of a site</td>
<td>- transport accessibility list - accessibility period list</td>
<td>data gathered continuously and systematically; reported on a yearly basis</td>
<td>City Offices and Commune Councils (Tarnowskie Góry, Zbrosławice, Bytom) Coordinator</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>- list of projects and achievements in the scope of infrastructure (car parks, toilets, information points, roads, catering facilities)</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>City Offices and Commune Councils (Tarnowskie Góry, Zbrosławice, Bytom) Coordinator</td>
<td></td>
</tr>
<tr>
<td>Media information</td>
<td>- documentation and number of media relays</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>Coordinator</td>
<td></td>
</tr>
<tr>
<td>Monitoring of the site functioning in a social sphere</td>
<td>- list of plans and their updates</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>City Offices and Commune Councils (Tarnowskie Góry, Zbrosławice, Bytom) Coordinator</td>
<td></td>
</tr>
<tr>
<td>Inspection of visual identification system</td>
<td>- inspection of facilities, publications and memoirs - photographic documentation</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>Coordinator</td>
<td></td>
</tr>
<tr>
<td>Strengthening communication</td>
<td>- list of new educational materials - list of new programs, sightseeing and hiking trails</td>
<td>data gathered continuously and systematically; reported at the end of the CMP circle</td>
<td>Coordinator</td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Indications for monitoring arrangements and its organisation, cont.

<table>
<thead>
<tr>
<th>Economic monitoring</th>
<th>Funds and employment</th>
<th>Main responsible body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic monitoring</td>
<td>- invested public funds - invested private funds - income from tourism as % of GDP (PKB) - hiring temporary or permanent</td>
<td>data gathered continuously and systematically; reported on a yearly basis Coordinator</td>
</tr>
</tbody>
</table>

7.4. Review

Progress and performance of this Management Plan will be reviewed annually using the indicators and coordinating mechanisms discussed earlier in Section 6 and 7. This Management Plan has a five-year life and will need to be reviewed in 2021. This process will involve public consultation and lead to the adoption of a new or amended Plan for a further five-year cycle.
Interpretation and Tourist Access Strategy
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1. Introduction
The Interpretation and Tourist Access Strategy for Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System property is a dynamic ongoing framework within which to communicate the significances of the Property and to sustainably manage its visitors.


Interpretation is part of a range of heritage-related communication work that can also underpin education, marketing, visitor and tourism information, orientation and visitor management. These forms of communication often use the same media as interpretation, such as website, panels and leaflets, but there are crucial differences between them.

Interpretation helps to reveal, and for people to understand, the significances of a heritage place. Marketing and tourism materials primarily aim to sell a heritage product, whilst visitor information tells people what there is to do and see, and orientation helps people find their way around. Visitor management can be positively managed by all of these.

Interpretation refers to the full range of potential activities intended to heighten public awareness and enhance understanding. These can include print and electronic publications, on-site and related off-site installations, educational programmes, community activities, and ongoing research, training, and evaluation of the interpretation process itself.

Presentation more specifically denotes the carefully planned communication of interpretive content through the arrangement of interpretive information, physical access, and interpretive infrastructure at the heritage site itself. It can be conveyed through a variety of technical means, including, yet not requiring, such elements as informational panels, museum-type displays, formalised walking tours, lectures and guided tours, and multimedia applications and websites.

Values, their distribution, and their contribution to Outstanding Universal Value (OUV) were communicated in the Nomination Document and form the core of interpretive content for the Strategy. Interpretation is a primary tool that can help to reveal OUV of the Property, and how each attribute contributes to this, a responsibility that falls to States Parties on the inscription of a World Heritage Site on their territory.

We believe that by protecting, conserving and enhancing the Outstanding Universal Value of Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System that it will ensure that the proud memory of the achievements of our ancestors remains vivid, and that the heritage left to us passes on – in its fullest possible form – to future generations.

Every effort will be made to share and promote this vision, and to ensure the consultation and participation of local communities in the protection, conservation and interpretation of their local heritage.
2. Principles
Principle 1: Access and understanding

Interpretation, presentation and promotion programmes should facilitate physical and intellectual access by the public to cultural heritage sites. This must be done in a way that minimises barriers that may otherwise prevent actual, or potential, visitors and users from gaining the maximum benefit from their engagement.

1.1 Effective interpretation and presentation should enhance personal experience, increase public respect and understanding, and communicate the importance of the conservation of cultural heritage sites.

1.2 Interpretation and presentation should encourage individuals and communities to reflect on their own perceptions of a site and assist them in establishing a meaningful connection to it. The aim should be to stimulate further interest, learning, experience, and exploration.

1.3 Interpretation and presentation programmes should identify and assess their audiences demographically and culturally. Every effort should be made to communicate the site’s values and significance to its varied audiences.

1.4 The diversity of language among visitors and associated communities connected with a heritage site should be taken into account in the interpretive infrastructure. A level of multilingual interpretation is desirable at sites. Multilingual information and retrieval is easier with increasing digitised content. Websites should be ideally interoperable across appropriate languages.

1.5 Interpretation and presentation activities should also be physically accessible to the public, in all its variety.

1.6 In cases where physical access to a cultural heritage site is restricted due to conservation concerns, cultural sensitivities, adaptive re-use, or safety issues, interpretation and presentation should be provided off-site.

Principle 2: Information sources

Interpretation and presentation should be based on evidence gathered through accepted scientific and scholarly methods.

2.1 Interpretation should reveal the range of written information, illustrative records, material remains, traditions, and meanings attributed to a site. The sources of this information should be documented, archived, and made accessible to the public.

2.2 Interpretation should be based on a well-researched multidisciplinary study of the site, its setting and wider context. It should also acknowledge that meaningful interpretation necessarily includes reflection on alternative historical hypotheses, local traditions, and stories.

2.3 At cultural heritage sites where traditional storytelling or memories of historical participants provide an important source of information about the significance of the site, interpretive programmes should incorporate these oral testimonies.

2.4 Visual reconstructions, whether by artists, architects, or computer modelers, should be based upon detailed and systematic analysis of environmental, archaeological, architectural, and historical data.

2.5 Interpretation and presentation programmes and activities should also be documented and archived for future reference and reflection.

Principle 3: Context and setting

Interpretation and presentation of cultural heritage sites should relate to their wider social, cultural, historical, and natural contexts and settings.

3.1 Interpretation should explore the significance of a site in its multi-faceted historical, political, spiritual, and artistic contexts. It should consider all aspects of the site’s cultural, social, and environmental significance and values.

3.2 The public interpretation of a cultural heritage site should clearly distinguish and date the successive phases and influences in its evolution. The contributions of all periods to the significance of a site should be respected.

3.3 Interpretation should also take into account all groups that have contributed to the historical and cultural significance of the site.
3.4 The surrounding landscape, natural environment, and geographical setting are integral parts of a site’s historical and cultural significance, and, as such, should be considered in its interpretation.

3.5 Intangible elements of a site’s heritage such as cultural and spiritual traditions, stories, music, dance, theatre, literature, visual arts, local customs and culinary heritage should be considered in its interpretation.

3.6 The cross-cultural significance of heritage sites, as well as the range of perspectives about them based on scholarly research, historic records, and living traditions, should be considered in the formulation of interpretive programmes.

Principle 4: Authenticity

Interpretation and presentation of cultural heritage sites must respect the basic tenets of authenticity in the spirit of the Nara Document (1994). Authenticity of information that underpins interpretive content is paramount in the protection of cultural values.

4.1 Authenticity is a concern relevant to human communities as well as material remains. The design of a heritage interpretation programme should respect the traditional social functions of the site and the cultural practices and dignity of local residents and associated communities.

4.2 Interpretation and presentation should contribute to the conservation of the authenticity of a cultural heritage site by communicating its significance without adversely impacting its cultural values or irreversibly altering its fabric.

4.3 All visible interpretive infrastructures (such as access pathways and information panels) must be sensitive to the character, setting and the cultural and natural significance of the site, while remaining easily identifiable. Fixed interpretation should use materials sympathetic to its surroundings and be located so it does not impinge on the character of a site or building.

4.4 On-site concerts, dramatic performances, and other interpretive programmes must be carefully planned to protect the significance and physical surroundings of the site and minimise disturbance to the local residents.

Principle 5: Sustainability

Interpretation and tourist access plan for a cultural heritage site must be sensitive to its natural and cultural environment, with social, financial, and environmental sustainability among its central goals. Environmental sustainability is an important issue and best practice should be followed in all projects. Live interpretation (e.g. guided walks and demonstrations) is probably the most environmentally friendly format, although it may not be suitable for other reasons.

5.1 The development and implementation of interpretation and presentation programmes should be an integral part of the overall planning, budgeting, and management process of cultural heritage sites.

5.2 The potential effect of interpretive infrastructure and visitor numbers on the cultural value, physical characteristics, integrity, and natural environment of the site must be fully considered in heritage impact assessment studies.

5.3 Interpretation and presentation should serve a wide range of conservation, educational and cultural objectives. The success of an interpretive programme should not be evaluated solely on the basis of visitor attendance figures or revenue.

5.4 Interpretation and presentation should be an integral part of the conservation process, enhancing the public’s awareness of specific conservation problems encountered at the site and explaining the efforts being taken to protect the site’s physical and functional integrity and authenticity.

5.5 Any technical or technological elements selected to become a permanent part of a site’s interpretive infrastructure should be designed and constructed in a manner that will ensure effective and regular maintenance.

5.6 Interpretive programmes should aim to provide equitable and sustainable economic, social, and cultural benefits to all stakeholders through education, training and employment opportunities in site interpretation programmes.

Principle 6: Inclusiveness

Interpretation and presentation of cultural heritage sites must be the result of meaningful collaboration between heritage professionals, host and associated communities, and other stakeholders.

6.1 The multidisciplinary expertise of scholars, community members, conservation experts, governmental authorities, site managers and interpreters, tourism operators, and other professionals should be integrated in the formulation of interpretation, presentation and promotion programmes.

6.2 The rights, responsibilities, and interests of property owners and host and associated communities should be noted and respected in the planning of site interpretation, presentation and promotion programmes.
6.3 Plans for expansion or revision of interpretation and presentation programmes should be open for public comment and involvement. It is the right and responsibility of all to make their opinions and perspectives known.

6.4 Because the question of intellectual property rights is especially relevant to the interpretation process and its expression in various communication media (such as on-site multimedia presentations, digital media, and printed materials), legal ownership and right to use images, texts, and other interpretive materials should be discussed, clarified, and agreed in the planning process.

Principle 7: Research, training, and evaluation

Continuing research, training, and evaluation are essential components of the interpretation of a cultural heritage site.

7.1 The interpretation of a cultural heritage site should not be considered to be completed with the completion of a specific interpretive infrastructure. Continuing research and consultation are important to furthering the understanding and appreciation of a site’s significance. Regular review should be an integral element in every heritage interpretation programme.

7.2 The interpretive programme and infrastructure should be designed and constructed in a way that facilitates ongoing content revision and/or expansion.

7.3 Evaluation of learning and interpretation will help to ensure objectives are met, and to improve future provision. Interpretation and presentation programmes and their physical impact on a site should be continuously monitored and evaluated, and periodic changes made on the basis of both scientific and scholarly analysis and public feedback. Visitors and members of associated communities as well as heritage professionals should be involved in this evaluation process.

7.4 Every interpretation programme should be considered as an educational resource for people of all ages. Its design should take into account its possible uses in school curricula, informal and lifelong learning programmes, communications and information media, special activities, events, and seasonal volunteer involvement.

7.5 The training of qualified professionals in the specialised fields of heritage interpretation and presentation, such as content creation, management, technology, guiding, and education, is a crucial objective. In addition, basic academic conservation programmes should include a component on interpretation and presentation in their courses of study.

7.6 On-site training programmes and courses should be developed with the objective of updating and informing heritage and interpretation staff of all levels and associated and host communities of recent developments and innovations in the field.

7.7 International cooperation and sharing of experience are essential to developing and maintaining standards in interpretation methods and technologies.
3. Strategic aims
Through the implementation of this Strategy we anticipate our audience to achieve specific gains in what they experience, learn, feel and do as a result of the interpretation and presentation that is provided for, and at, the Property, and its general awareness achieved through promotion. These aims are further expanded in 5. Interpretation and Tourist Access Plan.

1. A facilitated understanding and appreciation of the Property, and associated and related features in its wider setting, thus fostering public awareness and engagement in the protection and conservation of its values.

2. The meaning and values of the Property communicated to a diverse range of audiences through careful, documented recognition of significance by accepted scientific and scholarly methods, safeguarding tangible and intangible values, whilst presenting and promoting material in an accessible way that meets various audience needs.

3. A respect for the authenticity and sense of place of all aspects of the Property through the communication of the significance of its historic fabric and cultural values, and through their protection from the adverse impact of intrusive interpretive infrastructure, visitor pressure, and inaccurate or inappropriate interpretation and promotion.

4. A spirit of inclusiveness in the interpretation of the Property by facilitating the involvement of stakeholders and associated communities in the development and implementation of interpretive programmes, promoting public understanding of, and participation in, ongoing conservation efforts.
4. Strategic objectives
1. The Nomination Document has established a new set of values for the Property, and these values must be progressively reflected in all associated media hosted by all stakeholders, whether on-site (for example interpretation panels) or off-site (for example website, leaflets and booklets).

2. Establish an informal interpretation committee and create an appropriate consistent baseline of information and interpretive provision across principal attributes of the Property, and ensure this is incorporated where relevant into promotional programmes.

3. Develop technical and professional guidelines for heritage interpretation and presentation, including technologies, research, and training. Such guidelines must be appropriate and sustainable in their social and financial contexts.

4. Ensure long-term maintenance of the interpretive infrastructure and regular review of its interpretive contents, updating promotional programmes as appropriate.
5. Interpretation and Tourist Access Plan
This main section sets out in more detail what we want to achieve and how we intend to do it.

5.1 Specific aims for the interpretation
1. Ensure the appropriate presentation of the Property using comprehensive themes and topics that are linked in a coherent and compelling story.
2. Engage and motivate target audiences so that the visitor experience is worthwhile, satisfying and enjoyable.
3. ‘Educate’ audiences in a way that meets their range of learning needs, increases their knowledge and understanding, and influences their attitudes and feelings in a way that positively contributes to the vision and aims of the Property’s Management Plan.
4. Identify opportunities for greater co-operation among existing interpretation providers, thus maximising resources, providing integrated and consistent presentation and preventing duplication of effort.

5.2 Specific objectives for the interpretation
1. Establish guidelines that employ the overarching interpretive theme (derived from OUV), shared between all attributes, as the context for a hierarchy of attribute-specific themes and stories.
2. Integrate a diverse range of media across all attributes of the Property to deliver engaging interpretation that enhances the visitor experience.
3. Ensure all property values are integrated into interpretive content.
4. Ensure consistent and integrated presentation across all stakeholders.

5.3 Specific aims for tourist access
1. To utilise tourism as a sustainable driving force for the social and economic development of Tarnowskie Góry and its wider setting, strongly influenced by World Heritage values, local identity and common values.
2. To ensure that tourism programmes positively enhance the perception of Tarnowskie Góry and its wider setting, in particular its distinctive and internationally significant industrial heritage, together with its local identity and regional-national cultural significance.
3. To develop and support tourism programmes that contribute to the local economy, including the strengthening of local businesses and the creation of new jobs.
4. Seek sustainable revenue from tourism programmes that support conservation and management of the Property.
5. To pursue environmentally sensitive visitor movement through organised transport systems in the promotion and management of the Property.
6. To develop a cohesive signage and orientation strategy that directs visitors around the Property.
7. To establish new tourism infrastructure, where required (including coach and car parking, toilets, etc), that is sensitive to heritage values and wide ranging audiences.
8. To continue to expand new tourism resources for the Property that support and enhance traditional sightseeing, active recreation such as specialised underground exploration, mountain biking, horse riding, cycling, running and walking, and themed and didactic trails that enrich understanding of the cultural and natural environment.
9. To increase educational visits, from schools and universities to wider workshops, seminars and conferences.
10. To integrate newly-defined heritage values of the Property into Tarnowskie Góry, Zbrosławice and Bytom and strategic plans for sustainable development of the region and sustainable urban mobility.
11. Improve access for people with disability.

5.4 Specific objectives for tourist access
1. Develop guidelines for the Property brand and visual identification, including property name, logo, colour scheme, font etc., to ensure consistent and effective promotion.
2. Develop existing web provision for the Property, integrating newly defined values and respecting the principles of this Strategy.
3. Develop area-wide and site-specific awareness, orientation and interpretation signage that respect the principles of this Strategy.
4. Increase the accessibility of tourist information in Tarnowskie Góry, including at the Tourist Information Centre (expanding opening times during the year), the main hall of the bus station (new information provision).
5. Develop a partnership approach to tourism, including visits to and use of shared assets, and seeking utilisation and development of the narrow-gauge railway (Upper Silesian Narrow Gauge Railways Association in Bytom) for environmentally sensitive visitor movement around the Property (for example between Angel Shaft, Friedrich Mine Washing Tip, and the dolomite quarries and Segiet Reserve).

6. Develop capacity guidelines for visitor numbers at property attributes to inform tourism infrastructure development.

7. Establish, in conjunction with property stakeholders, visitor recording (numbers, audience type, provenance etc) at sites and other facilities (for example tourist information centre).

8. Expand and optimise offers by proactively developing enriching experienced-based proposals to cater for wide ranging interests of the diverse audience.

5.5 Audience

Our audiences across the Property are diverse, but require greater analyses and understanding in terms of their needs – including not only current users and visitors and people attending our principal attractions and events but those who could become visitors and users in the future. We must view our audience in terms of our local community, the wider regional and national community, and the international community – putting people at the centre of our thinking.

Presently, detailed analyses are carried out at the voivodeship level. Recent research led by ARC Rynek i Opinia shows that in 2014 approximately 3.3 million tourists visited the Silesian voivodeship and spent about PLN 3.4 billion in total.

Through proactive steps to develop audiences we will seek to:

1. Gain a greater understanding of what our visitors want.

2. Increase the commitment of existing audiences, with a greater number of people engaging more frequently, or getting more actively involved, maintaining our appeal and remaining relevant to them.

3. Attract new and wider audiences, engaging first-timers and people from under-represented groups, reflecting the diversity of our visitors, and potential visitors, from local-regional-national-international sources.

4. Build on-going relationships to encourage participation and support for protection, conservation and presentation of the Property from as broad a range of people as possible for the long-term.
5.6 Themes

Themes and topics help to deliver the messages that motivate our work. Themes help to convey the main points or message by grouping related topics in a way that readily connects with the target audience. A number of topics can support an individual theme. Interpretation should be organised around a hierarchy of themes and should offer an integrated message.

Themes should connect, not segment, key aspects of the Property and its wider story. Themes may be tied to tangible features (such as landscapes, sites and artefacts) or intangible (such as mining traditions or beliefs) aspects of the Property, or both. Intangible elements are often best supported by tangible elements.

Section 1.2 of the International Cultural Tourism Charter states: Individual aspects of natural and cultural heritage have differing levels of significance, some with universal values, and others of national, regional or local importance. In reviewing these significances, a framework can be produced to develop interpretive themes that are supported by a range of topics.

Overarching master theme

The highest level of significance is the universal outstanding value (World Heritage).

The overarching principal theme for the presentation of the site should be derived from the draft Statement of Outstanding Universal Value (OUV), proposed in the Nomination Dossier.

Draft Statement of Outstanding Universal Value

Brief synthesis

Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System is located in the Silesian plateau of southern Poland, in one of Europe’s classic metallogenic provinces. It is the largest and most significant historic underground lead-silver-zinc mine in Poland, and possesses a monumental drainage network that features a uniquely integrated public water supply that was both pioneering and the largest of its kind in the world. Constructed in technically challenging terrain, the underground mining and water system comprises over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, numerous ore-extraction chambers and shafts. Preserved with sustained access by a community association for over sixty years, this network is complemented by substantial remains of the principal water supply infrastructure (above and below ground) together with directly connected surface elements that comprise essential mining landscape features (such as adit portals and ditches, shafts and tips), and the most important examples of post-mining community commemorative and recreational sites that are a characteristic of the early preservation of Tarnowskie Góry’s distinctive mining topography.
Interrelated outstanding values include:

The magnitude, geographical reach and international impact of the mine’s lead and (later) zinc production

Mining began in the Middle Ages as numerous small-scale artisanal lead-silver mines funded by merchants and the local nobility, before becoming a large-scale ‘model’ royal lead-zinc mine during the period of concerted Prussian state-led industrialisation that began in the second half of the eighteenth century and which fostered, in Upper Silesia, the first major heavy industries in German territory. Lead exports from Tarnowskie Góry in the Middle Ages supported an extensive European metallurgical supply complex, in which the production of lead, copper and silver existed in the context of mutually inter-dependent inter-continental trade, and which brought European silver output to unprecedented levels in such major mining and smelting centres as Kutná Hora, Banská Štiavnica, Banská Bystrica, Nuremberg, Thuringia, the Tirol and the Erzgebirge. This contributed to the general economic and social development of Europe, and the consequent flow of silver bullion and specie to China, the most singularly important product that led to the birth of world trade. From the first recognition in Europe of zinc as a separate metal (Georgius Agricola’s ‘zincum’ observed in Silesia in the mid-sixteenth century), local production propelled Germany as the world leader throughout the nineteenth century, meeting almost half of global demand for this ‘architectural metal’.

The ingenious technical ensemble of mine drainage and water supply illustrates the vigorous pan-European development and exchange of mining technology and demonstrates how mine water was managed in an innovative and environmentally sustainable manner that was ahead of its time

The underground water management system reflects a masterpiece of hydraulic engineering, a 300-year development that adapted with changes in scale and technology to combat an unusually high water inflow of up to three times that commonly encountered in central European mines. The challenge was exacerbated by a gentle undulating topography with only two small rivers, at just slightly lower elevations and with corresponding shallow river gradients, to serve as mine water receivers. Dewatering developed in symbiosis with water supply from as early as 1797 when the mine adopted the first Boulton & Watt steam pumping engine exported for metal mining purposes on the European continent. This was followed by their purposeful imitation (and of earlier imported British Newcomen engines), a consequence of which was the foundation, in Silesia, of the German steam engine manufacturing industry that impacted substantially on global industrialisation. Whilst it was mining that engendered the development of the steam engine, it was mining, too, that provided the technical wherewithal for the development of the world’s first large-scale public water supply systems based on the steam-powered pumping of groundwater, mining engineers inadvertently contributing to the foundations of the modern water industry. The nominated site is a palimpsest that resulted in a complementary and sustainable relationship of mine drainage with water abstraction for local and regional supply and, later, of both potable and industrial water to sustain exponential population growth and development of the emergent Prussian (German) industrial revolution and the foundation of the Upper Silesian Industrial Agglomeration that was in its vanguard.

Conservation of industrial heritage

Tarnowskie Góry’s ‘Underworld’, abandoned by the 1930s, prompted an early conservation movement that continues to manage and assiduously care for the site that has been the focus of sustained conservation and public access for scientific, educational and tourism purposes by
a community association since 1957. Such commitment shows not only the strength of mining and industry at the heart of the Silesian cultural tradition but also a further contribution to Poland’s conservation of some of the world’s most significant underground mining heritage.

Justification for criteria
The site is nominated under justification for inscription criteria:

(i) to represent a masterpiece of human creative genius
The extensive underground adit network, and its functional connecting elements of shafts and surface channels, together with the pioneering waterworks that was integrated with underground mine water management, are a masterpiece of mid-sixteenth to late-nineteenth century hydraulic engineering. They represent the peak of European skills in such dewatering technology at a time when mining engineering provided the technical wherewithal for the development of the world’s first large-scale public water supply systems based on the steam-powered pumping of groundwater;

(ii) to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design
The colossal and accessible underground network, including the mine dewatering system, ore-extraction network and its topographical expressions at surface, together with the pioneering and integrated public water supply facility, are testimony to larger socio-technical world systems from the very beginning. They exhibit the interchange of technology, ideas and expertise in mining engineering, metallurgical systems and public water supply between leading mining and industrial centres in Saxony, Bohemia, Hungary, Britain and Poland;

(iii) to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared
The historic underground mining environment together with directly connected surface features, including commemorative public parks and nature reserves that reutilize yet preserve distinctive mining topography, are protected by a vibrant living culture with a long-standing commitment to conservation and public access. The Property is vivid testimony to a mining tradition with a 500-year-old pedigree, and commitment to it, from local to national levels, reflects a further contribution to Poland’s conservation of some of the world’s most significant underground mining heritage;

(iv) to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history
Substantial remains of the principal integrated public water supply infrastructure, together with an unusually accessible and monumental underground network of over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, shafts and extensive mined chambers, with the addition of directly connected surface and landscape features, are a unique and enduring technical ensemble of metal mining and water management. The ensemble is distinguished by a significant output of lead and zinc that sustained international metallurgical and architectural demands of the time, and a water system that ultimately drained the mine by gravity and met the needs of the most industrialized and urbanized region in Poland, and amongst the largest in Europe, providing a unique and early model of sustainable water management in the active mining environment.

Statement of integrity
The overall size of the Property provides a complete representation of all the significant attributes of the mine and its water management system, supporting historical and geographical-spatial integrity, as well as the structural and functional integrity. A substantial part of the Property is underground, and all surface features are linked directly to it in the three dimensions, and have been delineated at surface as discrete character areas.

Statement of authenticity
The cultural value of the nominated site is reliably and credibly expressed through the form and design of mining features both below and above ground, their materials and workmanship manifested by original and intact physical and structural remains, their use and function evidenced by archives and detailed archaeological investigation, and its location and setting still pervaded by highly authentic and characteristic mining features in the landscape.

Requirements for protection and management
The State Party has designated the Property for which the preservation is in the public interest and which it protects through various forms of legal protection. The World Heritage Centre of the National Heritage Board of Poland cooperates directly with the Management Coordination Team and the Steering Committee of the stakeholder group that is responsible for the protection and management of the site at the local level. A Management Plan guides protection, conservation and presentation of the attributes that carry Outstanding Universal Value.

The Statement of OUV has several major strands. Each one provokes many questions:

1. The Property’s mining history, focused upon the most universally significant period of 1490-1600 and 1784-1910. Who was involved? What happened, how, when and where? Why did it happen and why is it so important?

2. The Property’s water management history, focused upon the most universally significant period of 1784-1910, but also referencing 16th c adit development. Who was involved? What happened, how, when and where? Why did it happen and why is it so important?

3. The surviving historic landscape of the Property. What is the meaning of this landscape? What is its contemporary context and significance? Why should it be celebrated?

The Property contains a powerful inventory of interpretive resources: of the underground historic environment, of landscapes, monuments and buildings, objects, literature and stories. Collectively, they are of outstanding significance.
It is worth equipping the site with a short slogan popularizing the World Heritage property and its values, aimed at the potential site audience – the local community and visitors. It should be a concise, pertinent and expressive single sentence that refers to the history and significance of the place and evokes positive connotations. Such a slogan, for example, could be the following:

in English
tarnogórskie underground – work of nature, art of people

in Polish
podziemia tarnogórskie – dzieło przyrody, sztuka człowieka

Examples of themes and headings:

Phase I mining
A lead-silver bonanza! Medieval Mining in Tarnowskie Góry: 1490-1600. This could, for example, be applied to interpretation in the landscape at The Mining Landscape of Silver Mountain, of form a first chapter in a booklet or museum display.
A ‘melting pot’ of mining culture could reference the technical and cultural interchange of German, Czech and Polish miners (for example in the Ordunek Gorny of 1528) and later of British engineers (late-18th/early 19th century).
An insatiable demand for lead, and the revival of European silver could convey the crucial role of lead in the extraction of silver across Europe from 1490 to the 1560s.

Phase II mining
Conflict, conquest and State industrial policy: Mining and the Industrial Revolution, 1784-1910 could encompass the distinctive industrial model applied by Prussia in the development of Friedrich Mine and other Royal industries (iron and coal) in Silesia.

Water management
Battling with water: the Water Management System could embrace the remarkable symbiosis that the Property demonstrates in terms of removing water from the mines (the greatest problem in Silesian mining), and of supplying water to people and industry (the shortage of which was caused by mining).

General conservation of the Property
Care, Conservation and Management

Legacy in the Landscape
The Tarnowskie Góry 'Underworld'; Mining Parks
5.7 Audit

An outline assessment and principal inventory of sites, both in terms of interpretation and the tourism scenario, was made in order to define principal assets, visitor levels and their characteristics. The key sites that emphasise the cultural mining heritage of the Property, together with the history of Tarnowskie Góry and its surroundings, are the Historic Silver Mine and the Black Trout Adit. In 2014 a total of over 110,000 guests visited the sites and experienced the underground tours. Other sites that represent this cultural heritage and that are currently available to the public include the Municipal Park (attribute 3.6), Friedrich Mine Washing Tip (attribute no. 3.4), Mining Landscape of Silver Mountain (attribute no. 3.3) and the Original Site of Friedrich Mine (attribute no. 3.5). These are summarised as follows:

1. The Historic Silver Mine
(attributes numbers 2.1, 2.2 and 2.3, part of attribute 0.1)
Located in Bobrowniki Śląskie district, at 81 Szczęścio Boże Street.
Geographical coordinates: 50°25'31.8"N 18°50'58.9"E
The Historic Silver Mine was opened for tourists in 1976. Since then over 2.5 million people visited the mine. Until recently, the site was visited primarily by organised groups from across Poland. Peak annual visitor numbers in excess of 100,000 were achieved in 1997. Unfortunately, some amendments in the legislation concerning organised school trips, combined with new tourist facilities in the regional industrial heritage sector, resulted in the present, relatively stable, level of approximately 70,000 visitors per annum. According to analysis of visitor characteristics, the mine has been attracting a slightly different audience on an increasing basis, both from Poland and abroad, as opposed to organised groups. This includes families with children, fans of industrial tourism, college and university students, persons of both working age and retirees. The maximum capacity of the Historic Silver Mine is 250-300,000 visitors per year.
Present condition of infrastructure:
The Tourist Centre is located in the main building of the mine. The principal buildings were erected in the 1970s, at the time when the tourist route was established. It is centred on Angel Shaft (attribute 2.1), an elevator being installed to transport tourists from the shaft top to the underground route, giving an authentic shaft experience to start and end the tour. Original stone masonry of the shaft is preserved and partially restored. Other facilities include the Museum of Mining, a small cinema, conference room and souvenir shops. Significant investment between 2011 and 2015 has upgraded facilities and provided major new museum interpretation based around the collections. The Museum of Mining is now a modern educational centre to interpret ore mining in Tarnowskie Góry.

2. Black Trout Adit
(attributes no. 1.7 and 1.6, part of attribute 0.1 and 1.0)
Located in Repty Śląskie district at Sniadeckiego and Repecka Street.
Geographical coordinates: 50°25’48.6”N 18°47’59.4”E and 50°25’37.3”N 18°48’25.5”E
The first tourists visited the adit in 1957, and since then there have been over 2.3 million tourist and educational visits by both organised groups and individuals. Black Trout Adit has a capacity of up to 100,000 visitors per year (this number may change following implementation of the tourist accommodation project at the top of Sylwester Shaft, around the reconstructed shaft overhead building).
Present condition of infrastructure:
The adit is served by two roofed rotundas which provide cover and security for the underground shaft entrances. Flights of stairs are installed in both shafts to access boat moorings, allowing a boat tour connecting between shafts. Unfortunately the stairs make it impossible for certain disabled audiences to reach the adit.
Sylwester Shaft (Adit Shaft No.17, attribute 1.6) – the top of the shaft takes the form a restored stone rotunda with a conical roof. The shaft is 30 metres deep and accesses one of two underground landings where visitor boats can moor safely.
Ewa Shaft (Adit Shaft No.13, attribute 1.7) – the top of the shaft takes the form a restored stone rotunda with a conical roof. The shaft is 20 metres deep and accesses one of two underground landings where visitor boats can moor safely.

3. Municipal Park
(attribute 3.6)
Located in Śródmieście (City Centre) district at Wyszyńskiego Street.
Geographical coordinates: 50°26’26.1”N 18°50’44.4”E
Present condition of infrastructure:
The park and tourist infrastructure consists of a wooden summer-house that serves as a viewing point, sign posts with lane names, an umbrella-shaped summer-house, a pond with a fountain, two restaurants and a shell-shaped concert arena. There is also a sports ground and historic tennis courts, set in the surrounding undulating mining landscape that is host to approximately 50 species of trees (some classified as nature monuments). In the western end of the park is a First and Second World War cemetery.
The historic park is a place for family get-togethers, cultural festivals, outdoor theatre performances and concerts, and also offers street workout equipment and running events organised periodically. Presently, the Town Hall of Tarnowskie Góry does not collect any visitor statistics.

4. Friedrich Mine Washing Tip
(attribute no. 3.4)
Located in Bobrowniki Śląskie district at Długa Street.
Geographical coordinates 50°24’56.1”N 18°51’16.7”E
Present condition of infrastructure:
The 17 metres high heap of dolomite waste from ore-processing covers 1.5 km² and is surrounded by cropland, meadows and the remains of the closed dolomite quarrying plant from the 1950s. The top of the heap, from where there are breath taking panoramic views of Tarnowskie Góry and the Segiet Reserve, is covered partially by calamine grassland and partially by mixed forest with small-scale park architecture. Signage to communicate the historical use of the site and its legal protection status was installed at the base, near informal car parking. Whilst the washing tip is open to the public, the site however lacks car parking infrastructure and is accessed only by an unpaved road. Presently the Town Hall of Tarnowskie Góry does not collect any visitor statistics.
5. Mining Landscape of Silver Mountain
(attribute no. 3.3)
Located in Tarnowskie Góry/Bytom and accessible from Długa Street in Tarnowskie Góry and from Sportowa Dolina Dolomitowa (Sports Dolomite Valley) in Bytom and Blachówka Street.
Geographical coordinates: 50°24'33.3"N 18°50'48.5"E
Present condition of infrastructure:
The landscape comprises the ancient and more modern topography of lead-silver, zinc and iron mining, including extensive ‘pingi’ and ‘warpie’, open and flooded pits, all criss-crossed by tracks and trails predominantly set in woodland. The tree stand here is as old as 130-150 years and consists primarily of beech. The area is widely used for recreation and there is a large number of walking and cycling trails running through the nature reserve Segiet and Srebrna Góra. The natural value of the site is communicated by means of relevant signage, whilst its cultural values are at present lightly addressed. A recreation and tourist centre located nearby includes a ski slope, together with sports equipment rental, a hotel and restaurant. Located nearby major housing complexes, the reserve attracts year-round local visitors such as active recreation enthusiasts, cyclists and walkers. There is approximately 20 km of cycling routes.

6. Original Site of Friedrich Mine
(attribute no. 3.5).
Located in Bobrowniki Śląskie district at Parkowa Street.
Geographical coordinates: 50°25'37.2"N 18°51'35.2"E
Present condition of infrastructure:
The most characteristic element of the attribute is Kunszt Park, created towards the end of the 18th century, including an 8-metre-high mound and historic stand of trees. The whole landscape here, however, is shaped by its mining past and hides a plethora of mining remains, such as early shafts and water management structures, and undulating post-mining terrain with frequent warpas and pingas. Presently, the Town Hall of Tarnowskie Góry does not collect any visitor statistics. The site may be reached by cycling lanes.

5.8 Recommendations for implementation
There will be ongoing planning (2016-17) as to what will be implemented, the media proposed, together with a timetable and costs. This part of a plan will also include concept designs to show how interpretation, presentation and promotion will appear.

Recommendations for implementation will include aspirations and ambitions that include the biggest opportunities for growth and future developments in on-site presentation, general interpretation, marketing and promotion, transport, accommodation, tourist activities and product development. Interpretation and tourism planning will be designed to improve the visitor experience, continue to provide an authentic experience and whilst focused on the property will be guided by a 'destination' approach that takes in the broader landscape of Tarnowskie Góry, its historic centre and wider setting and cultural activity.

Initially, recommendations that follow the audit:

Accessible and already promoted sites:

1. Historic Silver Mine
There are opportunities for the future use of the mine’s constructed, contemporary headframe, located by the Angel Shaft, being several tens of metres tall it dominates the mine as its most iconic element. At the moment the tower is closed for tourists but there are ambitions to utilise the tower as a viewing point that helps to understand the landscape and the relationships between its features. A haulage machine building is located just outside the top shaft building, this being a potential interpretative and educational point where one can learn about the development of steam techniques in Tarnowskie Góry. An operating station of a narrow-gauge railway, together with its working rail track used by the Association of the Upper Silesian narrow-gauge railways of Bytom, are located 600 metres from the mine. The association has its own railway stock and runs between Bytom and Miasteczko Śląskie (21 km) in the Summer. There are considerable opportunities for development and promotion of this experience. There is potential for the development of both: the promotion of this means of transport and the history and significance of the Upper Silesia narrow-gauge railways network that is closely functionally and spatially connected with the Tarnowskie Góry mining landscape. This should be investigated.

2. Black Trout Adit
Presently, due to the lack of professional visitor infrastructure, we plan to create a small-scale educational centre at the Sylwester Shaft. In addition there are plans to replace the park architecture at Ewa Shaft. These changes should be carefully implemented with a high sensitiwenss to the character of the place so as not to intrude or negatively impact upon values.

3. Municipal Park
The Municipal Park is ideal for educational workshops, open air artistic workshops, cross country
running, LARPing or other gaming activities and geocaching. During the winter, the sports ground could be transformed into a skating rink with proper infrastructure, thus enhancing the recreational function for which the space was originally devised.

4. Friedrich Mine Washing Tip
An interpretive, unobtrusive viewpoint should be built at the top of the tip, in the vicinity of the washing tip, perhaps on the premises of the former washing facilities (subsequently re-developed for the administration buildings of the dolomite quarries), it would be desirable to install basic tourist infrastructure. There is also a considerable potential for creating a new, military themed, trail to interpret the military engineering structures from the Second World War (bunkers and entrenchments), and for a new didactic trail revolving around xerophytic meadows and calamine grassland. A historic embankment of a narrow-gauge railway and a working rail track, used by the Association of the Upper Silesian narrow-gauge railways of Bytom, are located within the buffer zone and special protection zones. This should be investigated for visitor management potential.

5. Mining Landscape of Silver Mountain
A so-called didactic path was mapped in 1997 and later printed in the form of a guide. The trail was the first of a series of papers under ‘Nature and didactic paths of Garb Tarnogórski’ (‘Przyrodnicze ścieżki dydaktyczne na Garbie Tarnogórskim’). The project, predominantly aimed at students, is a great addition to standard education and enables the participants to study unique flora and fauna and learn how to protect the environment actively. The existing path should be extended, and further include all the characteristic elements related to historic mining heritage and how these influence habitats and biodiversity. A working track of a narrow-gauge railway, used by the Association of the Upper Silesian narrow-gauge railways of Bytom, is located 600 metres from the Silver Mountain. This will be investigated for visitor management potential. Like in other cases, the potential of the narrow-gauge railway should be investigated.

6. Original Site of Friedrich Mine
The site will be made better accessible and interpreted for visitors in order to promote the history behind the revival of mining in Tarnowskie Góry and the industrial revolution in Upper Silesia. A restoration proposal for the Kunzst Park was developed in 2010 by the Department of Architecture of the Town Hall of Tarnowskie Góry and this is presently under review. The Original Site of Friedrich Mine was heavily influenced by steam technology and there is, therefore, considerable potential for future archaeological investigation to further understand and enhance its significance and interpretation. This should be taken into account before, and whilst implementing the restoration project of the Kunzst Park.

A historic embankment of a narrow-gauge railway and a working rail track, used by the Association of the Upper Silesian narrow-gauge railways of Bytom, are located within the buffer zone and special protection zones. This will be investigated for visitor management potential.
Other attributes, currently not promoted and limited in access and interpretation include:

1. Adolph Shaft Waterworks
   (attribute no. 3.1, which includes attribute 1.3)
   Located at Repty Nowe district, at Wodociągowa Street.
   Geographical coordinates: 50°25'16.1"N 18°50'32.7"E
   The Adolph Shaft Waterworks (Staszic water pumping station complex) consists of two historic brick top shaft buildings (of Adolph and Machine shafts, attribute no. 1.3), historic boiler house with last existing Lancashire Boiler, a porter’s lodge with workshop and a building currently serving as a transformer station. The complex is surrounded by a brick wall. Underground are three massive machine halls with build-on installations for supplying the pipeline with water (steam-operated in the past, latterly operated by electricity). The installations were used for pumping underground waters to the surface and transporting them to Królewska Huta (present day Chorzów) via the system of pipelines. In one of the machine halls one may find a 1920s steam pump, which is a truly unique technical monument. Due to ownership and the type of the activities carried out, the facility is currently not open to the public. However, the site carries substantial heritage values and represents an appealing visitor resource with unique architectural features and alluring public space. Facilities will be planned for tourist access, educational and exhibition purposes. It is crucial that a heritage impact assessment is carried out in order to assess and to avoid potential negative impact of the tourist activity on the heritage and its underground and surface facilities.

2. Mining landscape (19th century)
   (attribute no. 3.2)
   Located in Repty district at Staszica Street and Wodociągowa Street.
   Geographical coordinates: 50°25'19.6"N 18°50'27.1"E
   The landscape features such elements as xerophytic meadows and several warpas and pingas. The area spreads along Staszica Street with mining meadows intercrossed by a historic embankment of a narrow-gauge railway. In addition the area features a World War II bunker. The fields should be included in existing and future tourist routes, but made accessible only from a distance, from existing roads.

3. Friedrich Mine Adit Portal and Ditch
   (attributes nos. 1.9 and 1.10)
   Located in Zbrosławice commune at Ptakowice.
   Geographical coordinates 50°25'46.2"N 18°46'56.6"E
   The attributes consist of a classicist gateway (portal or window of an adit) made of sandstone and limestone masonry, which is referred to as ‘The gate of Gwarki’, and a channel in the form to act as a riverbed for transporting underground waters to the Drama river. The area is substantially covered with trees. It is a priority to make the site accessible for visitors in the context of a heritage impact assessment.
4. God Help Adit Portal and Ditch
(attributes nos. 2.8 and 2.9)
Located in Strzybnica district at Artura Zawiszy Street.
Geographical coordinates: 50°28'12.5"N 18°48'41.8"E
The attributes consist of a recently rebuilt gateway or portal and a 500-metre long channel, commonly referred to as rozza of the adit, which carries underground waters from God Help (Boże Wspomóż) Adit to the Stoła river. Though the attributes are open to the public, the Town Hall of Tarnowskie Góry does not carry out statistical surveys. Interpretive signage will be installed to inform about significance for the development of Tarnowskie Góry mining.

5. Help Happiness Shaft
(attribute no. 1.4)
Located in Repty district at Gliwicka / Kamienna Street.
Geographical coordinates: 50°25'17.0"N 18°49'50.1"E
There are a few trees on a mound surrounding the shaft collar of brick with a ventilation grill on top. This is a significant attribute located on a high visitor traffic route, therefore interpretive and orientation signage should be installed and the site should be linked by a didactic route with other attributes (e.g. Adolph Shaft Waterworks).

6. Adit Engine Shaft No. 22
(attribute no. 1.5)
Located in Repty district at Witosa Street.
Geographical coordinates: 50°25'18.8"N 18°49’05.5"E
The structure of the shaft made of stone, partially enclosed, will be conserved but not made accessible to the public due to surrounding ownership.

7. Adit Shaft No. 5
(attribute no. 1.8)
Located in Zbrosławice commune, Ptakowice district, the attribute consists of the remains of a masonry shaft rotunda around the historic shaft which connects with the Friedr. Deep Adit.
Due to its secluded location, it is imperative to place signage in order for visitors to find it. The signage should be placed near the cycling route in development, which will run from Ewa shaft to Reptowska Street, near the Drama river.

Attributes with restricted public access
Due to their characteristic features and location, as well as for safety reasons, some sites will be restricted from being open to the public. The history of such objects should therefore be communicated using remote media (for example website):
1. Peace Shaft
(attribute no. 1.1)
Located in Bobrowniki Śląskie district, Długa Street.
Geographical coordinates: 50°24’49.5”N 18°51’27.4”E

2. Bohr Shaft
(attribute 1.2)
Located in Bobrowniki Śląskie district, Mała Street.
Geographical coordinates: 50°25’06.2”N 18°51’02.6”E

3. Viper Shaft
(attribute 2.2)
Located in Bobrowniki Śląskie district, Szczęść Boże Street.
Geographical coordinates: 50°25’30.8”N 18°50’43.1”E

4. God Bless Shaft
(attribute 2.3)
Located in Bobrowniki Śląskie district, Szczęść Boże Street.
Geographical coordinates: 50°25’41.4”N 18°50’42.8”E

5. Reden Shaft
(attribute 2.5)
Located in Śródmieście (City Centre). Skośna Street.
Geographical coordinates: 50°25’59.7”N 18°50’54.1”E

6. Kaehler Shaft
(attribute 2.6)
Located in Śródmieście (City Centre), Opolska Street.
Geographical coordinates: 50°27’03.1”N 18°50’41.1”E

7. Frederica Shaft
(attribute 2.7)
Located in Śródmieście (City Centre), Opolska Street.
Geographical coordinates: 50°27’08.3”N 18°50’32.9”E
5.9 Quality and standards

Good practice guidelines will be developed based on the following:

1. The implementation of interpretive infrastructure should be flexible enough to be updated periodically and should, if necessary, be reversible.

2. Interpretation will be designed to last by combining a high specification, high quality and durable infrastructure (such as panel frames, audio equipment and display cabinets) with easily updateable content (such as graphic panels, audio files and objects on display).

3. Effective use should be made of pictures and graphics. They should:
   - be clear and easily understood
   - be visually stimulating
   - have a clear relationship to the text
   - complement the text, or what your visitors can see, rather than duplicate it.

4. Each piece of outdoor interpretation should clearly and specifically relate to features and objects in its immediate surroundings:
   - for fixed media such as panels, it should be possible to see the subject of the interpretation from the location of the panel.
   - for media such as leaflets designed for use on the move, the interpretation should refer to specific features that can be seen or otherwise appreciated when exploring the site.

5. Interpretation should encourage visitors to notice and explore the things around them and should draw attention to specific features that can be seen, touched, heard, smelled or tasted. Text should relate to its audience by using non-technical language and making comparisons between its subject and common experiences. Text can also be enlivened by questions, quotations and poetry.

6. To be inclusive, there are a number of ways in which we can involve local people and communities in our interpretation, such as:
   - preparing our interpretation plan – for example, this might be through a series of focus groups, workshops or public meetings at which we discuss the significance and meaning of our heritage asset and invite thoughts and contributions.
   - developing the content of our interpretation – this might include the preparation of scripts or quotes for interpretive panels and museum displays.

7. Arts projects and activities, the outcome of which then may become part of our interpretation.

8. The use of Information Communication Technology (ICT) presents considerable opportunities for interpretation. It can link local cultural resources with a global audience (though appropriateness...
is a guiding principle, particularly when applied on-site). The availability of mobile electronic guides, the potential of user portability, and user-focused interaction and personalisation, in both indoor and outdoor environments, is exciting.

9. We will need to consider the interpretation-related training needs of our staff and volunteers. This training can be very low cost and relate to practical matters such as how to:
   • operate our interpretation – for example, how to correctly switch computer touchscreens and video projectors on and off;
   • maintain our interpretation – for example, how to oil the pivot on a revolving interactive display, or which paint to use to touch-up a scratch on a display case.

Barriers to access and understanding

In planning our projects we expect to consider the needs of all current and future visitors and be aware of any potential barriers to their access and understanding. Avoiding, or removing, all physical and structural barriers may be difficult if not impossible. Particularly where safety, and conservation, issues apply, this also may not be desirable, nor would be considered reasonable.

- **intellectual** barriers make the content of interpretation difficult to understand – for example text that is too long and uses technical language. Being aware of this barrier is also about giving information in a variety of formats so that if people prefer not to or cannot read they can access the content in other ways.
- **sensory** barriers make interpretation difficult to see or hear – for example text that is too small to read.
- **physical** barriers make interpretation difficult to access – for example a display that is too high for children and wheelchair users to use.
- **cultural** barriers fail to reflect the cultural perspectives of different audiences – for example interpretation only in English at a site visited by many foreign tourists or closely linked to an immigrant community.
- **financial** barriers exclude people on low incomes – for example having to pay a further charge for an audio tour on top of the cost of transport to your site and an entrance charge.
- **organisational** barriers exclude visitors because of the way the interpretation is provided – for example an events programme running only during midweek.

In some cases, host communities, stakeholders and/or property owners/operators may prefer not to have a site publicly interpreted where this would conflict with safety, environmental or quality of life considerations.

Choice of media

To make interpretation and presentation engaging, we have a range of media choices, including:

- outdoor panels
- indoor graphic panel and displays
- live interpretation: performances and theatrical events
- publications
- activity packs
- low-tech interactive displays
- high-tech interactive displays
- audio media
- tactile media
- labels and plaques
- audio-visual
- multi-media
- websites
- arts Media
- reference material and reading rooms
- objects for handling or dressing up
- digital engagement

5.10 Priorities, timetable and costs

This will be worked up by the interpretation committee chosen among a group of the stakeholders in the years 2016-2017.
5.11 Management issues

A review of any management issues that will affect interpretation and tourism delivery – such as access issues and preferences, conservation policies, staffing levels and financial considerations, including sources of funding, and how main barriers may be overcome, is underway.

5.12 Evaluation

Following our implementation plan, we will define what will be done to find out how well the plan is working. This will include key performance indicators, methodology for data collection and analysis of economic, socio-cultural and environmental impact of investment, both in terms of communicating significance and understanding of the Property and contribution to the visitor economy.
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1. Introduction
By its nomination to the UNESCO World Heritage List, Poland has undertaken an obligation to preserve Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System for future generations. Stakeholders, managers and other interested persons are responsible for protecting, managing and popularizing the Outstanding Universal Value of the Property.

Potential threats that may have an adverse impact on the Property can be divided into two principal groups: natural (environmental) and cultural (human-induced). These threats may originate from the local, regional, national or international arena.

<table>
<thead>
<tr>
<th>Table 1. Natural and cultural threats.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THREATS</strong></td>
</tr>
<tr>
<td>natural</td>
</tr>
<tr>
<td>(environmental)</td>
</tr>
<tr>
<td>rock mass movement</td>
</tr>
<tr>
<td>rainstorm</td>
</tr>
<tr>
<td>flood</td>
</tr>
<tr>
<td>severe and prolonged frost</td>
</tr>
<tr>
<td>severe and prolonged snowfall</td>
</tr>
<tr>
<td>collapse</td>
</tr>
<tr>
<td>lightning</td>
</tr>
<tr>
<td>fire</td>
</tr>
<tr>
<td>natural succession</td>
</tr>
<tr>
<td>other</td>
</tr>
<tr>
<td>cultural</td>
</tr>
<tr>
<td>(human-induced)</td>
</tr>
<tr>
<td>urban development</td>
</tr>
<tr>
<td>industrial development</td>
</tr>
<tr>
<td>disaster and chemical spillages</td>
</tr>
<tr>
<td>poor maintenance</td>
</tr>
<tr>
<td>vandalism</td>
</tr>
<tr>
<td>larceny</td>
</tr>
<tr>
<td>illegal excavation</td>
</tr>
<tr>
<td>arson</td>
</tr>
<tr>
<td>war</td>
</tr>
<tr>
<td>other</td>
</tr>
</tbody>
</table>

According to national practice, conservation strategies and plans take account of potential threats that may occur during peace and war.

**Vocabulary**

**Threat** – a situation in which the probability of occurrence of damage to the environment arises. Military and non-military threats are distinguished. Non-military threats include political, economic, psychosocial, ecological, internal and other.

**Crisis** – a situation with negative effect on the safety of people, property of considerable size, or on the environment, that causes significant limitations to the operation of pertinent public administration.

**Cataclysm** – a large-scale natural disaster, the effects of which pose a threat to the life or health of a large number of people, property, and the environment, and for which protection can be effectively provided only after extraordinary measures are taken.

**Disaster** – an event with tragic effects.

**Natural disaster** – a natural event such as lightning, intensive precipitation, long-term occurrence of extreme temperature, fire, drought, flood, ice on rivers, lakes and reservoirs, and others.

**Civil (technical) disaster** – a crisis situation that results from a random event that disturbs the course of technological processes and that requires external support to be contained (includes breakdown, human error and terrorism).

**Protection of cultural property** – legal standards aimed at the protection of cultural property against damage or destruction, and against plunder during armed conflict.

---

3. Dariusz Drewniacki, Prawne i organizacyjne aspekty ochrony zabytków (dób kultury) na wypadek konfliktu zbrojnego i sytuacji kryzysowych szczególnie zagrożonych w prawie polskim, source: www.mkidn.gov.pl
6. Dariusz Drewniacki, Prawne i organizacyjne aspekty ochrony zabytków (dób kultury) na wypadek konfliktu zbrojnego i sytuacji kryzysowych (szczególnych zagrożeń) w prawie polskim, source: www.mkidn.gov.pl
2. Aim
The vision of **Tarnowskie Góry Lead-Silver-Zinc Mine and Its Underground Water Management System** is to preserve the proud memory of the accomplishments of our ancestors and pass this heritage to future generations. The main aim of the Risk Preparedness Strategy is to identify and prepare to manage unavoidable events, implementing mechanisms of counteraction or minimization of their impact.

Threats that have the potential to create the largest negative impact on the values for which the Property was inscribed on the UNESCO World Heritage List, as well as those concerned with human life, health and property will be treated as a priority.

Aims of the Strategy include:

- introducing the principles of risk management and the methodology of identification, assessment and limitation of disaster risk;
- assisting managers of the UNESCO World Heritage Site in the identification of threats, constraining them and limiting the impact of natural and cultural disasters upon the Outstanding Universal Value of the Property;
- aiding in the justification of protection and preservation of the Property inscribed on the UNESCO World Heritage List;
- highlighting the complementary nature of the Risk Preparedness Strategy with domestic and regional crisis management strategies and plans.
3. Scope and recipients
The Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System encompasses a large area and a diversified group of buildings and structures with a heterogeneous ownership structure (state-owned, local government-owned, private property). Protection of cultural heritage elements overlaps with the protection of natural heritage elements, and the drainage and water balance system itself is of strategic importance to the safety of the Property and the city. The Property is particularly exposed to various types of risks, both natural and cultural. Risk mitigation measures involve various legal bases and require the combined involvement of multiple institutions and persons.

According to the administrative structure regarding the protection, preservation, presentation and management of the nominated property, a World Heritage Site Coordinator was appointed. This post is a representative of the Tarnowskie Góry Land Lovers’ Association – Stowarzyszenie Miłośników Ziemi Tanogórskiej, and of the Tarnowskie Góry City Hall. The role supports the operation of the Steering Committee, which is a consultation and decision-making group, together with Working Groups charged with maintenance and presentation of the Property.

Table 2. Property owners, managers and stakeholders.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Key stakeholders</th>
</tr>
</thead>
</table>
| A Underground | - Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Tarnowskie Góry Land Lovers’ Association  
- Upper Silesian Water Supply joint-stock company in Katowice  
- Tarnogórski Club of Cave Exploration |
| 0.1 Underground Workings | - Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Tarnowskie Góry Land Lovers’ Association  
- Upper Silesian Water Supply joint-stock company in Katowice  
- Tarnogórski Club of Cave Exploration |
| 1.0 Friedrich Mine Deep Adit | - Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Tarnowskie Góry Land Lovers’ Association  
- Upper Silesian Water Supply joint-stock company in Katowice  
- Tarnogórski Club of Cave Exploration |
| 1.1 Peace Shaft | - City Hall in Tarnowskie Góry  
- Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association |
| 1.2 Bohr Shaft | - Private owner  
- City Hall in Tarnowskie Góry  
- Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association |
| 1.3 Adolph and Machine Shafts | - Upper Silesian Water Supply joint-stock company in Katowice  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association |
| 1.4 Help Happiness Shaft | - Upper Silesian Water Supply joint-stock company in Katowice  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association |
| 1.5 Adit Engine Shaft No. 22 | - Private owner  
- City Hall in Tarnowskie Góry  
- Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association |
| 1.6 Adit Shaft No. 17 | - Tarnowskie Góry Land Lovers’ Association  
- City Hall in Tarnowskie Góry  
- Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association |
<table>
<thead>
<tr>
<th>Attributes</th>
<th>Key stakeholders</th>
</tr>
</thead>
</table>
| 1.7 Adit Shaft No. 13 | - Tarnowskie Góry Land Lovers’ Association  
- City Hall in Tarnowskie Góry  
- Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association |
| 1.8 Adit Shaft No. 5 | - Tarnowskie Góry District  
- Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Tarnowskie Góry Land Lovers’ Association  
- Bicycle Routes Association |
| 2.0 God Help Adit | - Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Tarnowskie Góry Land Lovers’ Association  
- Bicycle Routes Association |
| 2.1 Angel Shaft | - Tarnowskie Góry Land Lovers’ Association  
- City Hall in Tarnowskie Góry  
- Upper Silesian Narrow Gauge Railways Association  
- Bicycle Routes Association |
| 2.2 Viper Shaft | - Tarnowskie Góry Land Lovers’ Association  
- City Hall in Tarnowskie Góry  
- Bicycle Routes Association |
| 2.3 God Bless Shaft | - Private owner  
- City Hall in Tarnowskie Góry  
- Tarnowskie Góry Land Lovers’ Association  
- Bicycle Routes Association |
| 2.4 Heinitz Shaft | - City Hall in Tarnowskie Góry  
- Tarnowskie Góry Land Lovers’ Association  
- Bicycle Routes Association  
- Upper Silesian Narrow Gauge Railways Association |
| 2.5 Reden Shaft | - Private owner  
- City Hall in Tarnowskie Góry  
- Tarnowskie Góry Land Lovers’ Association  
- Bicycle Routes Association |
| 2.6 Kaehler Shaft | - Water Supply and Sewerage limited liability company in Tarnowskie Góry |
| 2.7 Frederica Shaft | - Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Private owner  
- Tarnowskie Góry Land Lovers’ Association |
| A 2 Friedrich Mine Adit Portal and Ditch | - Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- Zbrosławice Commune Office  
- Bicycle Routes Association |
Table 2. Property owners, managers and stakeholders, cont.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Key stakeholders</th>
</tr>
</thead>
</table>
| 1.10 Friedrich Mine Adit Ditch      | - Zbroślawice Commune Office  
- Private owner  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association                                                       |
| **A 3 God Help Adit Portal and Ditch** | **- Silesian Voivodeship Management Board**  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- City Hall in Tarnowskie Góry  
- Bicycle Routes Association** |
| 2.8 God Help Adit Portal            | - Silesian Voivodeship Management Board  
- Marshal’s Office of the Silesian Voivodeship  
- Regional Directorate for the Environmental Protection in Katowice  
- City Hall in Tarnowskie Góry  
- Bicycle Routes Association                                                        |
| 2.9 God Help Adit Ditch             | - City Hall in Tarnowskie Góry  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association                                                        |
| **A 4 Adolph Shaft Waterworks**     | **- Upper Silesian Water Supply joint-stock company in Katowice**  
- Bicycle Routes Association**                                                      |
| 3.2 Mining Landscape (19th century) | - City Hall in Tarnowskie Góry  
- Polish State Railways  
- Private owner  
- Regional Directorate for the Environmental Protection in Katowice  
- Society to Preserve Fortified Monuments 'Pro Fortalicium'  
- Bicycle Routes Association                                                      |
| **A 5 Mining Landscape (19th century)** | **- Brynek State Forest District**  
- City Hall in Bytom  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association**                                                   |
| 3.4 Friedrich Mine Washing Tip      | - City Hall in Tarnowskie Góry  
- Private owners  
- Regional Directorate for the Environmental Protection in Katowice  
- Bicycle Routes Association                                                        |
| **A 7 Original Site of Friedrich Mine** | **- Tarnowskie Góry District**  
- City Hall in Tarnowskie Góry  
- Private owner  
- Bicycle Routes Association**                                                  |
| 3.5 Original Site of Friedrich Mine  | - City Hall in Tarnowskie Góry  
- Private owner  
- Upper Silesian Narrow Gauge Railways Association  
- Bicycle Routes Association                                                      |
| **A 8 Municipal Park**              | **- Tarnowskie Góry District**  
- City Hall in Tarnowskie Góry  
- Private owner  
- Bicycle Routes Association**                                                   |
| 3.6 Municipal Park                  | - Private owner  
- Bicycle Routes Association                                                        |
4. Property value
The nomination document and management plan define the values for which the Property is nominated for inscription on the UNESCO World Heritage List. These values must be protected, and measures related to their preservation for future generations will be treated as a management priority.

**Outstanding Universal Value**

(i) to represent a masterpiece of human creative genius;

The extensive underground adit network, and its functional connecting elements of shafts and surface channels, together with the pioneering waterworks that was integrated with underground mine water management, are a masterpiece of mid-sixteenth to late-nineteenth century hydraulic engineering. They represent the peak of European skills in such dewatering technology at a time when mining engineering provided the technical wherewithal for the development of the world’s first large-scale public water supply systems based on the steam-powered pumping of groundwater;

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

The colossal and accessible underground network, including the mine dewatering system, ore-extraction network and its topographical expressions at surface, together with the pioneering and integrated public water supply facility, are testimony to larger socio-technical world systems from the very beginning. They exhibit the interchange of technology, ideas and expertise in mining engineering, metallurgical systems and public water supply between leading mining and industrial centres in Saxony, Bohemia, Hungary, Britain and Poland;

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

The historic underground mining environment together with directly connected surface features, including commemorative public parks and nature reserves that reutilize yet preserve distinctive mining topography, are protected by a vibrant living culture with a long-standing commitment to conservation and public access. The Property is vivid testimony to a mining tradition with a 500-year-old pedigree, and commitment to it, from local to national levels, reflects a further contribution to Poland’s conservation of some of the world’s most significant underground mining heritage;

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

Substantial remains of the principal integrated public water supply infrastructure, together with an unusually accessible and monumental underground network of over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, shafts and extensive mined chambers, with the addition of directly connected surface and landscape features, are a unique and enduring technical ensemble of metal mining and water management. The ensemble is distinguished by a significant output of lead and zinc that sustained international metallurgical and architectural demands of the time, and a water system that ultimately drained the mine by gravity and met the needs of the most industrialized and urbanized region in Poland, and amongst the largest in Europe, providing a unique and early model of sustainable water management in the active mining environment.
5. Risk preparedness strategy during peace
Risks that have the potential to create the largest adverse impact on World Heritage values, as well as those concerning human life, health and property, will be treated as a priority.

The basic elements of the monument conservation system in a risk situation are:
- documentation of the protected cultural property, including monuments;
- preparation of protection plans and organizational cooperation plans;
- theoretical education and practical preparation of pertinent services.

The principles of planning and mitigation measures in the event of risk, as laid out in this document, are based on Polish regulations and developed by managers and stakeholders in a process of public consultation and approval.

5.1. Formal and legal bases

Various natural and cultural risks occur in peacetime.

The primary legal documents in Poland that set forth basic measures to be undertaken in the event of risks in peacetime are:
13. Ordinance of the Minister of the Economy on the requirements to be observed by action plans when human life, health, property, or the natural environment is threatened on 8 November 2002 (Journal of Laws, 2002, no. 194, item 1632)
18. Ordinance of the Minister of Culture on the organization of regional monument protection offices of 9 April 2004 (Journal of Laws, No. 75, item 706)

5.2. Identification and assessment of threats

The nomination document and management plan identified risks that could have a potential negative effect on the Property, and an assessment was made of the probability of their occurrence. During peacetime relevant natural risks include: floods / droughts, (water imbalance), fires, mining damages / ground subsidence and natural succession.

Some of the most fundamental threats to the underground property include water imbalance and water system blockages. These can severely and negatively impact the underground mining system, pose a threat to the values of the Property and limit its access, or have negative effect on the safety of the visitors and staff. Intensive precipitation can raise the groundwater level and the backing up of water which, in turn, can have negative effect on the change of the environment inside the adits and shafts, and can severely and negatively impact historic fabric (stone and masonry adit and shaft housings, adit portals, metal equipment). It should be emphasized that maintaining the patency of the water system is also of key importance to the safety of the city and to maintaining its urban structure.

Natural succession can also pose a threat as it can have negative effect on the near-surface underground parts of the Property, such as ingrown tree roots damaging rock structure, masonry shaft and adit structures. This can also cause soil collapse and blockages in the water system. Natural succession and the absence of maintenance can also have a negative effect on the surface elements of the Property.

During peacetime the most relevant cultural threats include the absence of regular care and maintenance, urban pressure and potential negative effects in spatial policy, and vandalism.
### Table 3. Identification and assessment of threats.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Natural threats</th>
<th>Human-induced threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Underground</td>
<td>flood, drought (disorders of water balance)</td>
<td>fire mining damage/subsidence landslides natural succession vandalism/theft poor maintenance urban pressure</td>
</tr>
<tr>
<td>1.1 Underground Workings</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.2 Friedrich Mine Deep Adit</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.3 Ice Shaft</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.4 Bohr Shaft</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.5 Adolph and Machine Shafts</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.6 Help Happiness Shaft</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.7 Adit Engine Shaft No. 22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.8 Adit Shaft No. 17</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>1.9 Adit Shaft No. 13</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>1.10 Adit Shaft No. 5</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Risk assessment is influenced by multiple factors, including characteristics of the attribute and its setting, ownership, usage, equipment and whether protection plans exist.
Table 4. Factors affecting risk assessment.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Coordinates of the central point</th>
<th>Physical attributes</th>
<th>Staff and visitors</th>
<th>Movables: monuments, equipment, archives</th>
<th>Plans: (evacuation, protection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 1 Underground</td>
<td>N50°26.33.71 E18°51.04.42</td>
<td>architectural structures*, constant exposure to water</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>0.1 Underground Workings</td>
<td></td>
<td>architectural structures, constant exposure to water; trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.0 Friedrich Mine Adit Portal and Ditch</td>
<td>N50°28.12.82 E18°48.40.33</td>
<td>buildings; architectural structures, constant exposure to water, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.3 Adolph and Machine Shafts</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>architectures structures, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.6 Adit Shaft No. 17</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.7 Adit Shaft No. 13</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.8 Adit Shaft No. 5</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.9 Adit Shaft No. 11</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.10 Adit Shaft No. 11</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.11 Adit Shaft No. 10</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.12 Adit Shaft No. 9</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.13 Adit Shaft No. 8</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.14 Adit Shaft No. 7</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.15 Adit Shaft No. 6</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.16 Adit Shaft No. 5</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.17 Adit Shaft No. 4</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.18 Adit Shaft No. 3</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.19 Adit Shaft No. 2</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.20 Adit Shaft No. 1</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.21 Adit Shaft No. 10</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.22 Adit Shaft No. 9</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.23 Adit Shaft No. 8</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.24 Adit Shaft No. 7</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
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</tr>
<tr>
<td>1.25 Adit Shaft No. 6</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.26 Adit Shaft No. 5</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.27 Adit Shaft No. 4</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.28 Adit Shaft No. 3</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.29 Adit Shaft No. 2</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.30 Adit Shaft No. 1</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.31 Adit Shaft No. 10</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.32 Adit Shaft No. 9</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
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<td>•</td>
</tr>
<tr>
<td>1.33 Adit Shaft No. 8</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
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<td>•</td>
</tr>
<tr>
<td>1.34 Adit Shaft No. 7</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
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</tr>
<tr>
<td>1.35 Adit Shaft No. 6</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
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</tr>
<tr>
<td>1.36 Adit Shaft No. 5</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
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<td>•</td>
</tr>
<tr>
<td>1.37 Adit Shaft No. 4</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.38 Adit Shaft No. 3</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.39 Adit Shaft No. 2</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>1.40 Adit Shaft No. 1</td>
<td>N50°26.28.55 E18°50.38.31</td>
<td>buildings, architectural structures, lands structure, trees/forests in the setting</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

* architectural structures – stone, wood, brick and concrete casing shafts and adits
Events that had a negative effect on the Property in the past are recorded. The most important ones are:
- subsidence (e.g. subsidence and separation of a fragment of stone housing of the Deep Friedrich Adit, in the vicinity of the adit ditch, which resulted from the ingrowth of tree roots in the rock structure, 0.3),
- vandalism (1.9), including pit subsidence (3.2),
- natural succession and lack of care (0.1, 1.1, 1.2, 1.4, 1.5, 1.8, 2.3, 2.4, 2.5, 3.4, 3.5, 1.9, 1.10)
- Washing Tip structural damage as a result of intensive quad-bike activity (3.4).

5.3. Cooperation in the event of a threat

The safety of property and people subject to threat is the responsibility of property owners, local, regional and state authorities, the WHS Coordinator and the Steering Committee and Working Groups. Coordinator of the World Heritage property management plan implementation should be notified by the owners, local authorities and other stakeholders about all hazards that may exist or events that may occurred within the Property and its setting. A relevant procedure within existing system which will allow the coordinator to gather information, document and cooperate in the rescue and safeguarding operations should be established within 5 years. Depending on the character of the threat and its timing (peacetime/war), all measures taken according to the threat procedural diagram must be coordinated with pertinent procedures developed in the event of threats. Pertinent structures operate within the Polish legislation and the crisis management system, including regulations regarding armed conflict and crisis situations.

The crisis management system is multi-level and comprises the following components:
- a) crisis management bodies,
- b) assessment-consultancy bodies in charge of initiating and coordinating measures taken in terms of crisis management,
- c) crisis management centers, maintaining 24-hour preparedness to take action.

Table 5. Crisis management system in Poland.

<table>
<thead>
<tr>
<th>Administrative level</th>
<th>Crisis management body</th>
<th>Assessment-consultancy body</th>
<th>Crisis Management Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>Council of Ministers, President of the Council of Ministers</td>
<td>Governmental Crisis Management Taskforce</td>
<td>Government Center for Security</td>
</tr>
<tr>
<td>Departmental</td>
<td>Minister in charge of government administration, Central body manager</td>
<td>Crisis Management Taskforce (ministry, central office)</td>
<td>Crisis Management Center (ministry, central office)</td>
</tr>
<tr>
<td>Regional</td>
<td>Voivode</td>
<td>Regional Crisis Management Taskforce</td>
<td>Regional Crisis Management Center</td>
</tr>
<tr>
<td>Poviat / County</td>
<td>Poviat starost</td>
<td>Poviat Crisis Management Taskforce</td>
<td>Poviat Crisis Management Center</td>
</tr>
<tr>
<td>Municipal</td>
<td>Commune Head, Mayor, City president</td>
<td>Municipal Crisis Management Taskforce</td>
<td>Municipal crisis management centers can be created (but need not be)</td>
</tr>
</tbody>
</table>

The Government Center for Security is a supra-departmental structure, the purpose of which is to optimize and standardize the perception of hazards by particular departments, thus to increase the level of capability to handle difficult situations of pertinent services and public administration bodies. The purposes are:
- to perform a full analysis of the threats, basing on data obtained from all possible ‘crisis centers’ operating under a public administration body and basing on data from international partners,
- to develop optimum solutions for the occurring crisis situations, as well as to coordinate the flow of information on the threats,
- to create a catalogue of threats,
- to monitor threats,
- to commence crisis management procedures at national level,
- to carry out planning and program tasks in crisis management and critical infrastructure protection,
- to oversee the cohesion of crisis reaction procedures,
- to organize and conduct training and practice in crisis management,
- to carry out tasks in preventing, counteracting and mitigating the effects of acts of terrorism,
- to oversee international cooperation, particularly with the NATO and the EU in crisis management.

The Center supports the Council of Ministers, the President of the Council of Ministers, the Taskforce and the minister in charge of internal affairs in crisis management and serves as a national crisis management center. It is a state budget unit under the President of the Council of Ministers. The Silesian Voivodeship Office includes a Department of Security and Crisis Management. The tasks of the department include completing of tasks in crisis management and supervising the formation of procedures and completion of tasks as part of the National Crisis Emergency System for the Silesian Voivodeship.

The structure of the Department includes, among others, the Crisis Management Department (ZK/I), which comprises the Taskforce for Removing the Effects of Natural Disasters (ZK/Ia) and the Regional Crisis Management Center (WCZK – ZK/I), which includes the On-duty Taskforce (ZK/Ia).

The Department of Security and Crisis Management of the Silesian Voivodeship Office has developed Guidelines of the Silesian Voivode, the Head of Voivodeship Civil Defense on the completion of tasks in civil defense and crisis management in the Silesian province in 2015. According to this document, ‘to guarantee a high level of civil defense and crisis management preparation in 2015, in terms of organization, each level of the body (regional, poviat, municipal) should perform an inspection of the correctness of update of the aforementioned plans, basing on completed annual audits.

Information on completed activities and execution methods must be specified in post-inspection reports. Such inspections can be also performed for the Monument Conservation Plans (pt. 1(4), p. 3 of the Guidelines), and the update of the monument conservation plans at field level should be performed. The plans should be verified in terms of the fulfillment of the provisions of the Ordinance of the Minister of Culture of 25.08.2004 on the organization and method of protecting monuments in the event of armed conflict and crisis situations (pt. 1(7), p. 4 of the Guidelines). In terms of the preparation and execution of civil defense and crisis management projects in 2015, the audit must cover the update of Civil Defense Plan and their related procedures, functional appendices, including

1 The Government Center for Security was opened on August 2, 2008. It was established on the basis of the Crisis Management Act of 24 April 2007 and the Ordinance of the President of the Council of Ministers on the organization and operation of the Government Center for Security of 10 July 2008.
2 The detailed program of the Department is set forth in the Regulations for the Silesian Voivodeship Office in Katowice.
3 For more information, see http://www.katowice.waw.gov.pl/wdzbizk/index.html
Evacuation Plan III, as well as plans regarding the Protection of Culture Monuments. The scope of the project assumed the voivodeship and the powiat (3rd and 2nd quarter), whereas municipalities and poviat are obligated to update the Culture Monument Conservation Plan in agreement with the Regional Conservation Officer (pt. 1 of the table, p. 7, appendix to the Guidelines).

It should be mentioned that as of 2002, the Office of the Commanding Officer of the State Fire Service includes a Program Board for Culture Property Protection against Extraordinary Threats, which serves as an assessment-consultancy body for the Commanding Officer in matters related to culture property protection. The purpose of the Board is to define and formulate conclusions for training activities performed by the Population and Culture Property Protection Training Center, operating in the State Fire Service Aspirant School in Krakow. The members of the Program Board and its program are specified in the regulations approved by the Commanding Officer of the State Fire Service. The Program Board includes the representatives of: the Minister of the Interior, the Minister of National Defense, the Minister of Culture and National Heritage, and the Commanding Officer of State Fire Service. Meetings of the Program Board are organized by the chairman 2 times a year or more often12.

Pursuant to the Act on monument conservation and care, the Regional Conservation Officer exercises the powers and competences of the voivode in terms of monument protection and enters the united regional administration. The regional conservation officer is in charge of developing regional monument conservation plans in the event of armed conflict and crisis situations, and of coordinating the measures taken when implementing these plans (The Act on monument conservation and care of 23 February 2003, Article 9, Article 89, Article 91, clause 4, point 7; Journal of Laws, 2003, No. 162, item 1568, as amended).

Pursuant to the provisions of the Ordinance of the Minister of Culture on the organization and method of monument protection of 25 August 2004 (Journal of Laws of 2004, No. 212, item 253), the activities related to monument protection are performed by the heads of organizational units – the cultural properties, which are entered to the monument register or which are incorporated in museum and library collections, provided that their monumental character is obvious. Preparatory works in terms of protection of moveable and immovable monuments are conducted by the directors (managers) of museums, libraries, as well as other institutions and the users and owners of cultural properties. The managers of organizational units are obligated, before a threat occurs:

- to make a list of immovable culture properties to be assumed with protective works in the occurrence of a threat;
- to make a list of moveable cultural properties to be hidden in place, distributed or evacuated;
- to specify and prepare rooms for hiding culture properties to be evacuated, distributed or those which are to be hidden in place;
- to guarantee sufficient resources to perform the activities related to the protection of culture properties;
- to draw up a conservation plan for the culture properties, defining the activities and tasks to be carried out in the event of a threat.

In the event of a threat, the managers should:

- conduct evacuation, distribution or hide in place all of the moveable culture properties,
- proceed to works related to securing the immovable cultural properties,
- perform other tasks related to the protection of culture properties in this period,
- when mobilization is announced, to proceed to the completion of the full conservation program of cultural properties, according to the agreements and plans in this respect.

The pertinent monument preserver, acting in agreement with the regional head of civil defense, shall be the coordinator of preparatory works conducted in the voivodeship. The General Conservation Officer, acting in agreement with the State Head of Civil Defense, shall be Coordinator of preparatory works conducted in the country.

Civil defense

Civil defense aims at protecting the population, at rescuing and providing medical aid to the injured at war, at cooperating in counteracting natural disasters and threats to the natural environment. Civil defense also aims to protect workplaces, public utilities and cultural property, including:

- detecting threats, as well as issuing warnings and alarms;
- organizing and conducting rescue operations;
- extinguishing fires;
- protecting culture properties, public utilities and important documents;
- preparing and conducting the liquidation of spillages and infections;
- restoring the operation of the necessary public services, including assisting in the construction and reconstruction of emergency water intakes;
- summary assistance in restoring and maintaining order in areas overcome with natural disasters.

The purposes of civil defense during peace include:

- planning and organization;
- training and popularization of civil defense issues;
- cooperating in counteracting natural disasters and threats to the natural environment, and in removing their effects (performed by other emergency services).

Government and state administration, as well as local government are obligated to guarantee the preparation and execution of works in the protection of cultural properties when a threat occurs, according to their characteristics.

5.4. Risk monitoring

Threats distinguished on the basis of analysis must be systematically monitored. The Tarnowskie Góry Land Lovers’ Association is currently conducting specialist safety monitoring of the underground water level in the tourist routes of the Historical Silver Mine and Black Trout...
Adit. In the Historical Silver Mine, volume is measured every day using the water meters in the sump of the Angel (Anioł) shaft and in the Szczęści Boże shaft. In the Black Trout Adit, the water level is recorded every day in the sub-adit of Sylwester Shaft. The results of inspection are entered to a dedicated water level log. Safe water level for the Historical Silver Mine is 70-80 cm, and 110 cm for the Black Trout Adit. Exceeding this state results in all tourist traffic being stopped. The level of underground waters is also monitored and measured by water meters in the Słonisz shaft by GPW employees.

Four times a year, academics from the University of Silesia perform water measurements (water flow, water level, level of pollutants) in the Friedrich Mine Deep Adit, in three measurement points (Słonisz or Adolph Shaft, Sylwester Shaft and the Friedrich Mine Adit Portal). The results of measurement are documented and submitted to the chief hydrologists of the Historical Silver Mine and Black Trout Adit tourist routes. The Association has been customarily conducting the monitoring of preservation of the elements of the Property outside its management area. This refers particularly to adit outlets and tunnels, as well as shafts. At the same time, also customarily, the Association has been monitoring changes in zoning documents in terms of preservation of the post-mining landscape.

The City Hall has been conducting ongoing review of the maintenance of the City Park and the Kuniszt Park, as well as the ‘Washing Tip’ (’Hałda popłuczkowa’) culture park.

The Conservation Plan for the ‘Tarnowskie Góry-Bytom Undergrounds’ Nature 2000 area identifies the existing and potential threats to maintaining the proper level of protection of natural settlements and animal species, as well as their habitats, assumed with protection. Protective endeavors adopted in the Conservation Plan for the ‘Tarnowskie Góry-Bytom Undergrounds’ Nature 2000 area are consistent with the protection objectives of the nominated World Heritage property.

Protective measures concerning monitoring of the condition of protected properties and of the progress of protective measures for the Nature 2000 area include:

- annual inspection of the potency of the shaft/inlet, the technical condition, the condition of safeguards and maintenance of the lock and the bars themselves (e.g. lock / padlock change, anti-corrosive protection, painting);
- winter monitoring and control of the condition of the tunnels. Assessment of the population index and the species habitat. According to the methodology of monitoring of the Main Inspectorate of Environment Protection, monitoring takes place every 4 years at the least.

The Regional Directorate of Environment Protection in Katowice is the supervisor of the above-specified measures. Monument conservation monitoring is conducted by the Regional Conservation Office in Katowice (with emphasis on properties and sites entered to the Register of Monuments) and the Poviat Monument Preserver (with emphasis on properties and sites entered to the Municipal Register of Monuments). The Tarnowskie Gór Land Lovers’ Association is in charge of monitoring the underground Historical Silver Mine and the Black Trout Adit tourist routes, in terms of the safety of tourist and property traffic.

As stipulated in the Nomination Dossier monitoring shall be conducted in reference to four major groups, as presented in the following table.

**Table 6. Primary elements of the monitoring system.**

<table>
<thead>
<tr>
<th>Index</th>
<th>Property attributes</th>
<th>Period</th>
<th>Report form</th>
<th>Data storage site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring of geological-engineering processes and phenomena</td>
<td>0,1, 1,0, 2,0</td>
<td>Once a year</td>
<td>Report</td>
<td>Archives of the Tarnowskie Góry Landlovers’ Association</td>
</tr>
<tr>
<td>Assessment of the preservation of buildings and structures, and monument preserver’s postulates</td>
<td>0,1, 1,0, 2,0 (in fragments – shaft and adit housings) 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 2.8, 3.1, 3.6</td>
<td>Once a year</td>
<td>Report</td>
<td>Archives of the Tarnowskie Góry Landlovers’ Association</td>
</tr>
<tr>
<td>Control of the condition of green areas and forest areas</td>
<td>3.3, 3.4, 3.6</td>
<td>Once a year</td>
<td>Report</td>
<td>Archives of the Tarnowskie Góry Landlovers’ Association</td>
</tr>
<tr>
<td>Control of the zoning policy at local level</td>
<td>All</td>
<td>Ongoing</td>
<td>Conclusions and remarks to zoning document drafts</td>
<td>Pertinent local government bodies / Archives of the Tarnowskie Góry Landlovers’ Association</td>
</tr>
</tbody>
</table>

Monitoring of geological-engineering processes and phenomena in the under- and above-ground parts of the Property includes:

- monitoring of surface transformations (control of vertical and horizontal area displacements, both continuous and discontinuous);
- monitoring of subterranean displacements of the rock mass;
- monitoring of hydro-geological phenomena;
- air condition and gas emission monitoring system;
- verification and assessment of the security and recognition and counteracting of threats and other issues related to post-mining areas.

Assessment of the preservation of buildings and structures and monument preserver’s postulates include:

- documentation of the preservation of the structure, considering the degree and type of destruction of particular structure parts (e.g. foundations, walls, vaults, ceilings, roofs, furnishing and equipment, installations; statistics);
- control of monument exposition conditions (e.g. geotechnical conditions, climatic conditions, environment pollution, usage, urban pressure),
• definition of destructive factors, including humidity sources (e.g. microorganism types, salinity level, overgrowth),
• monument preserver’s postulates, resulting from an analysis of the preservation level and defining the basic forms of securing the Property, as well as postulates regarding usage, if usage was assessed as incorrect,
• photographic documentation.

Control of the condition of green areas and forest areas:
• monitoring of the species makeup of plant habitats,
• monitoring of the health of plants, particularly trees,
• monitoring of the development of the direct environment of property attributes in terms of their potential effect on habitat conditions within the limits and in the vicinity of the Property counterparts,
• definition of the conditions with negative effect on the condition of the natural environment
• recommendations for the necessary protective measures (conservation and management).

Control of zoning policy at local level:
• study of land development conditions and management,
• local land development plans,
• monitoring of the award of land development and zoning decisions (administrative decision setting forth the conditions for changing the land development by constructing a building or executing other construction works, issued only for sites, which are not covered by a local land development plan).

The key monitoring indexes were described in the Management Plan. All documents will be stored in the archives of the Tarnowskie Góry Landlovers’ Association.
6. Risk preparedness strategy during war
During war, apart from marking all moveable monuments and undertaking the necessary protective measures, particular attention must be paid to guaranteeing the safety of valuable historical materials and documentation for the Property, which is archived by the Tarnowskie Góry Land Lovers’ Association (Stowarzyszenie Miłośników Ziemi Tarnogórskiej), as well as in municipal and state records, museums and public institutions.

The basic elements of the monument conservation system in a risk situation are:
- documentation of the protected cultural property, including monuments;
- preparation of protection plans and organizational cooperation plans;
- theoretical education and practical preparation of pertinent services.

6.1. Formal and legal bases

In the event of armed conflict or act of terrorism, historical properties and sites can be exposed to destruction through intentional or accidental armed attacks, as a result of use for storage and transport purposes, or as a shelter for people or property, as well as due to proximity to strategic armed targets.

The primary documents in force in Poland, which set forth the basic measures to be taken in the event of armed conflict and crisis situations in relation to cultural property include:
2. Supplementary Protocols to the Geneva Conventions of 12 August 1949, drawn up in Geneva on 8 June 1977 (Protocol I – concerning the protection of the victims of international armed conflicts and Protocol II – concerning the protection of the victims of international armed conflicts (Journal of Laws, 1992, No. 41, item 175)
4. Ordinance of the Council of Ministers on the detailed responsibilities of the Head of National Civil Defense, the heads of civil defense in particular voivodeships, poviats and municipalities of 25 June 2002 (Journal of Laws, No. 96, item 850)
6. Ordinance of the Minister of Culture on the organization and method of monument protection in the event of armed conflict and crisis situations of 26 August 2004 (Journal of Laws of 2004, No. 312, item 2153)
7. Ordinance of the Council of Ministers on the Polish Advisory Committee of 27 April 2004
8. Ordinance of the Council of Ministers on the provisions for defense of 5 February 2002 (Journal of Laws, No. 18, item 168)

6.2. Crisis and protection action plans

The key documents in crisis management are drawn up under the existing crisis management system. These include crisis management plans, the Report on threats to national security, and the National Critical Infrastructure Protection Program.

Crisis management plans are developed at national level (separately for government purposes and for the purposes of particular departments), as well as at the level of voivodeship, poviats and municipality. Their purpose is to plan measures to be taken in a crisis situation and to specify the person to take the measures, and the parties they are to cooperate with. They are to consider all procedures and plans undertaken by administrative bodies under other regulations.

The Report on threats to national security is drawn up on the basis of partial reports by ministers in charge of government administration departments, the heads of central offices and the voivodes.

The National Critical Infrastructure Protection Program is a synthetic and complex vision of protection, a description of the purposes of critical infrastructure protection, a model of cooperation in the completion of measures, the roles of participants and good protection practices.

In the event of armed conflict and crisis situations, national, voivodeship, poviats, municipality and unit monument protection plans are developed.

Voivodeship monument protection plan in the event of armed conflict and crisis situations

The monument protection plan in the event of armed conflict and crisis situations was drawn up by the Silesian Regional Conservation Officer in Katowice on 11 July 2005. The Plan is updated every year. The document is available in the office of the Silesian Regional Conservation Officer in Katowice (the Regional Conservation Office in Katowice, ul. Francuska 12, 40-015 Katowice). The plan contains, among others:
- a specification of the resources and distribution of monuments, as well as the level of their anticipated threat,
- an analysis of the distribution and threat to monuments, applications and monument methods,
- a list of immovable monuments containing the most important elements under protection and the methods of securing them, as well as data concerning the execution of works,
- a list of protective organizational units for movable monuments in place, by distribution and evacuation,
- data regarding the types and the number of movable monuments,
- the method of cooperation in notification and communication, methods of alarming, notification, management, cooperation and communication, including a list of addresses, telephones (facsimiles), rescue units, function persons, specialist services, institutions and material experts,
- the method of informing about losses,
- a listing of documentation and conservation-protecting works in the occurrence of losses and damages to monuments,
- a list of units, institutions, organizations and material experts assumed to receive assistance in the event of a threat.

The map is also confidential.
In the subject scope, the Plan contains information regarding the Historical Silver Ore Mine with the Aniol, Zmija and Sylvester shaft, and the Black Trout Adit. The Plan states that access to the shafts will be cut off and that the shafts will be marked with an identifying sign of the Hague Convention. The completion of these works is planned only in a situation of war threat.

Table 7. Silesian Voivodeship. The monument protection plan in the event of armed conflict and crisis situations. The cooperation, notification and communication method.

Table 8. Tarnowskie Góry County. The monument protection plan in the event of armed conflict and crisis situations. The cooperation, notification and communication method.
Organizational unit monument protection plan

The monument protection plan for the Historical Silver Ore Mine and the Black Trout Adit in Tarnowskie Góry in the event of armed conflict and crisis situations was drawn up in March 2005. The document is available in the City Hall (City Crisis Management Center, ul. Sienkiewicza 2, 42-600 Tarnowskie Góry).

In the subject scope, the Plan contains information regarding the Historical Silver Ore Mine with the Anioł, Żmija and Sylwester shaft, and the Black Trout Adit.

The Plan specifies the most important threats to the properties, including:
- natural threats: uncontrolled movements of rocks in the rock mass, cave-ins, subsidence in mine pits, water threats from supra-normative, uncontrolled water inflow to mine pits, causing their flooding, quicksands, etc.
- fire threats: in mine pits, solely exogenous from power-mechanical devices and on the surface in buildings,
- technical failures and construction disasters,
- acts of vandalism, theft, demonstrations and riots,
- acts of terrorism,
- armed conflict.

In the subject scope, the Plan states that access to the shafts will be cut off and that the shafts will be marked with an identifying sign of the Hague Convention. The completion of these works is planned only in a situation of war threat.

Table 9. Zbrosławice Commune. The monument protection plan in the event of armed conflict and crisis situations. The cooperation, notification and communication method.
6.3. Cooperation in the event of armed conflict and crisis situations

The principle of cooperation in the event of armed conflict and crisis situation is that organizational units and local authorities carry out complex plans. When, for any reasons, the situation exceeds the powers of an administrative body of a certain level, a higher-rank unit should be notified. Schemes of cooperation, notification and communication are part of the heritage protection plans prepared in the event of armed conflict and crisis situation.

The most important units in charge of coordinating plans and actions in the event of armed conflict and crisis situations include:

- Voivodeship Monument Preserver’s Office in Katowice
  ul. Francuska 12
  40-015 Katowice
  Tel.: +48 32 253 77 98,
  e-mail: sekretariat@wkz.katowice.pl

- Silesian Voivodeship Office in Katowice, Department of Security and Crisis Management
  ul. Jagiellońska 25, 40-032 Katowice
  tel.; +48 32 207 77 00
  e-mail: wzk@katowice.uw.gov.pl

- Ministry of Culture and National Heritage
  ul. Krakowskie Przedmieście 15/17
  00-071 Warszawa
  Tel: +48 22 421 04 01
  e-mail: minister@mkidn.gov.pl

- Ministry of Culture and National Heritage, Department of Foreign Cooperation
  (co-participation in the implementation of measures resulting from international agreements regarding cultural property in the event of armed conflict)
  ul. Krakowskie Przedmieście 15/17
  00-071 Warszawa
  tel.: +48 22 421 04 01
  e-mail: dwz@mkidn.gov.pl

- Ministry of Culture and National Heritage, Administration-Budget Office
  (implementation of measures in monument protection in the event of crisis situations and office support of the Polish Advisory Committee – interdepartmental body in charge of monument protection in the event of armed conflict)
  ul. Krakowskie Przedmieście 15/17
  00-071 Warszawa
  tel.: +48 22 421 05 62
  fax: (22) 828 87 73
6.4. Conclusions

An analysis of the protection plans indicated the need to develop a monument protection plan in the event of armed conflict or crisis situations for the entire nominated property. It was agreed that the plan would be drawn up and ratified within 5 years.

The plan should be prepared in accordance with the documents and by authorized persons, in cooperation with the owners, key stakeholders and authorities to protect cultural and natural heritage. Pay special attention to the strategic city for the safety management system groundwater and geological structure of the underground system.

Among the objects that should be marked in accordance with the Hague Convention should include:

- Friedrich Mine Dip Adit (0.1 and 1.1-1.10)
- Mine Adit portals (1.9, 2.8)
- Adolph Shafts Waterworks (3.1)
- Adit Shaft No.22 (1.5), and Adit Shaft No. 5 (1.8).
1. Names of the Property’s attributes in English, German and Polish · · · 2

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   Map 7. Attributes of the nominated Property
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6. List of factors affecting the Property · · · 32

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### 1. Names of the Property’s attributes in English, German and Polish

<table>
<thead>
<tr>
<th>No.</th>
<th>Attributes names in English</th>
<th>Attributes names in German</th>
<th>Attributes names in Polish</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>UNDERGROUND</td>
<td>GRUBEBAU</td>
<td>PODZIEMIA</td>
</tr>
<tr>
<td>0.1</td>
<td>UNDERGROUND WORKINGS</td>
<td>UNTER TAGE GRUBEBAU</td>
<td>PODZIEMNE WYROBSKA</td>
</tr>
<tr>
<td>1</td>
<td>SOUTHERN ADIT SYSTEM</td>
<td>ENTWÄSSERUNGSSYSTEM</td>
<td>POLUDNIOWY SYSTEM</td>
</tr>
<tr>
<td>1.0</td>
<td>FRIEDRICH MINE DEEP ADIT</td>
<td>TIEFER FRIEDRICH STOLLEN</td>
<td>SZTOLNIA GŁĘBOKA FRYDERYK</td>
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<tr>
<td>1.1</td>
<td>FRIEDRICH MINE ADIT PORTAL</td>
<td>TIEFER FRIEDRICH STOLLEN</td>
<td>PORTAL WYLOTU SZTOLNI GŁĘBOKIJE FRYDERYK</td>
</tr>
<tr>
<td>2</td>
<td>NORTHERN ADIT SYSTEM</td>
<td>ENTWÄSSERUNGSSYSTEM</td>
<td>POLNOCY SYSTEM SZTOLNIOwy</td>
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<tr>
<td>2.0</td>
<td>GOD HELP ADIT</td>
<td>GOTTHELF STOLLEN</td>
<td>SZTOLNIA BOZE WSPOMÓZ</td>
</tr>
<tr>
<td>2.1</td>
<td>ANGEL SHAFT</td>
<td>ENGEL SCHACHT</td>
<td>SZYB ANIOŁ</td>
</tr>
<tr>
<td>2.2</td>
<td>VIPER SHAFT</td>
<td>SCHLANGE SCHACHT</td>
<td>SZYB ZMIA</td>
</tr>
<tr>
<td>2.3</td>
<td>GOD BLESS SHAFT</td>
<td>GLÜCKHAUF SCHACHT</td>
<td>SZYB SZCZĘŚCI BOŻE</td>
</tr>
<tr>
<td>2.4</td>
<td>HEINITZ SHAFT</td>
<td>HEINITZ SCHACHT</td>
<td>SZYB HEINITZ</td>
</tr>
<tr>
<td>2.5</td>
<td>REDEN SHAFT</td>
<td>REDEN SCHACHT</td>
<td>SZYB REDEN</td>
</tr>
<tr>
<td>2.6</td>
<td>KAELER SHAFT</td>
<td>KAELER SCHACHT</td>
<td>SZYB KAELER</td>
</tr>
<tr>
<td>2.7</td>
<td>FREDERICA SHAFT</td>
<td>FRIDRERIKE SCHACHT</td>
<td>SZYB FRYDERYKA</td>
</tr>
<tr>
<td>2.8</td>
<td>GOD HELP ADIT PORTAL</td>
<td>'GOTTHELF STOLLEN' MUNDLOCH MIT PORTAL</td>
<td>PORTAL WYLOTU SZTOLNI GŁĘBOKIJE FRYDERYK</td>
</tr>
<tr>
<td>2.9</td>
<td>GOD HELP ADIT DITCH</td>
<td>'GOTTHELF STOLLEN' RÖSCHE</td>
<td>ROZNOŚ SZTOLNI GŁĘBOKIJE FRYDERYK</td>
</tr>
<tr>
<td>3</td>
<td>ASSOCIATED ATTRIBUTES</td>
<td>ANDERE VERBINDUNGSOBJEKTE</td>
<td>ATRYBUTY PÓWIAŻANE</td>
</tr>
<tr>
<td>3.1</td>
<td>ADOLPH SHAFT WATERWORKS</td>
<td>'WASSERWERK ADOLFSCHAFT'</td>
<td>STACJA WODOCIĄGOWA STASZIC</td>
</tr>
<tr>
<td>3.2</td>
<td>MINING LANDSCAPE (19TH CENTURY)</td>
<td>GRUBEBAU (XIX ALTERSJAHR)</td>
<td>KRAJOBRAZ PÓGÓRNICZY (XIX W.)</td>
</tr>
<tr>
<td>3.3</td>
<td>MINING LANDSCAPE OF SILVER MOUNTAIN</td>
<td>GRUBEBAU SILBERBERG</td>
<td>KRAJOBRAZ PÓGÓRNICZY ŚREBRNEJ GÓRY</td>
</tr>
<tr>
<td>3.4</td>
<td>FRIEDRICH MINE WASHING TIP</td>
<td>HALDE 'BLEIERRWÄSCHE DER KÖNIGLICHER FRIEDRICHGRUBE'</td>
<td>HALDA POPŁUCZKOWA KOPALNI FRYDERYK</td>
</tr>
<tr>
<td>3.5</td>
<td>ORIGINAL SITE OF FRIEDRICH MINE</td>
<td>FRÜHER GEBIET 'FRIEDRICHGRUBE'</td>
<td>TEREN DAWNEJ KOPALNI FRYDERYK</td>
</tr>
<tr>
<td>3.6</td>
<td>MUNICIPAL PARK</td>
<td>STADTSCH PARK</td>
<td>PARK MIEJSKI</td>
</tr>
</tbody>
</table>
2. Maps and plans

Map 1. Nominated Property and proposed buffer zone
Map 7. Attributes of the nominated Property
Map 8. Forms of legal protection
UNDERGROUND NOMINATED PROPERTY
PROTECTION AT SURFACE
SURFACE NOMINATED PROPERTY
BUFFER ZONE

MAP SCALE = 1 : 25000  AT  A2  LAYOUT FORMAT

FORMS OF LEGAL PROTECTION

CULTURAL
- National Historic Monument "Tarnowskie Góry – Historical Silver Mine and Black Trout Adit underground"
- Landscape Park in Repty
- Former noble metal mine in Tarnowskie Góry (entry to the Register of Monuments as interpreted in the Local Development Plan)
- Cultural Park 'Hartelkopfshöhe'

NATURAL
- Natura 2000 Special Protection Area of the 'Undergrounds of Tarnowskie Góry-Bytom', (PLH 240003)
- Landscape Complex 'Park in Repty and the Drama River Valley'
- Monument of Living Nature 'Park Kunszt'
- Nature Reserve of the 'Segiet' forest

BASE MAP SOURCE: BDOT10K  |  MAP REALISATION: NATIONAL HERITAGE BOARD OF POLAND - WORLD HERITAGE UNIT - XII.2015

COMMUNE BORDER  |  DISTRICT BORDER

PROPERTY ADMINISTRATIVE UNITS LOCATION IN SILESIAN VOIVODESHIP
### 3. Forms of cultural and natural heritage protection according to specific attributes

<table>
<thead>
<tr>
<th>Areas/Attributes</th>
<th>Protection of cultural heritage</th>
<th>Protection of natural heritage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A 1 Underground</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 0.1 Underground Workings | • Monument register: former Tarnowskie Góry ore mine  
  • National Historic Monument: ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’  
  additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine | • Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003 |
| 1.0 Friedrich Mine Deep Adit | • Monument register: former Tarnowskie Góry ore mine  
  • National Historic Monument: ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’  
  additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine | • Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003 |
| 1.1 Peace Shaft | • Monument register: former Tarnowskie Góry ore mine  
  • National Historic Monument: ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’  
  • ‘Mine Washing Tip’ Culture Park in Tarnowskie Góry  
| 1.2 Bohr Shaft | • Monument register: former Tarnowskie Góry ore mine  
  • National Historic Monument: ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’  
  additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine | • Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003 |
| 1.3 Adolph and Machine Shafts | • Monument register: former Tarnowskie Góry ore mine  
  • National Historic Monument: ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’  
  additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine | • Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003 |
<table>
<thead>
<tr>
<th>Areas/Attributes</th>
<th>Protection of cultural heritage</th>
<th>Protection of natural heritage</th>
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<tbody>
<tr>
<td>1.4 Help Happiness Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
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<tr>
<td>1.5 Adit Engine Shaft No. 22</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>1.6 Adit Shaft No. 17</td>
<td>• Monument register: landscape park with remains of the former animal preserve and chestnut alley, constituting a fragment of the road from Repty to Tarnowice Stare</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td></td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>1.7 Adit Shaft No. 13</td>
<td>• Monument register: landscape park with remains of the former animal preserve and chestnut alley, constituting a fragment of the road from Repty to Tarnowice Stare</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td></td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>1.8 Adit Shaft No. 5</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td></td>
<td>• Repty Park and Drama Valley’ Landscape Complex</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Areas/Attributes</th>
<th>Protection of cultural heritage</th>
<th>Protection of natural heritage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 Cod Help Adit</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>2.1 Angel Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>2.2 Viper Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>2.3 God Bless Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td></td>
<td>• Repty Park and Drama Valley’ Landscape Complex</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>2.4 Heinitz Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td></td>
<td>• Repty Park and Drama Valley’ Landscape Complex</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>2.5 Reden Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td>2.6 Kaehler Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
<tr>
<td></td>
<td>• Repty Park and Drama Valley’ Landscape Complex</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
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<tr>
<td>2.7 Frederica Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH2400003</td>
</tr>
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</table>
### Areas/Attributes

<table>
<thead>
<tr>
<th>Protection of cultural heritage</th>
<th>Protection of natural heritage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A 2 Friedrich Mine</strong> Adit Portal and Ditch</td>
<td></td>
</tr>
<tr>
<td>- Monument register: former Tarnowskie Góry ore mine</td>
<td>- Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003</td>
</tr>
<tr>
<td>1.9 Friedrich Mine Adit Portal</td>
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</tr>
<tr>
<td><strong>A 3 God Help Adit Portal and Ditch</strong></td>
<td></td>
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<tr>
<td>- Monument register: former Tarnowskie Góry ore mine</td>
<td>- Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003</td>
</tr>
<tr>
<td>- National Historic Monument: ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’</td>
<td></td>
</tr>
<tr>
<td>2.8 God Help Adit Portal</td>
<td></td>
</tr>
<tr>
<td><strong>A 4 Adolph Shaft Waterworks</strong></td>
<td></td>
</tr>
<tr>
<td>- Monument register: former Tarnowskie Góry ore mine</td>
<td>- Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003 (underground part)</td>
</tr>
<tr>
<td>- National Historic Monument: ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’ additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: Adolph and Maszynowy development and shaft top complex; Repty Śląskie</td>
<td></td>
</tr>
<tr>
<td>3.1 Adolph Shaft Waterworks</td>
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<tr>
<td><strong>A 5 Mining Landscape (19th century)</strong></td>
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<tr>
<td>- Additional: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: narrow-gauge railway complex</td>
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<tr>
<td>3.2 Mining Landscape (19th century)</td>
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<tr>
<td><strong>A 6 Silver Mountain and Washing Tip</strong></td>
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<tr>
<td>- Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds, PLH240003</td>
<td></td>
</tr>
<tr>
<td>- ‘Segiet’ nature reserve (part)</td>
<td></td>
</tr>
</tbody>
</table>

### Various institutions are in charge of the particular forms of protection. A list of these institutions is included in the table below.

<table>
<thead>
<tr>
<th>Forms of protection</th>
<th>Managing / responsible institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural heritage</td>
<td>Register of monuments</td>
</tr>
<tr>
<td>- ‘Mine Washing Tip’ cultural park</td>
<td>Silesian Provincial Monument Conservation Office in Katowice</td>
</tr>
<tr>
<td>- ‘Tarnowskie Góry – Historical Silver Mine and Black Trout Adit undergrounds’ national historic monument</td>
<td>Tarnowskie Góry City Hall</td>
</tr>
<tr>
<td>- ‘Kunszt Park’ living nature monument</td>
<td>Chancellery of the President of the Republic of Poland, Ministry of Culture and National Heritage, National Heritage Board of Poland on behalf of the Ministry (monitoring)</td>
</tr>
<tr>
<td>- Living nature monuments (selected trees)</td>
<td>City Hall and Municipality</td>
</tr>
<tr>
<td>- Inanimate nature monument – glacial erratic</td>
<td></td>
</tr>
<tr>
<td>Natural heritage</td>
<td>Nature 2000 Special Area of Conservation, Tarnowskie Góry – Bytom undergrounds</td>
</tr>
<tr>
<td>- ‘Repty Park and Drama Valley’ landscape complex</td>
<td>Regional Monument Preserver’s Office in Katowice</td>
</tr>
<tr>
<td>- ‘Kunszt Park’ living nature monument</td>
<td>Tarnowskie Góry Mayor</td>
</tr>
<tr>
<td>- ‘Segiet’ nature reserve</td>
<td>Regional Environment Protection Director in Katowice</td>
</tr>
</tbody>
</table>
4. Permissible land use resulting from local land development plans, in reference to attributes

List of relevant local land development plans for specific attributes

<table>
<thead>
<tr>
<th>No.</th>
<th>Local land development plans</th>
<th>Attribute identification numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Local spatial development plan for the northern districts of the city of Tarnowskie Góry – Opatowice, Rybna, Strzybnica, Pniowice, Sowice, part of Lasowice north of Częstochowska street and forest areas; Resolution no. XXXVII/424/2013 of 27 February 2013 (Journal of Laws of the Silesian Voivodeship, 2013, item 236)</td>
<td>0.1 (in the part covered by the plan), 2.8, 2.9</td>
</tr>
<tr>
<td>2</td>
<td>Local spatial development plan for the following districts: Śródmieście-Centrum, Lasowice, Osada Jana in Tarnowskie Góry; Resolution no. XXVI/314/2012 of 27 June 2012 (Journal of Laws of the Silesian Voivodeship of 2 August 2012, item 356)</td>
<td>2.6, 3.6</td>
</tr>
<tr>
<td>3</td>
<td>Local spatial development plan for the southern districts of the city of Tarnowskie Góry - Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and housing estate ‘Przyjaźń’; Resolution no. XLVIII/551/2009 of 28 October 2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>0.3, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3 (in part), 3.5</td>
</tr>
<tr>
<td>4</td>
<td>Local spatial development plan of the former mining area of Górnicze Zakłady Dolomitowe S.A. (dolomite mining plant) in Siewierz, Dolomite Mine in Bobrowniki-Blachówka, within the administrative boundaries of the city of Tarnowskie Góry, 02.03.2006; Resolution no. LVI/494/2006 of 02 March 2006 (Journal of Laws of the Silesian Voivodeship of 2006, no. 49, item 1404)</td>
<td>1.3, 1.4</td>
</tr>
<tr>
<td>5</td>
<td>Local spatial development plan for the commune Zbroślałwiec for the area of rural administrative unit Ptakowice, 04 October 2006; Resolution no. XXXVI/596/06 of 04.10.2006 (Journal of Silesian Voivodeship of 2006 No. 54 item 4892)</td>
<td>1.8, 1.9, 1.10</td>
</tr>
<tr>
<td>6</td>
<td>Local spatial development plan for northern parts of the city of Bytom, called the ‘Blachówka’ plan – South part; Resolution no. VIII/113/15 of 27 April 2015 (Journal of Silesian Voivodeship of 2015, item 2570)</td>
<td>3.3 (in part)</td>
</tr>
</tbody>
</table>

Special layer of protection – relevant planning documents

<table>
<thead>
<tr>
<th>Special layer of protection</th>
<th>Attributes identification number</th>
<th>Local land development plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.2, 1.4, 2.2, 2.3, 2.4, 3.1, 3.2, 3.5</td>
<td>Local spatial development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the ‘Przyjaźń’ Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
</tr>
<tr>
<td>2</td>
<td>1.8, 1.9, 1.10</td>
<td>Local spatial development plan for the Commune of Zbroślałwiec for the Ptakowice village, Resolution no. XXXVI/596/06 of 04.10.2006</td>
</tr>
<tr>
<td>3</td>
<td>2.5</td>
<td>Local spatial development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the ‘Przyjaźń’ Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
</tr>
<tr>
<td>4</td>
<td>3.6</td>
<td>Local spatial development plan for districts: Śródmieście-Centrum, Lasowice, Osada Jana in Tarnowskie Góry, Resolution no. XXVI/314/2012 of 27 June 2012 (Journal of Laws of the Silesian Voivodeship of 2 August 2012, item 3156)</td>
</tr>
<tr>
<td>5</td>
<td>1.5</td>
<td>Local spatial development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the ‘Przyjaźń’ Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
</tr>
</tbody>
</table>
### Permissible land use resulting from local land development plans, in reference to attributes

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Local land development plans</th>
<th>Permissible land use</th>
<th>Remarks and recommendations for the future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.1 Underground</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.1 Underground Workings</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>1.0 Friedrich Mine Deep Adit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1.1 Peace Shaft</strong></td>
<td>Local land development plan for the former mining landscape of Górnicze Zakłady Dolomitowe S.A. in Siewierz, the Bobrowniki-Blachówka Dolomite Mine within the Tarnowskie Góry city limits, Resolution no. LVII/494/2006 of 02.03.2006 (Journal of Laws of the Silesian Voivodeship of 2006, no. 49, item 1404)</td>
<td>Current principles of land use should be retained.</td>
<td></td>
</tr>
<tr>
<td><strong>1.4 Help Happiness Shaft</strong></td>
<td>Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the Przyjaźń Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>Current principles of land use should be retained.</td>
<td></td>
</tr>
<tr>
<td><strong>1.5 Adit Engine Shaft No. 22</strong></td>
<td>Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the Przyjaźń Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>Monitoring of the decisions issued and proper development in these areas is required for the IR-UKI provision.</td>
<td></td>
</tr>
<tr>
<td><strong>1.6 Adit Shaft No. 17</strong></td>
<td>Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the Przyjaźń Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>Current principles of land use should be retained.</td>
<td></td>
</tr>
</tbody>
</table>
### Permissible land use resulting from local land development plans, in reference to attributes, cont.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Local land development plans</th>
<th>Permissible land use</th>
<th>Remarks and recommendations for the future</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4 Heinitz Shaft</td>
<td>Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the 'Przyjaźń' Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>6B-ZNI – permanent green lands</td>
<td>Current principles of land use should be retained.</td>
</tr>
<tr>
<td>2.5 Reden Shaft</td>
<td>Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the 'Przyjaźń' Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>2S-ZNI – permanent green lands</td>
<td>Monitoring of decisions issued for the Reden shaft environment (particularly for the provisions of 3S-UCI and 3S-MNUII) and proper development in this area is important</td>
</tr>
<tr>
<td>2.6 Kaehler Shaft</td>
<td>Local spatial development plan for the following districts: Śródmieście - Centrum, Lasowice, Osada Jana in Tarnowskie Góry; Resolution no. XXVI/314/2012 of 27 June 2012 (Journal of Laws of the Silesian Voivodeship of 2 August 2012, item 3156)</td>
<td>1S-WI – water supply building and device area</td>
<td>Current principles of land use should be retained.</td>
</tr>
</tbody>
</table>
### Permissible land use resulting from local land development plans, in reference to attributes, cont.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Local land development plans</th>
<th>Permissible land use</th>
<th>Remarks and recommendations for the future</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 2 Friedrich Mine Adit Portal and Ditch</td>
<td>1.9 Friedrich Mine Adit Portal</td>
<td>Local land development plan of the Zbrosławice Municipality for the Ptakowice village, Resolution no. XXXVI/596/06 of 04.10.2006</td>
<td>9 ZL – adapted forests areas</td>
</tr>
<tr>
<td></td>
<td>1.10 Friedrich Mine Adit Ditch</td>
<td>Local land development plan of the Zbrosławice Municipality for the Ptakowice village, Resolution no. XXXVI/596/06 of 04.10.2006</td>
<td>9 ZL – adapted forests areas</td>
</tr>
<tr>
<td></td>
<td>A 3 God Help Adit Portal and Ditch</td>
<td>Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the ‘Przyjaźń’ Estate; Resolution no. VIII/113/15 of 27 April 2015 (Journal of Silesian Voivodship of 2015, item 2570)</td>
<td>13 SR-ZNI – permanent green lands</td>
</tr>
<tr>
<td></td>
<td>2.9 God Help Adit Ditch</td>
<td>Local land development plan for the northern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the ‘Przyjaźń’ Estate; Resolution no. VIII/113/15 of 27 April 2015 (Journal of Silesian Voivodship of 2015, item 2570)</td>
<td>13 SR-ZNI – permanent green lands</td>
</tr>
</tbody>
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### Permissible land use resulting from local land development plans, in reference to attributes, cont.

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<thead>
<tr>
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<th>Remarks and recommendations for the future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A 8 Municipal Park</strong>&lt;br&gt;Local spatial development plan for the following districts: Śródmieście - Centrum, Lasowice, Osada Jana in Tarnowskie Góry; Resolution no. XXVI/314/2012 of 27 June 2012 (Journal of Laws of the Silesian Voivodeship of 2 August 2012, item 3156)</td>
<td>Current principles of land use should be retained.</td>
<td><strong>Current principles of land use should be retained.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>3.6 Municipal Park</strong>&lt;br&gt;Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the ‘Przyjaźń’ Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>Monitoring of decisions issued and proper development in this area is important for UW</td>
<td><strong>15–ZPI – developed green areas</strong>&lt;br&gt;<strong>434S-UP UKI – service development areas including public and commercial services</strong>&lt;br&gt;<strong>35–USI sports and recreation areas</strong></td>
<td></td>
</tr>
<tr>
<td><strong>3.4 Friedrich Mine Washing Tip</strong>&lt;br&gt;Local land development plan for the former mining landscape of Górnice Zakład Dolomitowe S.A. in Siewierz, the Bobrowniki-Blachówka Dolomite Mine within the Tarnowskie Góry city limits, Resolution no. LV/494/2006 of 02.03.2006 (Journal of Laws of the Silesian Voivodeship of 2006, no. 4, item 1404)</td>
<td>Current principles of land use should be retained.</td>
<td><strong>ZO – protected landscaped green areas</strong>&lt;br&gt;<strong>UW – service and production areas</strong>&lt;br&gt;<strong>RP – agricultural cropping areas</strong>&lt;br&gt;<strong>ZP – protective green areas developed in the form of a park complex with organized sports and recreation part</strong></td>
<td></td>
</tr>
<tr>
<td><strong>A 7 Original Site of Friedrich Mine</strong>&lt;br&gt;Local land development plan for the southern districts of the city of Tarnowskie Góry – Bobrowniki Zachód, Repty Śląskie, Stare Tarnowice and the ‘Przyjaźń’ Estate; Resolution no. XLVIII/551/2009 of 28.10.2009 (Journal of Laws of the Silesian Voivodeship of 2010, no. 14, item 232)</td>
<td>Current principles of land use should be retained.</td>
<td><strong>68–ZNI – permanent green lands</strong>&lt;br&gt;<strong>48–ZPI – developed green areas</strong>&lt;br&gt;<strong>8–NNI – single-family housing areas</strong>&lt;br&gt;<strong>15–KDW – internal street</strong>&lt;br&gt;<strong>BKKI – railway areas</strong></td>
<td></td>
</tr>
</tbody>
</table>
5. Potential sources of funding the protection, conservation and management

Along with the work on the Management Plan 2016-2020, a preliminary research on potential sources of funding for the Management Plan activities has been made. The list below should not be considered as exhaustive.

The Ministry of Culture and National Heritage:

- Operational Program Infrastructure and Environment
  XI Priority of the Operational Program Infrastructure and Environment – Culture and cultural heritage – aims at supporting the extension and upgrading of cultural and artistic education infrastructure and to protect cultural heritage of European and global significance. The measures taken under the program will help utilize the culture potential and cultural heritage to raise the attractiveness of Poland.

- Europe for Citizens Program
  Europe for Citizens Program is an European program supporting active European citizenship. This program, planned for 2014-2020, aims at involving citizens and civic society organizations in the European integration process; component 1 European memory, http://www.mkidn.gov.pl/pages/strona-glowna/finanse.php

- Cultural heritage
  The purpose of the Cultural Heritage program is to protect the Polish cultural heritage in the country and abroad, to support museums and to promote folk culture.

Ministry of Infrastructure and Development:

- Detailed description of priority axes of the Infrastructure and Environment Operational Program 2014-2020

  2. Priority Axis 2: Environment protection, including adaptation to climate change (Measure 2.4 Nature protection and ecological education)
  According to the program for protection and sustainable use of biodiversity a wide scope of actions will be implemented with the action plan for 2014-2020 – beginning with active protection of species and habitats, through management of natural resources, limitation of pressure of invasive and conflict species, to raising the general awareness of environment protection and biodiversity. The purpose of the priority axis will be to support projects related to the protection of species and habitats in national parks and Nature 2000 areas, as well as outside protected areas, e.g. in ecological corridors and in the areas inhabited by valuable species and habitats.
  http://www.pois.gov.pl/media/10776/5zoOP_POIS_1_1_20151030.pdf

  8. Priority axis 8 Protection of cultural heritage and development of cultural resources (Measure 8.1 Protection of cultural heritage and development of cultural resources)
  Considering the purposes of priority axis 8, the following projects will be implemented: regarding properties entered to the UNESCO World Heritage List or qualified by the President of the Republic of Poland as History Monuments and properties located in areas qualified as Monument by the President of the Republic of Poland.
  As part of this measure, investments related to monument protection and development of cultural resources will be implemented. Support aiming at conserving heritage will relate to renovation, preservation, restoration of historical properties. Projects related to the conservation and restoration of moveable monuments (including the protection and rendering by digitalization) will receive financing.
  http://www.pois.gov.pl/media/10776/5zoOOP_POIS_1_1_20151030.pdf

Ministry of Sports and Tourism:

Annual open competition for the completion of public projects related to tourism. Priorities regarding tourism projects:

1. Support of tourism projects
2. Support of the quality system through e.g. certification, recommendations
3. Tourism space development by marking out, labeling and conserving walking, skiing, bicycle, water routes, etc. in the territory of Poland.
4. Increase of competitiveness of human resources through training, conferences, workshops, seminars, etc.
5. Promotion of domestic tourism by e.g. organization of events, competitions

Silesian Voivodeship Management:

- Regional Operational Program for the Silesian Voivodeship for 2014-2020
  Priority Axis 5 Environment protection and effective resource usage (II.5.3 Cultural heritage / II.5.4 Protection of biodiversity)
  In terms of the culture sector, funds will be focused on the implementation of projects aiming at protecting the cultural heritage, and particularly properties entered to the register of the Silesian Regional Monument Preserver, the Technology Monument Route, essential from the point of view of the region’s development. Projects aiming at the protection of valuable natural
areas, including the reduction of pressure and ordering of tourist traffic in these areas, as well as measures consisting in the construction, upgrading, and fit-out of ecological education and biodiversity centers will receive financing.


National Fund for Environmental Protection and Water Management:

• Priority programs 2015-2020

2.3. Geology and mining
Recognition of the geological makeup of the country and rational mine and underground water deposit economy through the implementation of long-term state policies and directions for research in geology, implementation of applicable directives and completion of statutory measures and other, required for expanding the geological database, in terms of research-examination and documentation, and limitation of negative effect on the natural environment, resulting from mineral extraction and liquidation of mines.


4.1. Protection and restoration of biodiversity
Stopping the process of reduction of biological and landscape diversity, recreation and enrichment of natural resources and effective management of species and habitats (including the recognition of imminent threats).


5.1. Support of the Ministry of the Environment in the implementation of the environment protection policy
Support of the activity of the Minister of the Environment, required for the implementation of the environment protection policy. Studies, reports, assessments, opinions, research works serving the support and fulfillment of obligations of the Minister of the Environment and support of the system of assessments of impact on the environment by providing financial support to public administration bodies involved in the assessment of impact on the environment, strategic assessments of impact on the environment and assessments of impact on Nature 2000 areas.


5.2. Support of the operation of environment monitoring
Support of the management system, environment quality and support of hydrological and meteorological shield of the society and the economy, with particular emphasis on the fulfillment of international obligations by Poland.


5.3. Preventing environmental threats, including liquidation of their effects
Raising the level of protection against the effects of natural disasters (according to the directions specified in the ‘Strategic Adaptation Plan for sectors and areas prone to climate changes until 2020 with a perspective until 2030’) and severe breakdowns, facilitation of the removal of their effects and reinforcement of selected environment management elements. In particular ‘Prevention and liquidation of extraordinary threats’. Measures focused on the removal of the effects of environmental threats – natural events (floods, fires, draughts) and breakdowns (human-induced events).


5.4. Ecological education
Raising the level of ecological awareness and shaping pro-ecological standpoints in the society by promoting sustainable development principles.


Regional Environment Protection and Water Management Fund in Katowice:

• Earth Surface and Atmosphere Protection Team administers the program titled ‘Waste management and Earth surface protection’ assuming, among others, the revitalization of postindustrial areas, restoration the natural values of degraded areas, as well as objectives in terms of earth surface protection, financing from foreign funds.

https://wfosigw.katowice.pl/index.php/gospodarka-odpadami

• Nature Protection, Ecological Education and Health Prophylaxis Team carries out projects in the PROTECTION OF BIODIVERSITY AND ECOSYSTEM FUNCTIONS, which include actions aiming at preservation, conservation and sustainable use of biodiversity. This scope assumes: development of the regional system of protected areas, protection of plants and animals, protection of forests and green areas.

https://wfosigw.katowice.pl/index.php/ochrona-przyrody-i-krajobrazu

Nature Protection, Ecological Education and Health Prophylaxis Team carries out projects in the PROTECTION OF BIODIVERSITY AND ECOSYSTEM FUNCTIONS, which include actions aiming at shaping the ecological awareness of the residents of the Silesian Voivodeship and promotion of pro-ecological actions and the sustainable development principle. A wide range of financing acquisition is presented in the ‘LIST OF PRIORITY MEASURES TO BE FINANCED UNDER THE REGIONAL ENVIRONMENT PROTECTION AND WATER MANAGEMENT FUND IN KATOWICE FOR 2016’

https://wfosigw.katowice.pl/index.php/edukacja-ekologiczna

• Nature Protection, Ecological Education and Health Prophylaxis Team is in charge of applications regarding research, studies and assessments assuming the creation of an integrated environment...
management system in the region, development of strategy and implementation programs in environment protection and water management, development of strategy for the protection of biological and landscape diversity, as well as scientific assessments and studies.
https://wfosigw.katowice.pl/index.php/zarzadzanie-srodowiskowe-w-regionie

Regional Monument Preserver’s Office in Katowice:

- Pursuant to the Ordinance of the minister of culture on the award of designated funds for preservation, restoration and construction works on a monument entered to the register of monuments of 6 June 2005, the Regional Monument Preserver’s Office announces an annual competition for the selection of applications for designated funds. http://www.wkz.katowice.pl/index.php?option=com_content&view=article&id=102&Itemid=99

Other sources:

Financial support may also be granted by non-profit organizations such as foundations, associations and other institutions, as well as international organizations, allocating grants and acting locally and throughout the country. Among the most important organizations are:

Silesian Tourist Organization:

- Annual competition for the support of publishing and promotional activity for members of the Silesian Tourist Organization.
- The Chapter of Road Tourist Signs with the Silesian Tourist Organization oversees the creation of the road tourist sign marking system involving tourist attractions in the entire region http://www.silesia-sot.pl/

KGHM Polska Miedź Foundation:

- Save the Monuments and Preserve Traditions Projects
  KGHM has been supporting Polish culture, national heritage and common good for years now, and this project is the best example for that. It is a form of long-term, considered and clearly specified activity. Regardless of whether the monument has historical, artistic or scientific value, we want to keep it in the best shape possible. Our donations reach not only the owners of particular properties, but also foundations and associations gathering people that care for local monuments.

Bank Zachodni WBK Foundation:

- Ambitious Youth Bank Program
  The Ambitious Youth Bank program aiming at educating the youth that not only their future, but also the future of their local environment, nation and state depends on their education, initiative, community activity. The foundation supports initiatives implemented in such thematic areas as: development and education, economic and community activity, civic activity, culture, history and national heritage.

Tarnowskie Góry Municipality:

- ‘Program of cooperation of the Tarnowskie Góry Municipality with non-government organizations and other entities in charge of public order in 2016’
  The primary purposes of the program is to build a partnership between the Tarnowskie Góry Municipality and non-government organizations, aiming at diagnosing and satisfying the needs of the residents of Tarnowskie Góry, creating social policy and reinforcing local commitment.
  The Municipality announces competitions for small grants for activities aiming at:
  I. Maintaining and popularizing national tradition, nurturing the Polish spirit and tradition and promoting the development of national, civic and cultural awareness,
  II. Promoting culture, art, protecting cultural and national heritage properties,
  III. Supporting and popularizing physical culture and sports, as well as tourism and local history
  IV. Promoting ecology and protection of animals and protection of natural heritage
6. List of factors affecting the Property

<table>
<thead>
<tr>
<th>Impact category</th>
<th>Impact subcategory</th>
<th>Characteristic of impacts</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings and development</td>
<td>Housing (mainly single-family houses, services)</td>
<td>Impact on: status of underground structures, scenic values (encroachment/changes to skyline etc), setting, relationship with the setting</td>
<td>0.1, 1.0, 1.2, 1.4, 2.0, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.5</td>
</tr>
<tr>
<td></td>
<td>Commercial development (areas of services and manufacturing, large-area commercial buildings, commercial services)</td>
<td>Impact on: status of underground structures, scenic values (encroachment/changes to skyline etc), setting, relationship with the setting</td>
<td>1.4, 1.5, 2.3, 3.2, 3.4, 3.6</td>
</tr>
<tr>
<td></td>
<td>Interpretative and visitation facilities (infrastructure tourist services, hiking trails, viewpoints, accommodation, minor picnic facilities)</td>
<td>Impact on: status of underground structures, scenic values (encroachment/changes to skyline etc), setting, relationship with the setting</td>
<td>0.1, 1.0, 1.6, 1.7, 2.0, 2.1, 2.2, 3.4, 3.1, 3.6</td>
</tr>
<tr>
<td>Transportation infrastructure</td>
<td>Ground transport infrastructure</td>
<td>Elimination of railway embankments and the construction of new roads</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Construction of new roads, construction of new car parks</td>
<td>Impact on: scenic values (encroachment/changes to skyline etc), setting, relationship with the setting</td>
<td>2.4, 3.2, 3.4, 3.5, 3.6</td>
</tr>
<tr>
<td></td>
<td>Services infrastructures</td>
<td>Impact on: status of underground structures (vibrations)</td>
<td>0.1, 1.0, 2.0</td>
</tr>
<tr>
<td></td>
<td>Major linear utilities (high voltage line running through the Silver Mountain – maintenance requirements, use of heavy equipment)</td>
<td>Impact on: local topography and plants cover</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Ground water pollution (wastewater social and living conditions, effluent rainwater center with high traffic, agriculture runoff)</td>
<td>Impact on: status of underground structures and adit portals, status of water discharged by ditches into rivers, fauna and flora</td>
<td>0.1, 1.9, 1.10, 2.8, 2.9</td>
</tr>
<tr>
<td></td>
<td>Surface water pollution (acid rain mine/tailings runoff, agricultural runoff)</td>
<td>Impact on: status of water discharged by ditches into rivers, fauna and flora</td>
<td>1.10, 2.9</td>
</tr>
<tr>
<td></td>
<td>Air pollution (excessive smoke or emissions, dust; transport, use of fossil fuels)</td>
<td>Impact on: status of architectural objects</td>
<td>1.5, 3.1, 3.6</td>
</tr>
<tr>
<td></td>
<td>Solid waste – landfill, installations for recovery or disposal of waste, illegal dumping (mine tailings, industrial waste, litter)</td>
<td>Impact on: status of water discharged by ditches into rivers, fauna and flora, scenic values</td>
<td>0.1, 1.0, 1.1, 1.2, 1.4, 1.8, 1.9, 1.10, 2.0, 2.8, 2.9, 3.2, 3.3, 3.4, 3.5, 3.6</td>
</tr>
<tr>
<td></td>
<td>Land conversion (agriculture, rural, forestry, meadow)</td>
<td>Impact on: objects and areas, landscape values, scenic values (particularly with regard to agricultural use), setting, relationship with the setting, fauna and flora</td>
<td>0.1, 1.2, 1.4, 1.5, 1.8, 2.2, 2.5, 1.10, 2.9, 3.2, 3.4, 3.5</td>
</tr>
<tr>
<td></td>
<td>Livestock farming/grazing of domesticated animals</td>
<td>Impact on: flora (calamine grasslands)</td>
<td>3.2, 3.4, 3.5</td>
</tr>
<tr>
<td></td>
<td>Crop production (plowing, crops, horticulture)</td>
<td>Impact on: landscape values, scenic values (particularly with regard to agricultural use), setting, relationship with the setting, fauna and flora</td>
<td>0.1, 1.2, 1.4, 1.5, 1.8, 1.10, 2.2, 2.5, 2.9, 3.2, 3.4, 3.5</td>
</tr>
<tr>
<td></td>
<td>Forestry /wood production (felling on mining areas), afforestation on field</td>
<td>Impact on: landscape values, scenic values (particularly with regard to agricultural use), setting, relationship with the setting, fauna and flora</td>
<td>1.2, 1.4, 2.2, 2.3, 2.4, 1.9, 1.10, 3.1, 3.3, 3.4, 3.5, 3.6</td>
</tr>
</tbody>
</table>
### List of factors affecting the Property

<table>
<thead>
<tr>
<th>Impact category</th>
<th>Impact subcategory</th>
<th>Characteristic of impacts</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical resource extraction</strong></td>
<td>Water (Acquisition of water and water management by the Upper Silesian Water Supply SA in Katowice and the Water and Communications Sp. z o.o.)</td>
<td>status of underground structures, flora and fauna</td>
<td>0.1, 2.6, 3.1</td>
</tr>
<tr>
<td><strong>Local conditions affecting physical fabric</strong></td>
<td>Wind (erosion, vibrations)</td>
<td>status of architectural structures, flora and fauna</td>
<td>1.3, 1.5, 1.8, 1.9, 2.5, 2.6, 3.1, 3.4</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>status of underground structures and adit portals, flora and fauna</td>
<td>0.1, 1.0, 1.10, 2.0, 2.9, 3.4</td>
</tr>
<tr>
<td></td>
<td>Micro-organisms</td>
<td>status of architectural structure (action by algae, fungi and other micro-organisms that cause corrosion by biological substances acting on walls of stone and brick, and wood and metal)</td>
<td>0.1, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.4, 3.6</td>
</tr>
<tr>
<td><strong>Social / cultural uses of heritage</strong></td>
<td>Society's valuing of heritage (changes in values leading to new uses of heritage resources, expansions of / additions to current uses of heritage resources, conflicting values abandonment)</td>
<td>identity of local community</td>
<td>all attributes</td>
</tr>
<tr>
<td></td>
<td>Spiritual religious and associative uses (festivals, performances etc.)</td>
<td>identification of sites, relationships with places</td>
<td>0.1, 1.0, 1.3, 1.6, 1.7, 1.9, 1.10, 2.0, 2.1, 3.1, 3.2, 3.3, 3.4, 3.6</td>
</tr>
<tr>
<td></td>
<td>Changes in traditional ways of life and knowledge system</td>
<td>local names</td>
<td>all attributes</td>
</tr>
<tr>
<td></td>
<td>Identity, social cohesion, changes in local population and community</td>
<td>identity and cohesion of the local community, changes in livelihoods, migrations to and from the place of heritage</td>
<td>all attributes</td>
</tr>
<tr>
<td></td>
<td>Impacts of tourism/visitor recreation (inappropriate/ non-existent interpretation, high levels of visitation, increase of vendors inside/outside site, building community support, sustainable livelihoods)</td>
<td>the status of areas and objects, understanding of heritage, identification of the sites, headcount, local finances and the finances of residents</td>
<td>0.1, 1.0, 1.2, 1.6, 1.7, 1.9, 1.10, 2.0, 2.1, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6</td>
</tr>
</tbody>
</table>

### List of factors affecting the Property, cont.

<table>
<thead>
<tr>
<th>Impact category</th>
<th>Impact subcategory</th>
<th>Characteristic of impacts</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other human activities</td>
<td>Illegal activities: bonfires (1.8, 1.9), inscriptions on buildings (1.9), digging up heaps, (2.5), backfilling of old mining areas (3.2), running over heaps (3.4)</td>
<td>status of the Property</td>
<td>1.8, 1.9, 2.5, 3.2, 3.3, 3.4</td>
</tr>
<tr>
<td>Climate change and severe weather events</td>
<td>Floods / droughts (the imbalance of water, lowering or raising the water level)</td>
<td>status of the Property, flora and fauna</td>
<td>0.1, 1.0, 1.9, 2.0, 2.8, 3.1, 3.4</td>
</tr>
<tr>
<td>Sudden geological or geological actions</td>
<td>Natural succession</td>
<td>status of the Property, flora and fauna</td>
<td>0.1, 1.0, 1.10, 1.5, 1.8, 1.9, 1.10, 2.0, 3.3, 3.4, 3.6</td>
</tr>
<tr>
<td></td>
<td>Mining damage, hollows</td>
<td>status of the Property, flora and fauna</td>
<td>0.1, 1.0, 2.0</td>
</tr>
<tr>
<td></td>
<td>Landslides</td>
<td>status of the Property, flora and fauna</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>Erosion and siltation / deposition</td>
<td>status of the Property</td>
<td>0.1, 1.0, 2.0</td>
</tr>
<tr>
<td></td>
<td>Fires (probability of fire because of the proximity to the forest or significant woodlots)</td>
<td>status of the Property</td>
<td>1.5, 1.6, 1.7, 1.8, 1.9, 3.3, 3.4, 3.6</td>
</tr>
<tr>
<td>Invasive/ alien species or hyper-abundant species</td>
<td>Hyper-abundant species (eg: displacing calamine flora)</td>
<td>flora</td>
<td>3.2, 3.3, 3.4</td>
</tr>
<tr>
<td>Management and institutional factors</td>
<td>Finding the owners</td>
<td>conservation work, search for funding, management of the Property and its interpretation</td>
<td>1.2, 1.3, 1.10, 2.3, 2.5, 2.7, 3.2, 3.3, 3.4, 3.5</td>
</tr>
<tr>
<td></td>
<td>Spatial policy</td>
<td>preservation of the Property, methods of use of the Property</td>
<td>1.5, 2.5, 3.4, 3.6</td>
</tr>
<tr>
<td>Other factors</td>
<td>Low impact research/ monitoring activities (archaeological investigations)</td>
<td>preservation of the Property,</td>
<td></td>
</tr>
</tbody>
</table>

### Other factors
7. Contact addresses of stakeholders and other relevant institutions and organizations mentioned in the Management Plan

<table>
<thead>
<tr>
<th>Lp./No.</th>
<th>Nazwa instytucji/ Institution name</th>
<th>Adres/ Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ministerstwo Kultury i Dziedzictwa Narodowego (Ministry of Culture and National Heritage)</td>
<td>ul. Krakowskie Przedmieście 15/17, 00-071 Warszawa, Tel.: +48 22 421 04 01, e-mail: <a href="mailto:minister@mkdn.gov.pl">minister@mkdn.gov.pl</a></td>
</tr>
<tr>
<td>2.</td>
<td>Ministerstwo Energii, Departament Górnictwa (Ministry of Energy, Department of Mining)</td>
<td>Plac Trzech Krzyży 3/5, 00-507 Warszawa, Tel.: +48 22 693 50 00, +48 22 693 53 90, e-mail: <a href="mailto:mg@mg.gov.pl">mg@mg.gov.pl</a>, <a href="mailto:sekretariatDGA@mg.gov.pl">sekretariatDGA@mg.gov.pl</a></td>
</tr>
<tr>
<td>3.</td>
<td>Ministerstwo Skarbu Państwa (Ministry of Treasury)</td>
<td>ul. Krucza 36/Wspólna 6, 00-522 Warszawa, Tel.: +48 22 695 87 94, e-mail: <a href="mailto:bm@msp.gov.pl">bm@msp.gov.pl</a>, <a href="mailto:minister@msp.gov.pl">minister@msp.gov.pl</a></td>
</tr>
<tr>
<td>4.</td>
<td>Kancelaria Prezydenta Rzeczypospolitej Polskiej (Chancellery of the President of the Republic of Poland)</td>
<td>ul. Wiejska 10, 00-902 Warszawa, Tel.: +48 22 695-29-00, Fax: +48 22 695-22-38, e-mail: <a href="mailto:listy@prezydent.pl">listy@prezydent.pl</a></td>
</tr>
<tr>
<td>5.</td>
<td>Narodowy Instytut Dziedzictwa w Warszawie (National Heritage Board of Poland)</td>
<td>ul. Kopernika 36/40, 00-904 Warszawa, Tel.: +48 22 826 02 39, e-mail: <a href="mailto:info@nid.pl">info@nid.pl</a></td>
</tr>
<tr>
<td>6.</td>
<td>Ośrodek ds. światowego dziedzictwa w Narodowym Instytucie Dziedzictwa (Centre for World Heritage at the National Heritage Board of Poland)</td>
<td>ul. Kopernika 36/40, 00-904 Warszawa, Tel.: +48 22 826 02 39, e-mail: <a href="mailto:unesco@nid.pl">unesco@nid.pl</a></td>
</tr>
<tr>
<td>7.</td>
<td>Śląski Wojewódzki Konservator Zabytków Wojewódzki Urząd Ochrony Zabytków w Katowicach (Silesian Voivodeship Monument Conservator Voivodeship Monuments Protection Office in Katowice)</td>
<td>ul. Francuska 12, 40-015 Katowice, Tel.: +48 32 253 77 98, e-mail: <a href="mailto:sekretariat@wzk.katowice.pl">sekretariat@wzk.katowice.pl</a></td>
</tr>
<tr>
<td>8.</td>
<td>Powiatowy Konservator Zabytków (County’s Conservator of Monuments)</td>
<td>ul. Karłowskie Przedmieście 5, 42-600 Tarnowskie Góry, Tel.: +48 32 381 37 89, e-mail: <a href="mailto:konservator@tarnogorski.pl">konservator@tarnogorski.pl</a></td>
</tr>
<tr>
<td>9.</td>
<td>Regionalna Dyrekcja Ochrony Środowiska w Katowicach (Regional Directorate of Environmental Protection in Katowice)</td>
<td>ul. Dąbrowskiego 22, 40-032 Katowice, Tel.: +48 32 420 68 01, e-mail: <a href="mailto:sekretariat.katowice@dos.gov.pl">sekretariat.katowice@dos.gov.pl</a></td>
</tr>
<tr>
<td>10.</td>
<td>Regionalna Dyrekcja Lasów Państwowych w Katowicach (RDLP Katowice) (Regional Directorate of State Forests in Katowice)</td>
<td>ul. Huberta 43/43, 40-543 Katowice, Tel.: +48 32 251 72 51, e-mail: <a href="mailto:sekretariat@katowice.lasy.gov.pl">sekretariat@katowice.lasy.gov.pl</a></td>
</tr>
<tr>
<td>11.</td>
<td>Nadleśnictwo Brynek, RDLP Katowice (Forest Inspectorate in Brynek, RDLP Katowice)</td>
<td>ul. Grabowa 3, Brynek 42-690 Tarnowskie Góry, Tel.: +48 32 285 76 63, e-mail: <a href="mailto:brynek@katowice.lasy.gov.pl">brynek@katowice.lasy.gov.pl</a></td>
</tr>
<tr>
<td>12.</td>
<td>Wyszyski Urząd Górnicy (State Mining Authority)</td>
<td>ul. Poniatańskiego 31, 40-055 Katowice, Tel.: +48 32 736 17 00, +48 32 251 14 71, e-mail: <a href="mailto:wug@wug.gov.pl">wug@wug.gov.pl</a></td>
</tr>
<tr>
<td>13.</td>
<td>Stowarzyszenie Miłośników Ziemi Tarnogórskiej (Tarnowskie Góry Land Lovers’ Association)</td>
<td>ul. Gliwicka 2, 42-600 Tarnowskie Góry, Tel.: +48 32 285 49 96, e-mail: <a href="mailto:smzt@kopalniasrebra.pl">smzt@kopalniasrebra.pl</a></td>
</tr>
<tr>
<td>14.</td>
<td>Tarnogórski Klub Taternictwa Jaskiniowego (Tarnogórski Club of Cave Exploration)</td>
<td>ul. Górcza 7, 42-600 Tarnowskie Góry, e-mail: <a href="mailto:tkjt@interia.pl">tkjt@interia.pl</a></td>
</tr>
<tr>
<td>15.</td>
<td>Stowarzyszenie Górnośląskich Kolei Wąskotorowych (Upper Silesian Narrow Gauge Railways Association)</td>
<td>ul. Reja – Parowozownia 7-902 Bytom, Tel.: +48 312 073 480, +48 666 904 142, e-mail: <a href="mailto:k.czanneck@sgkw.eu">k.czanneck@sgkw.eu</a></td>
</tr>
<tr>
<td>16.</td>
<td>Stowarzyszenie Trasy Rowerowe (Bicycle Routes Association)</td>
<td>ul. Francuska 30/7, 42-612 Tarnowskie Góry, e-mail: <a href="mailto:rafgis@o2.pl">rafgis@o2.pl</a></td>
</tr>
<tr>
<td>17.</td>
<td>Stowarzyszenie na rzecz zabytków fortyfikacji (Pro Fortalicum)</td>
<td>ul. Józefowska 10, 41-902 Bytom, Tel.: +48 663 745 323 (CEO), e-mail: <a href="mailto:dariusz.pietrucha@interia.pl">dariusz.pietrucha@interia.pl</a> (CEO)</td>
</tr>
<tr>
<td>18.</td>
<td>Śląskie Centrum Dziedzictwa Kulturowego w Katowicach (Silesian Centre of Cultural Heritage in Katowice)</td>
<td>ul. Juliusza Lgota 7, 40-036 Katowice, Tel.: +48 32 321 71 04, +48 32 321 42 21 wew./ext. 288, e-mail: <a href="mailto:poczt@scdk.pl">poczt@scdk.pl</a>, <a href="mailto:dyrektor@scdk.pl">dyrektor@scdk.pl</a></td>
</tr>
<tr>
<td>19.</td>
<td>Archiwum Państwowe w Katowicach (State Archive in Katowice)</td>
<td>ul. Józefowska 104, 40-145 Katowice, Tel.: +48 32 208 78 55, +48 32 208 78 01, e-mail: <a href="mailto:kancelaria@katowice.ap.gov.pl">kancelaria@katowice.ap.gov.pl</a></td>
</tr>
<tr>
<td>20.</td>
<td>Muzeum w Tarnowskich Górah (Museum in Tarnowskie Góry)</td>
<td>ul. Żyjeńska 1, 42-600 Tarnowskie Góry, e-mail: <a href="mailto:muzeum@muzeumtg.art.pl">muzeum@muzeumtg.art.pl</a></td>
</tr>
</tbody>
</table>
Contact addresses of stakeholders and other relevant institutions and organizations mentioned in the Management Plan, cont.

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</thead>
<tbody>
<tr>
<td>21.</td>
<td>Śląski Urząd Wojewódzki</td>
<td>ul. Jagiellońska 25 40-032 Katowice Tel.: +48 32 207 77 77 e-mail: <a href="mailto:wzk@katowice.uw.gov.pl">wzk@katowice.uw.gov.pl</a></td>
</tr>
<tr>
<td></td>
<td>Silesian Voivodeship Office</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Śląski Urząd Wojewódzki w Katowicach Wydział Bezpieczeństwa i Zarządzania Kryzysowego</td>
<td>ul. Jagiellońska 25, 40-032 Katowice tel.: +48 32 207 77 00 e-mail: <a href="mailto:wzk@katowice.uw.gov.pl">wzk@katowice.uw.gov.pl</a></td>
</tr>
<tr>
<td></td>
<td>Silesian Voivodeship Office</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Safety and Emergency Planning Department</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Urząd Marszałkowski Województwa Śląskiego Marshal’s Office of the Silesian Voivodeship</td>
<td>ul. Juliusza Ligonia 45 40-037 Katowice Tel.: +48 32 207 88 88 e-mail: <a href="mailto:kancelaria@slaskie.pl">kancelaria@slaskie.pl</a></td>
</tr>
<tr>
<td>24.</td>
<td>Starostwo Powiatowe w Tarnowskich Górah County (District) Starost Office in Tarnowskie Góry</td>
<td>ul. Karłuszowiec 5 42-600 Tarnowskie Góry Tel.: +48 32 381 37 25, +48 32 381 37 11 e-mail: <a href="mailto:kancelaria@tarnogorski.pl">kancelaria@tarnogorski.pl</a>, <a href="mailto:starosta@tarnogorski.pl">starosta@tarnogorski.pl</a></td>
</tr>
<tr>
<td>25.</td>
<td>Urząd Miejski w Tarnowskich Górah Town (City) Hall in Tarnowskie Góry</td>
<td>Rynek 4 42-600 Tarnowskie Góry Tel.: +48 32 393 36 00 e-mail: <a href="mailto:sekretariat@tarnowskiegory.pl">sekretariat@tarnowskiegory.pl</a></td>
</tr>
<tr>
<td>26.</td>
<td>Urząd Miejski w Bytomiu</td>
<td>ul. Parkowa 41-902 Bytom Tel.: +48 32 281 20 51 e-mail: <a href="mailto:um@um.bytom.pl">um@um.bytom.pl</a></td>
</tr>
<tr>
<td></td>
<td>Town (City) Hall in Bytom</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Urząd Gminy Zbroślawice</td>
<td>ul. Oświęcimska 2 42-674 Zbroślawice Tel.: +48 32 233 70 12 e-mail: <a href="mailto:urzad@zbroslawice.pl">urzad@zbroslawice.pl</a></td>
</tr>
<tr>
<td></td>
<td>Zbroślawice Commune Office</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>Górnośląskie Przedsiębiorstwo Wodociągów S.A. w Katowicach Upper Silesian Water Supply joint-stock company in Katowice</td>
<td>ul. Wojewódzka 19 40-026 Katowice Tel.: +48 32 603 88 61 e-mail: <a href="mailto:gpw@gpw.katowice.pl">gpw@gpw.katowice.pl</a></td>
</tr>
<tr>
<td>29.</td>
<td>Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. w Tarnowskich Górah Water Supply and Sewerage limited liability company in Tarnowskie Góry</td>
<td>ul. Opolska 51 42-600 Tarnowskie Góry Tel.: +48 32 784 02 33 e-mail: <a href="mailto:sekretariat@pwik-tg.pl">sekretariat@pwik-tg.pl</a></td>
</tr>
<tr>
<td>31.</td>
<td>Oddział Gospodarowania Nieruchomościami PKP S.A. w Katowicach Department of Real Property Management of PKP S.A. in Katowice</td>
<td>ul. Dworcowa 3 40-012 Katowice Tel.: +48 783 916 752 e-mail: <a href="mailto:pawel.kopczynski@pkp.pl">pawel.kopczynski@pkp.pl</a></td>
</tr>
</tbody>
</table>
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Krzysztof Ziętek – p. 35 bottom, 37 top, 43 bottom, 49 top
Wojtek Stankiewicz – p. 6, 25, 31 top
Maciej Gorył – p. 53 bottom
Piotr Gad – p. 31 bottom, 35 top, 37 bottom, 47 top and bottom, 56, 78
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Przemysław Rubacha – p. 27, 39
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Zenon Lis – p. 4
TGLLA’s archives – p.8
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Annex
Wojtek Stankiewicz – front page
ICOMOS INTERIM REPORT REQUESTS (by 28 February, 2017)

JUSTIFICATION FOR INSCRIPTION
The ICOMOS Panel understood that the focus of this nomination is the underground mining and water management systems and refer to two major periods of mining exploitation – from the late 15th to the early 17th century and later from the late 18th to the early 20th century. ICOMOS would like to have a more precise understanding of what survives from the two periods in terms of tangible attributes supporting the justification for inscription and how both below and above ground structures have been selected among the surviving ones. This extends also to those features related to the water management system.

The ICOMOS Panel found interesting the use and adaptation of the dewatering system of the mines to supply water to the town and the emerging industrialisation of Upper Silesia and would like to receive more information on how the system was adapted to such purpose, how the system was set up, what steam machinery was used – either imported from the United Kingdom or then produce in Upper Silesia – what infrastructures were created from the origin to the delivery points, what survives of this system from the epoch of their realisation, either in place or in museums in the area, in order to better understand how this narrative could be supported by actual surviving attributes.

The focus of this nomination is centred on the underground mining and water management system that was successively developed, in two principal phases, from the late 15th to the early 20th century.

The greatest contribution to potential OUV is present in the underground and aboveground mining-water management technical ensemble that dates from the late 18th to the early 20th century. This is because it is this system that also incorporated water supply (potable, fire, and industrial) that was coeval with mine dewatering – all from within the same property under singular state ownership and operational management. This is an exceptional and far-sighted technical achievement that was at the cutting-edge of mining and modern water distribution. And this later ensemble incorporates the earlier ensemble that is a necessary inclusion to demonstrate functional integrity.

Surviving elements from the two principal periods that represent tangible attributes in support of the justification for inscription are:

<table>
<thead>
<tr>
<th>ATTRIBUTE</th>
<th>1st MINING PERIOD</th>
<th>2nd MINING PERIOD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15th – 17th century</td>
<td>18th-20th century</td>
</tr>
<tr>
<td>0.1 Underground Workings</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1.0 Friedrich Mine Deep Adit</td>
<td></td>
<td>X</td>
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<tr>
<td>1.1 Peace Shaft</td>
<td></td>
<td>X</td>
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<tr>
<td>ATTRIBUTE</td>
<td>1st MINING PERIOD</td>
<td>2nd MINING PERIOD</td>
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<tr>
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<td>15th – 17th century</td>
<td>18th – 20th century</td>
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<tr>
<td>1.2 Bohr Shaft</td>
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<td>X</td>
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<tr>
<td>1.3 Adolph And Machine Shafts</td>
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<td>1.4 Help Happiness Shaft</td>
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<td>X</td>
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<tr>
<td>1.5 Adit Engine Shaft No. 22</td>
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<td>X</td>
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<tr>
<td>1.6 Adit Shaft No. 17</td>
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<td>1.7 Adit Shaft No. 13</td>
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<tr>
<td>1.8 Adit Shaft No. 5</td>
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<td>X</td>
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<tr>
<td>1.9 Friedrich Mine Adit Portal</td>
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<td>X</td>
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<tr>
<td>1.10 Friedrich Mine Adit Ditch</td>
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<td>X</td>
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<tr>
<td>2.0 God Help Adit</td>
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<tr>
<td>2.1 Angel Shaft</td>
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<td>2.2 Viper Shaft</td>
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<td>2.3 God Bless Shaft</td>
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<td>2.4 Heinitz Shaft</td>
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<td>2.5 Reden Shaft</td>
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<td>X</td>
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<td>2.6 Kaehler Shaft</td>
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<td>X</td>
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<tr>
<td>2.7 Frederica Shaft</td>
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<td>X</td>
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<tr>
<td>2.8 God Help Adit Portal</td>
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<td>X</td>
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<tr>
<td>2.9 God Help Adit Ditch</td>
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<td>X</td>
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<tr>
<td>3.1 Adolph Shaft Waterworks</td>
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<td>X</td>
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<tr>
<td>3.2 Mining Landscape (19th C)</td>
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<td>X</td>
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<tr>
<td>3.3 Mining Landscape Of Silver Mountain</td>
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<tr>
<td>3.4 Friedrich Mine Washing Tip</td>
<td></td>
<td>X</td>
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<tr>
<td>3.5 Original Site Of Friedrich Mine</td>
<td></td>
<td>X</td>
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<tr>
<td>3.6 Municipal Park</td>
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<td>X</td>
</tr>
</tbody>
</table>

Late 15th to the 17th century

At surface: The mine dewatering features of God Help Adit Portal and Ditch (2.8 and 2.9) - selected as it was the principal adit system of this period and one that was later integrated into the complete modern system of the second phase of mining (late-18th/19th c) under the Prussian state; and the large number of small-scale and closely spaced shafts at Silver Mountain (3.3) – selected as the largest concentration of such shafts in the entire Tarnowskie Góry area, one that is best-preserved (for centuries set in beech forest) in terms of illustrating characteristic ‘pingi’ and ‘warpie’ terrain, and comprising an ore zone that is entirely underlain by the second phase of workings drained by the Friedrich Deep Adit (it is connected underground).

Underground: The mine dewatering features of God Help Adit (2.0) that display fine architectural structures of masonry arches, buttresses and lichlocht shuttering in the accessible adit section; St Jacob’s Adit northeast of Kaehler Shaft (another very important adit that drained north into the Stola River, currently inaccessible due to potable water abstraction but included well within the property’s
northeast boundary lobe and having considerable archaeological potential); Krakow Adit and adit shafts located parallel to the Friedrich Deep Adit (located within the property boundary and subject of future archaeological investigation; again an important adit undertaking but one that ultimately failed and was abandoned, but that was a consideration in the location of the Friedrich Deep Adit); and areas of archaeological potential above the 16th-17th and 18th-20th century workings (including those in Silver Mountain).

**Late 18th to the early 20th century**

At surface: Water supply features at Adolph Shaft Waterworks (3.1) – the principal and entire architectural ensemble of the waterworks, together with its former mining context in close proximity (3.2); Mine dewatering features, shafts, and commemorative features at the Original Site of Friedrich Mine (A7), a landscape with considerable archaeological potential for furthering the understanding of the earliest water management undertaken during the late 18th c; and Friedrich Mine Washing Tip (3.4), the centralised and principal ore processing site using industrial water drawn via Peace Shaft (1.1) and represented by the singular landmark waste heap of washed dolomite (a testimony to the scale of mining) bearing low grade ore and now the site of rare calamine flora.

Underground: Water supply features – the principal shafts 1.1, 1.3, 1.4, 2.5, 2.6 and 2.7; dewatering features – shafts 1.5, 2.4, 2.7; ventilation/adit system construction shafts – 1.2, 1.6, 1.7, 1.8; the 50 km of gravity-flow main adits for dewatering and water supply, and the 150 km of other branch adits, levels and chambers. The Municipal Park (A8) preserves representative mining topography that contains numerous shafts that connected with the Friedrich Deep Adit that runs beneath.

The interconnected underground mining system and the underground water management system within the mine have been included in their entirety. The principal surface features necessarily selected to achieve functional integrity are the Waterworks and the adits, adit ditches and shafts. Other features have been selected among those surviving at surface as supporting and to assist orientation and spatial understanding of the underground network.

**Steam machinery used to enable construction of the adit system, to wash ore, and to pump water for potable water supply**

See Nomination Document pages 226-241:
- Imported from UK - First engine (Newcomen), Third and Fourth engines (Newcomen), Fifth engine (Boulton & Watt), Sixth engine (Newcomen with Watt condenser).
- Produced in Upper Silesia – Second engine (Newcomen, based on First engine), Seventh engine (based on Fifth engine), and Eighth engine (based on Fifth engine). These are the ones used at Friedrich Mine (see map page 229). A number of other engines were

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1 These could be merged into one surface area centred on Adolph shafts and the Waterworks, using a minor boundary modification if the Panel so recommends.
2 Though this area is intimately associated with the mine historically and in terms of community values and cultural tradition, it could be removed from the nomination through a minor boundary modification if the Panel so recommends.
produced in Silesia – particularly for use on coal mines – based on these early imports and subsequently refined to suit local circumstances.

Highly significant is that it was the technology transfer from the UK to Friedrich Mine (Tarnowskie Góry Mine) in Silesia that facilitated the origin of the German manufacturing capacity for the latest steam engines. There were no patent agreements secured between the UK and Prussia (Silesia was Prussian territory at the time), and this meant that the steam engines of Newcomen and Boulton & Watt designs were not only installed at the mine during the construction of the gravity mine dewatering system but copied (noted as technical ‘piracy’ at the time) and manufactured in Silesia at local foundries such as Mala Pana (Mała Panew), a foundry still in operation.

<table>
<thead>
<tr>
<th>NO.</th>
<th>TYPE</th>
<th>CYLINDER diameter (inches)</th>
<th>ORIGINS/ construction place</th>
<th>COST</th>
<th>SUBSEQUENT WORKING STATIONS</th>
</tr>
</thead>
</table>
| 1.  | NEWCOMEN | 32”                      | Penydarran Samuel Homfrey Plant (Wales) | 15000 talars | 1st FRIEDRICHSGRUBE mine, machine shaft Abraham (1788)  
2nd FRIEDRICHSGRUBE mine, machine shaft Fryderyka (1801)  
3rd coal mine KÖNIG in Chorzów (1834)  
4th coal mine Funny in Sosnowiec (1857)  
5th unknown, probably dismantled |
| 2.  | NEWCOMEN | 20”                      | Huta Mala Pana (smelting house) (Upper Silesia – Prussia), cylinder constructed in England | no records | 1st FRIEDRICHSGRUBE mine, shaft no 11 Gotthelf (1790)  
2nd FRIEDRICHSGRUBE mine, shaft no 12 (1791)  
3rd FRIEDRICHSGRUBE mine, shaft no 22 Gotthelf (1795)  
4th coal mine KÖNIGIN LUIZA in Zabrze (1804)  
5th coal mine CHARLOTTE in Czernica (1809)  
6th unknown, probably dismantled |
| 3.  | NEWCOMEN | 40”                      | Penydarran Samuel Homfrey Plant (Wales) | 16200 talars | 1st FRIEDRICHSGRUBE mine, machine shaft Pachaly (1791)  
2nd FRIEDRICHSGRUBE mine, machine shaft Bergdrozd (1802)  
3rd coal mine KÖNIGIN LUIZA in Zabrze (1811)  
4th unknown, probably dismantled |
| 4.  | NEWCOMEN | 48”                      | Banks Plant in Bental (England), Huta Mala Pana in Ozimek (Upper) | 17000 talars | 1st FRIEDRICHSGRUBE mine, machine shaft Heinitz (1792)  
2nd engine dismantled (1802) |
<table>
<thead>
<tr>
<th>NO.</th>
<th>TYPE</th>
<th>CYLINDER diameter (Inches)</th>
<th>ORIGINS/ construction place</th>
<th>COST</th>
<th>SUBSEQUENT WORKING STATIONS</th>
</tr>
</thead>
</table>
| 5   | BOULTON & WATT | 40”                        | W. Wilkinson Plant in Staffordshire (England) | 16800 talars | 1st FRIEDRICHSGRUBE mine, Reden shaft (1796)  
2nd FRIEDRICHSGRUBE mine, Adolph shaft (1822)  
3rd coal mine KÖNIGIN LUIZA in Zabrze (1834)  
4th unknown, probably dismantled |
| 6   | NEWCOMEN     | 24”                        | Huta Mala Pana in Ozimek (Upper Silesia – Prussia) | no records | 1st FRIEDRICHSGRUBE mine, Fuchs shaft (1796)  
2nd coal mine HOYM in Strzyżowice (1803)  
3rd unknown, probably dismantled |
| 7   | BOULTON & WATT | 60”                        | Huta Mala Pana in Ozimek, Iron Foundry in Gliwice (Upper Silesia – Prussia) | 24800 talars | 1st FRIEDRICHSGRUBE mine, machine shaft Reden (1802)  
2nd FRIEDRICHSGRUBE mine, machine shaft Fryderyka (1806)  
3rd zinc mine WILHELMINE in Szarlej (1834)  
4th unknown, probably dismantled |
| 8   | BOULTON & WATT | 24”                        | Huta Mala Pana in Ozimek, Iron Foundry in Gliwice (Upper Silesia – Prussia) |         | 1st FRIEDRICHSGRUBE mine, machine shaft Aurora (1804)  
2nd FRIEDRICHSGRUBE mine, shaft Frieden (1808)  
3rd FRIEDRICHSGRUBE mine, machine shaft no 22 Tiefe Friedrich Stollen (1825)  
4th FRIEDRICHSGRUBE mine, shaft Glück Tiefe Friedrich Stollen (1832)  
5th FRIEDRICHSGRUBE mine, shaft Frieden (1835)  
6th machine dismantled (1876) |

The above steam engines were intended as highly mobile ‘stationary’ beam engines – an exceptional circumstance in the history of steam beam engines for large engines to be used in such a manner. Gravitational free-flowing adits were driven with precision leveling and intricate interconnectivity to optimize water catchment and to direct flow as required to various sumps where steam-pumping ‘lifts’ could raise the water to a higher level when necessary. When the extensive adit network was completed, the steam engines used in the network construction were dispensed with.
From highly accurate archive sections and plans we have illustrated the layout and water pumping method used at key shafts. Shafts that were used for the Municipal Water Supply (see Nomination Document pages 258-262) were Reden (1797-c1808), Fredericke (1810-1835) and Kaehler (1835 to present day). All shafts are located within the nominated property, as are the levels from which they intercepted water. Mine steam-powered beam engines pumped water to surface cisterns (shaft collar positions were selected on high ground/high elevations, and water was deposited in elevated cisterns/reservoirs to achieve maximum head pressure) and then transported by gravity in iron pipes (cast in the local foundry) to wooden cisterns in the Marketplace.

Ill. 1 The third steam engine (Newcomen, 1791), used at the Original Site of Friedrich Mine, pumping water from sump to surface. There is archaeological potential for locating the shallow underground but covered adit ditch (“rosche”).

Ill. 2 The fifth steam engine (Boulton & Watt, 1796) pumping from Reden Shaft, the source of the first municipal water supply.
Ill. 3 The relocated first steam engine (Newcomen, 1801) and seventh steam engine (Boulton & Watt, 1806) pumping from Frederike Shaft.

Ill. 4 Pumping from Kaehler Shaft, which began in the 1830s and continues today.

Ill. 5 The Friedrich Deep Adit (completed 1834) and its intersecting shafts.
The municipal water supply system was modernised on a regular basis during the period of 220 years, with many old features remaining and that coexisted, yet were displaced technologically, by the new. Pumping, treatment and transportation have been upgraded to new technology that meet modern safety requirements and that are able to provide sufficient water supply for the town. The waterworks continue to use Kaehler shaft and the mining corridors that comprise its watershed. In machine shafts and Frederica shaft there are still remains of pipeworks and pitwork.

**Survived elements of the Waterworks**

The Adolph Shaft Waterworks underwent successive modernisation. In the underground part there have been preserved the two shafts Adolph and Machine shafts, pump chambers “A”, “B”, “C”, deep-ground drilling, ferroconcrete retention tank of 1200m3 as well as excavations connecting pump chambers adits, corridors and mining pits. All sorts of waterworks and steam installations, compressors, anti-impact tanks, electric engines, pumps and other equipment, some still in use until 2001, have been preserved. One of the most valuable remnants among the surviving equipment is a steam piston compound engine that dates to 1902 and was modernised by the Starke und Hoffman Company in 1922. It is the only such underground steam-powered pumping system that survives in substantial condition anywhere in the world – either in a waterworks or mining context. The remains at surface include two octagonal brick “Malakoff” buildings constructed over Adolph and Machine
shafts. In addition, there is a brick-built boiler house, switching station with electric power generators, electro-mechanical workshop, baths, warehouse and doorkeeper’s room. There is also a historical garden that once belonged to the inhabitants of the waterworks, the complex being surrounded by a perimeter brick wall. In the boiler house one of nine Lancashire boilers survives, together with waterworks installations levelling-up and anti-impact tank produced in Siemianowice in 1930.


There are also five different steam pump systems:

- 2 pieces of Schwade & Co. Erfurt, Dendsche "Automat" Dampfpumpenfabrik from 1903
- 1 piece of CH. JAEGER Co. Pumpen und Geblase Werk – Leipzig Maschinen from 1903
- 1 piece of U. Armatur Fabrik Vorm. Klein, Schauzlin & Becker Frankenthal, Pfalz from 1903
- 1 piece of Steam engine produced in Zieleniewski SA factory in Krakow

These are conserved and on display in the steam machinery open-air museum of the Historic Silver Mine in Tarnowskie Góry.

The red-brick-lined Gluck Shaft (Attribute 1.4, Nomination Document, pp. 106-107) that was part of Adolph Shaft Waterworks and the Southern Adit System has also been wholly preserved. There is also an underground pump chamber, deep drilling and a part of the waterworks system.

Due to modernisation of the water supply system the pipes leading to external recipients were all upgraded and replaced with modern technology pipes. The last modernisation process took place in 2015.

Infrastructures created from the origin to the delivery points

From the underground system intercept and the Waterworks, water was supplied in underground cast iron pipes to towns and industry. The network supplied the Upper Silesian Agglomeration.

Il. 7 Water supply for the Upper Silesian Industrial Region till 1922
Set up of the underground water management system

The function of the Northern Adit System was originally to accumulate water from the Reden section and with the use of a steam engine to pump it into God Help Adit for discharge. The machine was removed in 1834 when the Northern and Southern Systems were connected. The entire system of underground corridors used for draining particular zones remains well preserved and mostly accessible.

The Southern Adit System, resting on the Friedrich Deep Adit is unobstructed in its entirety to the opening of the adit and its flow into the Drama river.

THE NORTHERN AND SOUTHERN ADIT SYSTEMS
(Nomination Document, pages 92-141)

The rediscovery of rich silver deposits in 1784 marked the beginning of the new era of mining in Tarnowskie Góry. The Friedrichsgrube Prussian Royal Mine was opened and the mining area was divided into four areas, namely Adit area (God Help Adit/Gotthelf Stolln), Urban area (Stadt), Bobrowniki (Bobrowniker) area and Sucha Góra area (Trockenber). In all areas, mining work was performed simultaneously. However, owing to the fact that lead-silver ores had previously been excavated from more shallow deposits, the miners had to expand their mining operations much deeper, from 35 to 50 m below ground. Water infiltration from the surface hindered further work. Alternating structure of sedimentary rocks with gravel and sands results in significant infiltration of surface water deep into the ground. The main reason for the excavations being flooded is precipitation that penetrates through the system of cracks, chaps and karst caverns. Fortunately, thanks to technological advancement, the drainage equipment was much more effective than the 16th or 17th century systems. Two types of drainage pumps were used, both horse-powered. The first one serviced a single shaft, while the other one, using rotation and a system of drawbars started water pumps simultaneously in three shafts (mechanisation progress discussed on pages 197/205). The effectiveness of horsemills and drainage pumps was limited because they enabled dewatering to a depth of only 35 m, while bigger deposits of galena (lead and silver ore) were located below that level. Bearing in mind such a large inflow of water, a decision was made to reinstall the solution already used in Tarnowskie Góry, that of gravitational adit drainage (Pages 206/211). A decision was made to build the Kunst Rosche adit in the Bobrowniki area (Original Site of Friedrich Mine, and currently a district of Tarnowskie Góry) which, built at the depth of approx. 5 m, was to support the drainage pumps. However, with time this adit also proved insufficient.

NORTHERN ADIT SYSTEM
(Nom. Doc., p. 120)

Intense development of mining in various regions of Tarnowskie Góry once again required innovative solutions that contributed to the development of the Northern Drainage System (Page 120) so that it could cover all of the mining areas. Therefore, Friedrich Anton Heynitz, the Minister of Mining and
Milling Department in the Prussian Government and Friedrich Wilhelm von Reden, the director of State Mining Authority in Wrocław, designed a system that would use the existing Boże Wspomóż [God Help] Adit (built in 1652). To do so, the redundant adit was reviewed and one of the shafts was reconstructed. However, the results of exploration were not satisfactory because the adit was collapsed over a few subsequent lengths due to poor strata. It was necessary to plan the construction of a new adit of the same name (Gotthelf in German) (Attribute 2.0, Page 121); for the first length up to 40 m the adit followed the old gallery, and then it was led in parallel to the old one (the traces of the shafts of both adits can still be seen on the surface today). According to the design, the galleries were to be made in individual areas at different depth and connected with each other whereas the post-mining water was to flow to the surface through the adit itself. The problem was the flat area of Tarnowskie Góry where the elevation of the terrain of the adit outlet allowed for reaching the depth of approximately 44 m near the Reden Hill. To reach the silver deposits located lower, drilling in the Urban (Stadt) areas was planned to create a gallery called Reden Underground Passage located 5.848 m below the adit level. This gallery was the lowest mining gallery of the entire system and thus became the drainage sump from all the other galleries. The idea was to accumulate the water at the ultimate shaft of the Reden Underground Passage, named Friedrich, at the height of the God Help Adit from where it was to flow to the Stola river. Considering the effectiveness and energy consumption of the machines the idea seemed perfectly reasonable. Instead of being pumped to the surface, the water was pumped only 6 m to the adit. The plan was for Sucha Góra (Trokenberg) areas to drain Zuflucht gallery (2770 m in length), Bobrowniki (Bobrowniker) area– Heinitz gallery (Heynitz, 4239 m in length), Urban (Stadt) area – Reden Underground Passage (3350 m in length), Adit (Stolln) area – God Help Adit (3151 m in length) (Elevation differences for individual galleries – pages 96/97). Additionally, to drain the area of Sowice, Kaehler galleries (2469 m in length) and Sowitzglük (approx. 600 m in length) were designed. The work was conducted at the same time in different areas with the mine faces progressing towards one another to make a connected level passage.

Such a big venture required the use of eight steam engines; the first of them had a 32” Newcomen cylinder (Page 234), that was imported from England and was put into operation as early as in 1788 on the Abraham engine shaft (Original Site of Friedrich Mine). Entries in the Golden Book of Tarnowskie Góry (Pages 222/225 Steam Technology) attest to the wonder of the technological advances and installations at the mine during the late 18th century.

**God Help Adit area (Stolln)**

In autumn 1785 the work began to construct the God Help (Gotthelf) Adit and the adit, portal (Attribute 2.8, Page 136/139) and the old mining water drainage ditch to the river, a key functional surface element of the adit system (Attribute 2.9, Page 140/141). The adit was driven in very demanding geological conditions by mine faces progressing towards one another to make a passage from 25 shafts sunk along the designated line. Numerous caves-in, dust clouds and robust water inflow slowed down the work. A horsemill at shaft no. 10 was set up to drain residual water. In 1790 a decision was made to use a second Newcomen steam engine (Page 235) manufactured partially at the Mala Pana steel mill in Ozimek located nearly 60 km from Tarnowskie Góry. The machine featured a 20” cylinder manufactured in England. The steam engine was operational between shafts no. 11, 12 and 22 in the God Help Adit and in 1795 it was handed over to the Royal Coal Mine, Królowa Luiza (Queen Louise), in Zabrze. In June 1800 under the same conditions the section measuring 2192 m long was excavated from the mouth to shaft no. 25. In the same year, approx. 960 m away from shaft no. 25, close to the Fryderyk drifting shaft ("Friederike"), (Attribute 2.7, Page 134/135) the machine shaft
("Maschinenschacht") was sunk. Due to the progress of mining works, the first 32" stream engine was no longer needed in the region of the Abraham shaft and it was moved to the machine shaft, Fryderyk. The engine was then reconstructed and used to crush ores and pump water from the Reden Underground Passage. Water was directed in this area via a launder for treating ores – Attachment No. 9, and was subsequently conveyed through channels to the Stola river. The channel was used to supply another six buildings (Pochwerk) where the waterwheel-powered machines to crush and wash ores were placed. At the end of the channel, the final launder was set up, from where water was subsequently discharged to the river. Between the "Friederike" shaft and shaft no. 25, the "Freiwächter", "Reichard" and "Mittelschacht" shafts were sunk. In July 1803 the excavation work was performed at the two ends, from shaft no. 25 and the "Friederike" shaft, which resulted in connecting the drift. Its length was then 3151 m.

**Zuflucht – Sucha Góra area (Trockenberg)**

The Sucha Góra (Trockenberg) area is the most southern area of the Tarnowskie Góry plateau. This area featured older 16th century excavations. A decision was made to drain off this region by the Zuflucht gallery, which would facilitate entry to the ores lying below the surface of the water which had not been removed in previous periods. The work was performed from the two ends to connect the gallery, at the following shafts: Pachaly at the depth of 36 m, Elisabeth – 32 m, Wietz – 28 m, Zuflucht – 31 m, Adelhaid – 34 m, Ziel – 31 m, Baltzer – 41 m, Rabe – 56 m, Fuchs – 49 m and Eggenberg – 58 m. In the first stage of gallery construction, the drainage function in the Pachaly shaft (Pages 230/231) was taken over by the first engine located approx. 300 m away at the Abraham machine shaft. The engine started the pumps using the system of drawbars and pulley blocks. As late as in 1791 the third Newcomen steam engine with the 40" cylinder (Page 236) was imported and mounted on the Pachaly shaft. The shaft was deepened to the level of the Heinitz gallery, were the pumps operated in two stages. The water wheel placed in the shaft was propelled by water falling down from the Zuflucht gallery (located 5.36 m away) which started additional pumps that conveyed water to the indirect reservoir mounted in the shaft. Then water was pumped out to the surface using the pumping station. This system boosted the efficiency of the steam engine and reduced the use of fuel, i.e. coal. Water was drained off through special channels and used for industrial purposes in the next nearby silver ore launder. Additionally, at the final shaft, Eggenberg, a horsemill was set up which was also used to drain off the gallery. In 1796, the sixth 24" steam engine was built in the Fuchs shaft (Page 239). This engine was constructed in the Mala Pana steel mills and featured a separate Watt steam condenser. At the end of 1802, the gallery between the Fuchs and Rabe shafts was connected and water flowed off from the entire Zuflucht gallery to the Heintz gallery. The engine operated on the Fuchs shaft until 1803, and then was handed over to the Hoym hard coal mine, on the Tadeusz shaft.

**Heinitz – Bobrowniki area (Bobrowniker)**

From the Heinitz gallery in the Bobrowniki area water was channelled by the use of machine shaft set up in 1787 nearby the shaft with the same name, Heinitz (Attribute 2.4, Page 130/131). The shaft was approx. 38 m. In the initial period, the shaft was drained by horsemill pumps, carrying water eastbound near the Abraham shaft to the Kunszt Rosche drift. To expedite the construction of the system, in 1792 the fourth Newcomen steam engine with 48" cylinder (Page 237) was imported. The engine was manufactured in the William Banks factory in Bental, Shropshire, England. Pumped water was drained off through special channels to the launder located nearby the Pachaly shaft. In the first stage, the Heinitz gallery was sunk in a north-westerly direction to the Reden shaft at the depth of 39 m to connect to the deepest gallery of the Reden Underground Passage system in the Urban area. Then the gallery leading from the Heinitz shaft was excavated in a westerly direction through the
Minnigerode shaft at the depth of 38 m and then in the direction of the Aniol (Angel) shaft – 42 m, Żmija (Viper) – 47 m, Szczęść Boże (God Bless) – 42 m and further on. In this region the 900 m long galena ore deposit was discovered. In the next stage, the gallery was excavated from the Minnigerode shaft in the southerly direction to the Veronika shaft at the depth of 44 m, Nettelbeck – 41 m, Sophia – 37 m, Frieden – 53 m and further on. Also, in this region the 300 m long rich ore deposit was discovered. In 1802 the Heinitz gallery was connected to the Reden Underground Passage between the Bernhardi shafts and the Reden machine shaft. Consequently, water flowed off from Zuflucht gallery to the Heinitz gallery and then to the Reden Underground Passage, which was 2.56 m deeper than the previous gallery. After connecting those galleries, all steam engines from the Sucha Góra and Bobrowniki areas could be removed from operation. The fourth 48" steam engine was scrapped and the third 40" steam engine was in 1802 moved on the Bergdrosd machine shaft in the Urban (Stadt) area.

Reden Underground Passage – Urban (Stadt) area

This gallery was excavated in the similar manner as the previous ones — by excavating from several points to speedily make a passage. The Bergdrosd shaft, where the third steam engine was placed, was excavated in a southerly direction, 1102 m away from the Fryderyk shaft. The engine not only drained off galleries but also supplied water to yet another launder. In 1811, the engine was handed over to the Królowa Luiza (Queen Louise) hard coal mine in Zabrze in order to build the Hereditary Drift. Then another shaft, Fortuna, was excavated from the Bergdrosd shaft which was located 235 m away. Moving further under the Urban Park (Attribute 3.6, pages 170/175), the Aurora shaft was excavated within the distance of 295 m. The gallery, Reden Underground Passage, ran further in the southerly direction through the Corally shaft, reaching the Reden shaft (Attribute 2.5, Nomination Document, p. 132/133) which was located 795 m from the Aurora shaft. In 1796 the fifth Watt-Boulton steam engine with a 40" cylinder (Page 238) was located on the Reden shaft. The machine was put to operation in 1797 and it was first machine of this type to be used in mining in the European continent. Due to advancing works related to completion of the Reden Underground Passage and loss of water in wells, the machine was used to supply water for urban purposes. In 1822, in order to build the Southern Drainage System the machine was moved onto the Adolf shaft (Attribute 1.3, Page 102/103). The machine was operational in Tarnowskie Góry mining industry until 1834 and then was moved on the Martin shaft in the Królowa Luiza (Queen Louise) mine. The Reden Underground Passage was excavated from the Reden shaft in a westerly and then in a south-westerly direction, reaching the Szczęść Boże shaft and then the Żmija (Viper) shaft. Today, the water gallery between the Attributes 2.2 and 2.3 is used for touring the Historic Silver Mine. By the time the Reden Underground Passage was completed, the Reden shaft region was a central point used to drain off the three areas. Nearby the Reden shaft, the next machine shaft was made. There in 1802, the seventh 60" Watt-Boulton steam engine was placed (Nomination Document, p. 240). The machine was manufactured (a copy) in two plants: in the Mala Pana steel mills in Ozimek and the iron plant in Gliwice. In the initial period, the steam engine supplied water to the iron ore launder located near the Stanisław shaft. In 1804 the eighth 24" Watt-Boulton steam engine was placed on the Aurora shaft (Nom. Doc. P. 241). It was also constructed in the Mala Pana steel mills in Ozimek and the iron plant in Gliwice. The machine was used both to drain off the section of the work around the Reden Underground Passage and to supply urban waterworks. It was the longest operating machine among the other eight steam engines in the Tarnowskie Góry region. In 1808 it was moved on the Frieden shaft to the yet another silver ore launder. In the following years, it was used to build the Southern Drainage System – the Friedrich
Deep Adit, and was moved on the machine shaft no. 22 (Attribute 1.5, Nom. Doc., p. 108/109). As the work advanced, in 1832 the machine was further moved on the Szczęśliwa Pomoc shaft (Lucky Help, Glückhilf) (Attribute 1.4, Nom. Doc., p. 106/107). After completing the Southern Drainage System, the steam engine was returned on the Frieden shaft, where it supplied the Central Launder of the Friedrich Mine (Attribute 3.4, Nom. Doc., p. 162/163) until it was scrapped in 1876. Additionally, to reach old 16th century excavations in the Sowice region, in the following years Kaehler and Sowitzglük galleries were excavated — they ran 6 m below Św. Jakub (St. Jacob) Adit from 1563. Both galleries were excavated to the Kaehler shaft (Attribute 2.6, Nom. Doc., p. 134/135), and then the connection to the Reden Underground Passage was made.

In August 1806 the gallery, Reden Underground Passage, was completed — it connected the Fryderyk and Bergdrosd shaft. In the same year, the 60" steam engine was moved from the Reden machine shaft onto the Fryderyk machine shaft. The God Help Adit was put into service on 4 October 1806. The opening of the adit was very solemn. At 6 o’clock with the accompaniment of the miner’s bell, the song was sang: "Nun denket alle Gott" (We all thank God) and following the speech of Count Reden five miners walked through the adit from the Bergdrosd shaft to the drift’s mouth. There they were welcomed by the waiting representatives of the Mining Office. There were volleys of rifle shots; the people sang the song "Bis hier hat mich Gott gebracht" (God led me to this place) with accompaniment of the miners’ orchestra, promotions were announced and distinctions were given to miners and officials who had rendered great work while building the drift. At 7 p.m. the ceremonial parade was held with various festivities. In July 1807, the 60" steam engine was put to operation, which drew up the water from the Reden Underground Passage to the God Help Adit, from where it was discharged to the Stola river. This meant that the Northern Drainage System was completed and fully operational. The system built with funds of one hundred thousand thalers was operational for nearly 30 years. The removal from operation of the remaining steam engines allowed for annual savings of 12 thousand thalers.

**SOUTHERN ADIT SYSTEM**
*(Nomination Document, p. 93).*

Providing access to ores lying below then-current water drainage system facilitated further development of the Fryderyk (Friedrich) Mine. Moreover, the cost of maintaining the 60" steam engine was very high which affected the mine’s profitability. Daily coal usage by the machine amounted to 12 tons. Transport and storage additionally increased fixed costs. A decision was made to build a system which would allow access to lead-silver deposits lying 6.98 m below the Reden Underground Passage. First plans to build a fully gravitational system were drafted in 1812 by the mining supervisor, Gerhard. Unfortunately, the Napoleonic Wars did not encourage investors to put money in such undertakings. As late as in 1820 efforts were made to start redesigning the 16th century Krakowska adit (1568). After making boreholes, it turned out that the adit was not fully patent and it would be impossible to reach the target depth. It was then decided to design a new adit 1.8 m below the Krakowska adit which was to be connected with the older central drainage system.

**Friedrich Deep Adit (Tiefer Friedrich Stolln)**
*(Attribute 1.0, Nomination Document, p. 94/95).*

According to the design, the adit was to be excavated for the length of 4570 m within 15 years until it reached the Adolph Shaft. The design was prepared by the mining masters, Thürnagel and Eisleben, and the design was approved by the Higher Mining Office in December 1820. The total estimated
costs were not to exceed 231 thousand thalers. The works involving making the portal (Attribute 1.9, Nom. Doc., p. 114/117) and the mining water drainage trench (Attribute 1.10, Nom. Doc., p. 118/119) were initiated on 21 April 1821. The mining water drainage ditch was 888 m long, 5 m deep and 20 m wide and was ready within 6 months. In the following years, the trench was extended to the length of nearly 1400 m. Excavating the underground section, from the mouth to the Adolf shaft, took 14 years, reaching the length of 4568 m. Thanks to vast expertise of mine surveying experts of the time, the adit was excavated at the same time by 14 mine faces progressing towards one another to make a passage. For the ventilation and drainage purposes, mine faces were deepened along the delineated line of 26 shafts (Lichtschächte), including two machine shafts – Attachment No. 17, 18, 19, 20, 21.

Two steam engines were used to drain water: one with 24-inch diameter operating on the machine shaft no. 22 and the Szczęśliwa Pomoc (Lucky Help, Glückhilf) shaft and the second with 40-inch diameter on the machine shaft close to the Adolph Shaft. The 40” steam engine was moved from the Reden shaft where it had been supplying urban waterworks as early as from 1797. Water was pumped out from the shaft to the reservoir and then channeled to another reservoir located at the Frieden shaft. Water in that place was used in the silver-lead-ore washing launder. Excavating the adit in very difficult geological conditions, i.e. dust clouds, weak roof and intensive water flooding, was completed in July 1834 — a year earlier than planned. The real cost of the adit amounted to 228 thousand thalers and was 3 thousand thalers less that assumed. For the previous 10 years, the mining works were directed and supervised by the chief inspector of the Tarnowskie Góry Mining Office, Rudolf Arwid Wilhelm von Carnall. The opening of the Friedrich Deep Adit was also solemn — it was prepared by Carnall himself and involved the 50th anniversary of the Friedrich mine. Early morning on 15 November 1834, 28 officials of mining and smelting institutions, chief mine foremen, mine foremen and miners gathered at the adit mouth. With accompaniment of the miners’ orchestra and choir they crossed the lower adit section in boats. Between Glückhilf and Adolf 40 blast holes were fired in salute. After returning to the ground through the Adolphe Shaft, the mining badges were awarded with a toast and 30 unskilled workers were promoted to facemen. In December 1834 a cross-cut connected a northern wing of the adit with the Reden Underground Passage to the south of the Żmija shaft (Viper, Schlage) (Attribute 2.2, Nom. Doc., p. 124-127). This meant that the older Northern Drainage System was connected to the Fryderyk Deep Adit (Southern Drainage System), and water was redirected and through the action of gravity was discharged to the Drama river. The place of this cut-through is marked with a stone plate – Attachment No. 22, visible nearby the Żmija shaft on the hiking path. Those connections were designed to discharge waters through the action of gravity and to remove from operation last 60” and 32” steam engines built over on the Reden hill. Removing those machines from operation generated for the Friedrich Mine annual savings of 7 thousand thalers.

Constantly expanding mining fields forced authorities to expand the completed adit and to extend its run. Efforts to create the Friedrich-Stollen Grundstrecke loop which terminated at the Szczęśliwa Pomoc shaft (Lucky Help, Glückhilf) were undertaken to the 1860s. The northern section of the adit running under the City Park (Attribute 3.6, pages 170/175) was completed about 1880. Although the gravitational water drainage system was completed, 24” steam engine was moved onto the Pokój (Peace, Frieden) shaft where it was tasked with water supply to the Central Launder of the Friedrich Mine – the mine output treatment and washing plant. The steam engine operated in this place until 1876. The second 40” machine was also moved to the Królowa Luiza royal coal mine (Queen Louise, Königin Luiza) in Zabrze. The second central adit water drainage system, built so arduously for the Friedrich Mine along with remaining auxiliary galleries, reached the total length of 14752 m.
The Municipal Water Supply (see Nomination Document pages 258-262)

Some of the more than 20,000 mining shafts dug during the period from 1529 to 1627 were converted into wells that supplied the town with water. During the next mining period of 1780-1790, the town was served by 36 wells, including two public ones located in the main square. The establishment of the Royal Friedrich Mine (Königlichen Friedrichgrube) and the opening of the Northern Drainage System, and especially the Reden Level linking the Friedrich and Reden shafts and running under the town itself, lowered the water table in the wells. Multiple attempts made to deepen the wells proved expensive. Faced with this challenge the town council filed numerous complaints with the local mining authorities at Tarnowskie Góry (Upper Silesian Mining and Metallurgy Office) and, having achieved nothing there, also filed them with the superior authority in Wrocław (State Mining and Metallurgy Authority). Eventually, in 1797, this escalation produced results, as the local mining authority was instructed to release one of its active shafts for the waterworks. After analysis, the mine identified the Reden shaft (Attribute 2.5, p. 232/133), due to its altitude above sea level, as being well suited to bring water to the town by gravity. Additionally, a Boulton & Watt steam engine with a 40in cylinder (Nomination Document, p. 238) was transferred from an iron ore dressing plant near the Stanislaw shaft and placed at the head of the Reden shaft. The water abstraction point was also reconfigured and fitted with a wooden pipe with a nominal diameter of 2¼ in and a capacity of 0.077 m³ of water per minute which drained into a tank located on the town’s main square. Two retention tanks were also placed along the pipeline to improve the water flow. On 19 October 1797, the tank in the middle of the Tarnowskie Góry main square was filled for the first time and this date is regarded as the opening date of the town’s waterworks (A 1797 waterworks map is appended on page 260/261 of the nomination). Thus began a long series of expansions, upgrades and modifications to the Tarnowskie Góry waterworks system.

In 1804 – 1808, another 24in Boulton & Watt engine was removed from the construction of the Reden Level and placed at the head of the Aurora shaft (Nomination Document, p. 241) to help pump water. In 1802, the Zuflucht and Heinitz galleries were interconnected, thus rendering obsolete a 48in Newcomen-type engine (Nomination Document, p. 237) from the Heinitz machine shaft (Attribute 2.4, page 230/131). Further changes involved the transfer of a 40in Newcomen engine from the Pachaly machine shaft (Nomination Document, p. 236) to the Bergdrosd machine shaft to help finish the Reden Level. To continue the water supply to the silver ore dressing plant near the Pachaly shaft, a 60in Boulton & Watt engine (Nomination Document, p. 240) was placed at the head of the Reden machine shaft. In August 1806, Reden Level was linked with the God Help Adit and the 60in Boulton & Watt engine was transferred from the Reden machine shaft to the Fryderyk shaft (Attribute 2.7, Nom. Doc., p. 234/135) located on Reden hill. This final move, completed in July 1807, provided sufficient power to pump water from the Reden Level into the God Help Adit and rendered obsolete all the other engines draining the mine. All these intricacies of steam-engine relocations and the final completion of the Northern Drainage System (Nom. Doc., p. 120) were strictly linked to the operation of the waterworks abstracting water from the Reden Level (A steam-engine relocation map is found on page 228/229 of the Nomination Document). At that time, the water level at the Reden shaft was insufficient for the 40in engine to pump it into the waterworks. This was addressed by two dams erected at the Janus and Steinbeck shafts to create a higher water level and hold the water within the mining galleries, which system operated in the waterworks until the end of 1834.
The problems with water supply for the town started in 1808 when the steam-engine supporting the waterworks was moved from the Aurora shaft to the Freiden shaft. Moreover, in 1809 the machine pumping the water on Reden shaft was out of order during the renovation of the boiler. The very same year the municipal authorities sued the Mining Treasury at the Royal National Court in Brzeg. A commissioner whose task was to investigate the situation was sent to Tarnowskie Góry by the ministry. The opinion of the commissioner was favourable for the town, supporting its claim that the lack of water was caused by the mining activities. As a result, the Mining Authority in Tarnowskie Góry undertook to build and maintain a sufficient water supply system at their own expense. In 1811 an additional waterworks from the Fryderyk shaft was built at the Reden hill. The water was pumped by a 60in steam-engine to a newly-built cast-iron pipeline of diameter of Ø70, directed to the reservoir in the market square. Additionally, a retention tank was built on the pipeline to improve gravity water drainage. These two water supply systems on the Reden and Fryderyk shaft continued to work until the end of December 1834.

Difficulties started after the completion of the Southern Drainage System. Its connection with the Northern System (Nom. Doc., p. 93) near the Viper shaft (Attribute 2.2, Nom. Doc., p. 224-127) changed the direction of water flow, as the drainage from the mining galleries was gravitationally redirected from the Stola River to the Drama River (Map of the Northern and Southern Drainage Systems, Nom. Doc., p. 92). The existing dams proved insufficient to hold the water level and work on a new waterworks station at the Kaehler shaft near Reden Hill (Attribute 2.6, Nom. Doc., p. 234/235) began in 1835. Records show that the shaft superstructure and adjacent infrastructure cost 7000 talars. A certain master Nagło from Koenigshutte took 1200 talars for the job of fitting a modernised Newcomen engine with steam condensation and two boilers. The machine raised 0.05 m$^3$ per minute from approximately 55m below ground into a surface-level masonry tank. From there, water flowed by gravity through a 2½-inch diameter iron pipe along Opolska street to the main square in Tarnowskie Góry. In August 1835, the town drew its first water from the Koehler shaft. To prevent the water from draining into the Southern Drainage System another water separation was erected in the mining galleries by building a dam near the Bergdrosd shaft. This water parting, part of the Reden Level, drained water from the Sowitzgluck and Kaehler galleries (Map of main drainage galleries with level differences, Nom. Doc., p. 96/97). Later, the authorities expanded the pipeline network and their terminal reservoirs, but as the population grew, the 2½in pipes could no longer maintain sufficient flow rates. A new pipeline was built with larger 5in pipes and a terminal pressure stand in the main square. The efforts continued in 1869 with another network expansion, the fitting of slide valves and pavement level fireplugs. In 1872, the existing engines were replaced with a Rittinger system machine supplied by Hoppa of Berlin at a cost of 6000 marks, while the network was expanded again and connected to existing private households and organisations. The horizontal-system steam engine had a single cylinder and two flywheels with a piston diameter of 340 mm and a stroke of 0.31m. The new pump capacity was 0.40m$^3$ per minute. This setup was replaced again in 1887, when a Pleuger pump displacing 0.5m$^3$/m was fitted on a pipeline network with pipe diameters of Ø125, Ø 100, Ø 80 and Ø 25. In that same year, 280 houses were connected, all were individually metered. The demand never seemed to stop growing and, as the machines could not maintain adequate pressure levels, the town council decided, in 1893, to upgrade the water trunk pipe to Ø 200.

In 1903, the town opened its gas works, which supplied the waterworks through a Ø80 pipe. This allowed the steam engine to be replaced with two gas engines that drove a Korting Broeders dynamo.
A special underground chamber, 4.0 x 3.4 x 2.5m in size, was dug in the Kaehler shaft for electrical pump systems. The Sulzer system pumps were driven by Algemaine Elekrizitäts Gesellschaft engines. Each pump had a capacity of 70 m$^3$/h and delivery head of 72 m. The water was pumped into a Ø150 pipe. The total cost of the upgrade was 26700 marks. Another major upgrade came in 1925 when a 45m water tower was built with a 500m$^3$ tank at the top. The reinforced concrete structure allowed sufficient pressure to be maintained to deliver water to the highest storeys in the town around the clock. The growing demand warranted another expansion when, in 1929, a 3550m long Ø200 pipe was laid from Staszic Upper Silesian water supply station (formerly Adolph Shaft Waterworks). This additional line provided ca. 2000m$^3$/day. During 1927-1929, the town built a biological water treatment plant and completed the sewer system to cover the entire population. More pipes were added in subsequent years across the town and into new neighbourhoods. In 1955, the Sulzer pumps were replaced with new machines from Zabrzańska Fabryka Maszyn Górniczych with the capacity going up from 70 m$^3$/h to 100m$^3$/h. The continual demand for water caused a deficit of mine drainage water and a number of deep wells had to be drilled to different depths, but the town centre received a constant supply of water from the mine. During the period 1972- 1974, two new pipes, with diameters of Ø500 and Ø400, supplied the town’s districts with 7500m$^3$/day pumped from Staszic Upper Silesian water supply station (formerly Adolph Shaft Waterworks). In 1991, the existing state-owned waterworks enterprise Miejskie Wodociągi was replaced by a company Przedsiębiorstwo Wodociągów i Kanalizacji w Tarnowskich Górach. In March 2002, the French Compagnie Generale des Eaux, part of the VEOLIA Environnement Group, bought into the company and embarked upon an upgrade of the water system. The abstraction point at the Kaehler shaft was completely upgraded and continued to supply the town centre and the Opatowice neighbourhood with 150m$^3$/h of water. It was fitted with a double activated carbon filtering and nanofiltering (water softening) system. The company also opened an accredited water and wastewater monitoring laboratory.

**State of conservation**

Over the period of 220 years, as technology progressed, the pipelines, valves, pumps and other components of the waterworks system underwent numerous successive upgrades. Wooden machine buildings would be erected at a given shaft site and then accompanied the steam engine on its way to another shaft up until the completion of the Northern Drainage System. These wooden buildings have left little trace. Masonry mine buildings succumbed to the military activities of both World Wars and the three Silesian Uprisings in the early 1920s, all of which took a heavy toll on the area and its standing structures in open countryside. In the aftermath, what was left of the buildings would have been utilised by the local population as valuable construction material.

A section of a wooden pipe from the earliest phase of the municipal waterworks is preserved at the Historic Silver Mine. Other historic exhibits of the waterworks include the unaltered Kaehler shaft and its stone structure, the pump chamber in the underground section of the shaft and the water tower. All of the other buildings of the waterworks station have undergone numerous remodellings.
Ill. 14 Control panel

Ill. 15 The laboratory at Tarnowskie Góry
During the industrial revolution, the rapidly growing population of the relatively small area of Upper Silesia suffered serious water shortages. Expanding industry, the reason behind the increasing population, compounded these difficulties with its high demand for process water. The required quantities were extremely difficult to obtain for there were no reservoirs from which to draw water and the two largest rivers in Upper Silesia, the Brynica and the Przemsza, were too polluted to be considered as a suitable source. Thus, the local population mainly had to rely on well water. Problems arose with the expansion of mining and metallurgy and the development of other industries, while the mining activities being carried out throughout the area made the water disperse even though the wells were deepened. The growing population density also influenced the quality of the water, and to such an extent that in many places it was undrinkable, or simply posed the threat that it could produce epidemics. To prevent an actual emergency, the Minister of Commerce and Crafts of the Kingdom of Prussia, in a regulation dated March 19th 1873, ordered the Royal High Office of Mining in Wrocław (then Breslau) to investigate the actual state of the water supply in the Upper Silesian industrial region and then to make recommendations about how to solve the problem of the existing shortages. On the basis of a report drafted by Mr Veltmeyer, an engineer from Berlin, the High Office of Mining set a two-year deadline for its district offices to examine whether it was necessary to construct one large water supply plant. The Upper Silesian Coal Mining fund allotted five thousand thaler for the works associated with this. Similar research was also conducted at that time by the Royal Administration in Opole who reached the same conclusions, namely, that water should be drawn from the area of Tarnowskie Góry. The Upper Silesian authorities also took note of the fact that water evacuated from mines had been used for human consumption since the 18th century by the Municipal Water Supply Plant in Tarnowskie Góry (Wasserkunst, Nomination Doc., p. 258-262).

It so happens that the mines around the town of Tarnowskie Góry comprise the largest metallogenic area in Poland, with a surface area of about 190ha. Middle-Triassic limestone and dolomite can be found throughout the area. The alternating rock layer structure, with limestone interspersed with gravel and sand, causes high rates of surface water infiltration. Thus the main reason behind the flooding of the mine workings is precipitation that infiltrates through a system of crevices, cracks, and karstic caves. Two small rivers run through the Tarnowskie Góry area, namely the Stola in the north-west and Drama in the south west, which, in periods of heavy rain, are unable to carry away the water effectively and quickly enough before it infiltrates into the ground. This is due to the relative flatness of the area, which in fact forms a gently undulating plain with only about 50m difference between the highest and lowest points. In addition, the geological syncline of Tarnowskie Góry is located on a waterproof substratum of silt and coal and thus forms an extensive reservoir of underground water which, when filled, raises the water table, flooding the mine workings located directly above it.

By a decision of May 11th, 1878, the Superior President (Oberpresident) of the Province of Silesia assigned a sum of fifty thousand marks for the research and design of the Upper Silesian water supply system. The Royal Surveyor, Mr Salbach from Dresden, was commissioned to conduct preliminary work and he noted that huge quantities of water were available in the Triassic syncline of Upper Silesia. Meanwhile, a water shortage - made even more severe due to a string of dry summers -
became increasingly evident, particularly in the vicinity of the town Królewska Huta (present-day Chorzów). So the decision was taken to construct a special pipeline to Królewska Huta, with the intention of using the water found in the ‘Fryderyk’ Deep Adit in Tarnowskie Góry (Attribute 1.0, Nom. Doc., p. 94/95). The quick adoption of this measure owed much to the impact of several alarming factors: the drainage water from hard coal mines across the region was undrinkable and several communes reported outbreaks of typhus epidemics. Nor was it suitable for industrial purposes, as high calcium, gypsum, and salt concentrations led to the rapid deterioration of steam boilers.

In Tarnowskie Góry, the water was to be raised to the surface by pumps installed in the ‘Glückhill’ shaft (Attribute 1.4, Nom. Doc., p. 106/107) located about three kilometres south of the town and then conveyed to the vicinity of Królewska Huta. This shaft was used until the construction of the ‘Staszic’ Waterworks (originally called the Adolph Shaft Waterworks or ‘Wasserwerk Adolfschacht’) (Attribute 3.1, Nom. Doc., p. 144-153), which incorporated the ‘Adolph’ and ‘Machine’ shafts (Attribute 1.3, Nom. Doc., p. 102-105), in Upper Silesia, This section of mine workings seemed the most suitable since the ‘Adolph’ shaft branched out into the northern wing of the Friedrich Deep Adit, which had a connection with the ‘Viper’ shaft. Besides, the ‘Heinitz’ drainage gallery reached the ‘Machine’ shaft, thus forming a catchment area for several mining tunnels. In the budget of the Executive Board of Mines, Steelworks, and Salt-works for the years 1882-1885, a total sum of 696 thousand marks was appropriated for the project. Prior to the construction works themselves, extensive land surveys were conducted, as well as tests on the water at the Friedrich Deep Adit, which identified the maximum potential yield from the adit at 25m³/min during the best time of the year. Construction work then started, which utilised existing underground galleries in order to excavate pump room ‘A’ (Nom. Doc., p. 148, Plate 127).

The new water supply system was officially opened on October 18th, 1884. Initially, only former mine water from the Friedrich Deep Adit was used, pumped to the surface by two steam engines with a working capacity of 2.5m³/min. In the whole of Upper Silesia, this was the first water supply system that provided water beyond a single town. The water flowed through a pipeline with an inside diameter of Ø350mm, which connected the Adolph shaft with the town of Królewska Huta, and passed through a succession of settlements, including Nowe Repty, Dąbrowa Miejska, Bytom, and Łagiewniki before reaching its final destination. In order to increase the pressure, a water tower with a 500m³ tank was constructed at Łagiewniki. The inside diameter of the pipe running from the tower in the direction of Królewska Huta, Hajduki, and Wielonie (in present-day Katowice) was Ø300mm.

The elimination, in 1876, of a Boulton and Watt steam engine with a 24-inch cylinder, at the ‘Frieden’ shaft, caused problems in the functioning of an ore dressing plant – it had supplied its washer with water (Washing Tip - Attribute 3.4, Nom. Doc., p. 162/163). A separate pipe, with an inside diameter of Ø90mm, was constructed to address the problem. It was connected with the main Ø350mm pipeline near Długa Street. The branch-pipe was further extended by constructing a water tower with a 100m³ tank at Sucha Góra, which delivered water to the villages of Segiet, Bobrowniki, and Piekary Rudne. A Ø100mm pipe was also laid linking up with another water tower with a tank of 500m³, which supplied the settlement of Radzionków.

The demand for water from the ever-expanding Upper Silesian industry, combined with the mass influx of labour, brought about another period of water deficit. The decision was then taken to tap
into the Triassic waters and in 1885 the first bore-hole was made in the ‘Machine’ shaft for an artesian well descending to a depth of 200m below the surface of the ground. From this well the water would rise to the bottom of the ‘Machine’ shaft from where it was pumped by two steam engines with a capacity of 2.5 m³/min that had been installed in pump room ‘A’ (Nom. Doc., p. 265, Plate 86). The development of such towns and villages as Bytom, Świętochłowice, Łagiewniki, and Królewska Huta forced the authorities to construct new water supply networks, which in turn led to an increase in water consumption. In 1887, the town of Zabrze suffered a severe shortage of water. In the aftermath of this emergency, the Minister of Public Works, by a regulation dated December 12th, 1887, appointed a commission under the leadership of the Oberpresident, which was charged with the task of investigating, once again, the issue of constructing a water supply plant for the western part of the Upper Silesian industrial district; 8 000 marks were allocated for the preliminary work. Following its completion, the commission unanimously concluded that it was absolutely necessary to construct a new water supply system. It was equally obvious that the location of the new plant should lie in the vicinity of the village of Zawada, since this is where the 1882 search had identified the availability of large quantities of Triassic water. Yet, the problem of the increased water demand had to be alleviated somehow before the new plant was built. Therefore, in 1888, another artesian well was bored at the Adolph Shaft Waterworks descending to a depth of 170m below ground level. Located near the ‘Adolph’ shaft, the artesian pressure brought up about 6m³/min of water to the level of the bottom of the ‘Adolph’ and ‘Machine’ shafts.

Bearing in mind the need to protect the Triassic waters, the Royal High Office of Mining in Wroclaw decided, by order of the mining police dated September 9th 1893, that any mining prospecting activities were temporarily forbidden within the boundaries of the water-bearing layers unless they received special permission from a competent district official. In addition, the area of Tarnowskie Góry was additionally protected by a police order of June 6th 1894, which prohibited any excavation works extending to a depth of more than 10m below ground without special permission from the President of the Royal Administration in Opole.

As early as in 1892, a new pipe was laid to Zabrze and the ‘Queen Louise’ Royal Coal Mine. Starting from Bytom, the pipeline went through the villages of Karb, Bobrek, Ruda, and the Karl-Emanuel workers’ settlement to Zabrze. In the Zabrze-Karb section, the inside diameter of the pipe was Ø400mm; in Karb-Bytom - Ø250mm. In order to convey water to this new pipe, another steam pump was installed in the ‘A’ pump room in 1893, which had a capacity of 2.5m³/min. In May of the same year, a new borehole was finished in the vicinity of the ‘Glückhilf’ shaft of the Friedrich Mine. The stone shaft was rebuilt using bricks (Photo of the brickwork shaft: Nom. Doc., p. 106, Plate 76), a new underground chamber was excavated in the rock, a pump with a capacity of 2.5m³/min installed, and the pipeline was encased together with the valves (Photo of slide valves in an underground chamber on Nom. Doc., p. 361, Plate 4; Photo of dam in an underground chamber on Page 370, Plate 12). The initial diameter of the bore-hole was 715mm and it reached 203m deep, providing 5.26m³/min of water. However, an interdependence of various sources was observed, as the new well affected the output of the older boreholes near the Adolph shaft about one kilometre away. Thus the borehole in the ‘Glückhilf’ shaft had to be closed (but it has been preserved and still constitutes a reserve source). In 1900, more settlements were connected to the water supply system. In the spring of that year, an epidemic of typhus broke out in many villages of the Bytom district, such as Orzegów, Szombierki, Godula, Chebzie, and Świętochłowice, which was blamed on the poor quality of their water. The water
shortage that occurred in these localities forced the authorities to take immediate action. Thus, by a regulation dated June 28th, 1901, the Minister of Commerce and Crafts gave orders for work on a second pipeline to begin immediately. A sum of two million marks – in two instalments – was assigned for that purpose in the budget of the Executive Board of Mines, Steelworks and Salt-works for the years 1901-1903. The new pipe with an inside diameter of Ø500mm and capacity of 10m³/min was laid in parallel to the ‘Adolf’ shaft - Królew ska Huta pipeline via Bytom as far as the ‘Silesia’ Mine. It was connected with a water tower with a 2000m³ tank at that mine, which was completed in 1902. In the following years a Ø100mm branch pipe was connected to the main Ø500mm pipeline providing water to several villages, including Wieszowa, Górni ki, Grzybowice and Friedrichswille. In 1904, another branch extended the coverage to Bielszowice, Pawłowa, Kończyce, Makoszowa and many other localities.

In 1902, it was observed that the groundwater table had dropped by 3.75m and the output of the first artesian well had decreased by 0.23m³/min. Therefore, in 1902–1903, pump room 'B' was excavated alongside pump room 'A' and three steam engines were installed. The units from Maschinenbauanstalt des Kgl. Hutten Amtes in Gleiwitz had a capacity of 5m³/min each (Nom. Doc., p. 265, Plate 87). An underground tank was also excavated; it was 2.5m high, faced with reinforced concrete and had a capacity of 1200m³. Its ceiling formed the floor of pump room ‘B’. The Adolph shaft was deepened by another 20m and a third pump room ('C') was constructed at the base of the shaft (Nom. Doc., p. 150, Plate 132), located beneath room ‘B’. In the same year, a third borehole was made with a depth of 167.16m below ground level, which was connected with pump room 'C'. Its initial diameter was 685mm, and final diameter 600mm; the borehole was encased down to a depth of 104m. From the relevant measurements, we learn that the capacity of this well was 25m³/min; however, with such a high output, the output of the other wells was diminished. In addition, a cross-cut was made in the rock to also connect the second well with pump room 'C'. Because of the large quantities of water obtained from the third well, the second bore-hole was soon closed and became a reserve source in case of a water shortage. In pump room 'C', two paired tandem engines were installed: they were steam piston engines driven by conveyor belts and equipped with centrifugal pumps each with a capacity of 8m³/min (Nom. Doc., p. 267, Plate 90). These pumps drew water from the second and third wells into the 1200m³ tank located twenty metres higher. Then, the three pumps installed in the 'B' room sucked the water into their common hydraulic accumulator to force it up to the surface through a pressure conduit located in the ‘Machine’ shaft. Once on the surface, the water went through a coke filter to a water-softener and then on to a distribution area. In 1903, a third steam engine was installed in room ‘A’— a steam pump with the same capacity of 2.5m³/min, produced by U. Armatur Fabrik Vorm. Klein, Schanzlin & amp; Becker Frankenthal, Pfalz (conserved as part of an outdoor exhibition at the Historic Silver Mine). All the three pumps in the room were single-acting quadruple plunger pumps pushing the water from the first well up to ground level.

Because of the threat of the chambers being flooded by water infiltrating through the rock, two wall mounted pumps, produced by Schwade & Co. Erfurt, Dendsche ‘Automat’ Dampfpumpenfabrik (Nom. Doc., p. 266, Plate 88 – conserved as part of an outdoor exhibition at the Historic Silver Mine), were installed in room ‘C’ while pump room ‘B’ was equipped with a pump with a flywheel, manufactured by C. H. JAEGER Co Pumpen- und Gebläse Werk – Leipzig Maschinen (conserved as part of an outdoor exhibition at the Historic Silver Mine), in order to drain shallow ground waters.
The steam engines were fed with steam generated in eight ‘Lancashire’ boilers with two furnace tubes and a heating surface of 65m² each, with encased superheaters manufactured by the Haering company from Nuremberg (Nom. Doc., p. 266, Plate 89). The surface of the superheaters was about 30m² each. The steam engines were fed with steam at eight bar. The boilers were installed in a boiler room at ground level. The spent steam from all the machines was conveyed by a pipeline through a condenser in a specially widened part of the Friedrich Deep Adit (Nom. Doc., p. 150, Plate 131). There, the hot pipes containing steam were rapidly cooled with water at about 8 degrees Celsius and the water from the condensed steam flowed down to the ‘C’ room, from where it was conveyed to ground level by another pump providing softened, scale-free water.

A winch placed over the Adolph shaft was used to transport the machinery and people. In 1903, it was replaced by a KM32-50 unit with cogged drive, manufactured at the Gliwice Steelworks. In the ‘Machine’ shaft a winch drum was installed with a diameter of 500mm. Additional facilities built at the site included a repair shop, a warehouse with an office, workers’ baths, a stable, a toilet, and a residential building for the plant supervisor.

The steam engines in pump room ‘B’ were upgraded by the Maschinenbau-Aktien- Gesellschaft vorm Starke &amp Hoffmann company from Jelenia Góra; the pump unit no. 1 was upgraded in 1921; no. 2 – in 1922 (it remains in hall ‘B’ to the present day) (Nom. Doc., p. 146/147, Plate 126), and no. 3 – in 1925.

During the three Silesian Uprisings of 1919, 1920, and 1921, the plant continued to provide water during the ongoing hostilities. In March 1921, following a plebiscite, Upper Silesia was divided between Poland and Germany and the international border crossed the water supply network in several places. In accordance with the regulations of the Geneva Convention on Upper Silesia of May 15th, 1922, the newly renamed ‘Staszic’ Waterworks fell to Poland, but in compliance with Claim no. V of the above Convention the plant was obligated to deliver water to both countries. In its 33 articles, the Convention regulated the issues of joint Polish-German management of the plant and reciprocal water supply, the rules for settling accounts, performance of measurements, maintenance and repairs, construction of new networks, as well as the principles according to which employees could cross the international border. Formally, this transitional form of organisation stipulated a joint Polish-German management which was superseded by an agreement signed by the two countries in Katowice on January 12th, 1924. The permanent settlement was then ratified by signing a new document on February 16th, 1927. In the same year, the Adolph Shaft Waterworks (Wasserwerk Adolfschacht) was renamed the ‘Staszic’ Waterworks. The Adolph shaft also changed its name to ‘Staszic’, but it has actually been called interchangeably by either name up until the present day.

The Geneva Convention only indirectly regulated the principles governing the maintenance of the ‘Fryderyk’ Deep Adit and its drainage canal to the Drama River. The detailed rules regarding the use and maintenance of the adit by the ‘Staszic’ Waterworks were only laid out in a settlement signed in Berlin on December 7th, 1926; ratified in Warsaw by a Government Declaration of June 7th, 1927, and finally confirmed by the Council of Ministers’ resolution on April 2nd, 1928.

The process of modernizing the plant and upgrading it to use electric pump units was long-drawn out, as it started in 1924 and was only completed in 1972 when the last steam engine unit - no. 2 in room...
‘B’ – was shut down. Before March 1924, the following major work had already been performed: widening of the underground tank for the pumps at the upper level; increasing the height of the chimney from 30m to 65m, increasing the height of the boiler room walls, together with its iron roof frame, by 2.5m, and installation of a new Worthington steam pump which was intended to feed the boilers and the condensation water pumps. In addition, the assembly of a device for automatic coal transportation and ash removal was commenced, as were overhauls of the three steam engines and partial assembly of the steam pipelines in the boiler room and underground machine room. In 1925, the residential building was increased in height and extended by adding a southern section. Because of the shortage of former mine water supplied by the municipal water plant in Tarnowskie Góry, in 1929 a 3550m long pipeline was laid from the Upper Silesian ‘Staszic’ Waterworks to the town, with an inside diameter of Ø200mm. In 1945, the whole water intake in room ‘C’ was remodelled. Pressure lines and suction pipes were renewed and two paired pump units were replaced with pumps with a capacity of 10m³/min. A year later, because of the ever-increasing demand for water, the second bore-hole was switched on again bringing the water extraction rate in the whole plant to 5000m³/24h.

In 1947, ring-shaped tubular connections together with valves were constructed for both the shafts, i.e. the ‘Adolf’ and ‘Machine’ shafts. Three years later, the whole plant was provided with a sewer system consisting of 300m of various pipes intended to drain off, for example, runoff water, wastewater from the boilers, water from the bath, etc. In 1951, pump unit no. 2 of the 61/24 type, produced by JAEGGER Co Pumpen und Gebläse Werk Leipzig and with a capacity of 9m³/min, was encased in pump room ‘C’; meanwhile, no. 1 and no.3 pump units were replaced with OW-250 A/3 type pumps manufactured by Zabrzańska Fabryka Maszyn Górniczych POWEN, with a capacity of 7.5m³/min. In 1954, the steam pump units from room ‘A’ were replaced by electric units with a higher capacity - from nine to 20m³/min – and a pumping height of 152m and 184m. Furthermore, an electrical two-cylinder pump unit with a capacity of 10-20m³/min and pumping height of 180m was installed in the eastern section of the chamber. Due to the ongoing process of electrification, which resulted in a reduced demand for steam, five boilers were shut down and disassembled in 1950-1957. In 1963, the no. 3 pump unit in the ‘B’ room was again replaced with a new one: an electrical pumping device of the TP-10 K/Z type produced in Leipzig in 1958 by Pumpen und Gebläse Werk increased the capacity from 5m³/min to 15.5m³/min. Following a negative technical assessment, the winch at the ‘Adolf’ shaft was disassembled in 1966 and replaced with a WEN-3 type cargo winch with a lifting capacity of 5000kg, produced by Fabryka Urządzeń Budowlanych in Lodz. In the same year, the height of the ‘Machine’ shaft was increased and equipped with a passenger lift produced by the Zakład Usług Dźwigowych in Warsaw. The lifting capacity of the new device was 500kg or six persons. In 1972-1974 new pipelines with an inside diameter of Ø500 and Ø400mm were laid to different quarters of the town of Tarnowskie Góry. This new supply system conveyed 7500m³ of water per day. In 1975–1976, the no. 1 steam pump unit in the room ‘B’ was replaced with an electrical pump of the OS-250 AM/5 type, with a capacity of 7.5m³/min and delivery head of 240m, produced by Zabrzańska Fabryka Maszyn Górniczych POWEN. Also, the steam engines used for draining shallow groundwater in rooms ‘B’ and ‘C’ were shut down and replaced by OS-100A/2 pumps with a capacity of 1m³/min and pumping height of 60m, also manufactured by Zabrzańska Fabryka Maszyn Górniczych POWEN. In the 1980s, the pump units in room ‘C’ were again replaced: units no. 1 and no. 2 with 250V-400Me pumps with a capacity of 8m³ and pumping height of 22m, produced by Karl Oschen Soln Rilitz; and units no. 3 and no. 4 with the 20a32 type devices with a capacity of 7.5m³/min and pumping height of 22m, manufactured by Warszawska Fabryka Pomp. Apart from the main pumping units, the chambers then housed various auxiliary devices such as vacuum pumps for feeding the primary pumping.
machines, compressors for feeding the surge control pressure vessels with compressed air, valves, oil-cooled starters, etc. All of the electric pumping units were powered by three-phase engines of varying power. In addition, in the first stage of the electrification process, electricity generators were installed at ground level that served as reserve sources of power for all the load points in the case of a failure of the main power grid. Thus, the following machines were on stand-by: a generator driven by a steam engine manufactured in the Zieleniewski Factory in Krakow (conserved as part of an outdoor exhibition at the Historic Silver Mine); a generator driven by belt transmission, and one more device powered by a diesel engine. In 2005, the chimney of the boiler room was demolished due to the threat of collapse. Three years later the administrative and residential building was demolished for the same reason. In 2015, the outgoing pipelines with an inside diameter of Ø350 and Ø500mm were renewed.

The ‘Staszic’ Waterworks provided Upper Silesia with water until 2001. Since then, this task has been taken over by more modern plants established elsewhere. Currently, the only activity going on in its premises is the pumping of the water from their pipelines into its existing outgoing network. In 1908, the water abstraction level was recorded at about 12 365 000m³; five years later, it was 16 517 000m³, and it grew gradually in the following years. According to the water abstraction record, former mine adit water was pumped up for the last time on February 5th, 1971, and the recorded rate was 225m³ per day. Nowadays, the water from the boreholes discharges into the Friedrich Deep Adit, from where it is drained off, together with former mine water, to the Drama River. In spring, the quantities recorded at the adit mouth range from 35 000m³ to 40 000m³/24h.
COMPARATIVE ANALYSIS

The ICOMOS Panel has found that the comparative analysis would need to be expanded to consider also the aspect of water supply, as it now focuses mainly on mining sites. Also, the aspect of the use and adaptation of the steam engine system needs to be addressed in the comparative analysis in order to support the justification for inscription.

Comparative analysis. Supplementary material

In terms of comparable properties, none have been found – in any global geographical and cultural context - that were planned, integrated and managed as part of a contemporary underground metal mining system, illustrating how - in a surviving and fully accessible mine context - modern steam-pumped water systems were developed using mining technology. It is the symbiotic relationship of mineral extraction, mine dewatering and water supply, creatively developed at an early period under the same ownership, which sets Tarnowskie Góry apart as being exceptional. One of the factors leading to the success of the water supply was the geological conditions of the host rock, limestone and dolomite, which acted as a filtering stone, a bit like the dripstone used aboard naval ships, or outside great houses in the Caribbean or in colonial Australia – a porous block of carbonate stone hollowed out in the shape of a large apothecary’s mortar, or font, where rainwater or creek water was poured from a bowl from above and allowed to drain. As water leached slowly through the stone, impurities were trapped, leaving clear, clean water to seep out below. At Tarnowskie Góry, the immense masses of carbonate rock also acted as a buffer to acidity and prevented the mobility of toxic lead. Today, children still play in the ‘swimming pool’ in front of the Friedrich Deep Adit Portal, as they have done so for generations.

All prominent well-known mining-related water management systems have already been examined and the findings presented in the Nomination Document. These were related to water for power, with some post-mining use of water collection systems for water supply (usually surface reservoirs, but there are some instances of water collection from post-mining mine-water discharge – almost exclusively from mines hosted in limestone – and of water abstraction from mineshafts).

Following the request by the World Heritage Panel for further work to be undertaken, waterworks, particularly steam-powered water pumping stations, have now been brought into the scope of the comparative analysis. None bear the combination of attributes, as illustrated by the nominated property, that contribute to the exceptional values of the Tarnowskie Góry underground water management system.

Concerning other types of water management systems, such as Aflaj Irrigation Systems of Oman (World Heritage Site, criterion (v)), The Persian Qanat (World Heritage Site, criteria (iii), (iv)) and Bam and its Cultural Landscape, Iran (World Heritage Site, criteria (ii), (iii), (iv), (v)), these are is not particularly relevant as they represent gravity (free-flow) systems, unrelated to any mine context, and are located in a different geographical and cultural context with very different technology and application. These properties illustrate, however, the underground tapping and distribution of water from alluvial aquifers. Mount Qingcheng and the Dujiangyan Irrigation System (World Heritage Site, criteria (ii), (iv), (vi)) is also gravity flow and, in common with these superlative sites, irrigation for agriculture is usually the dominant theme. The recently inscribed Aqueduct of Padre Tembleque Hydraulic System, Mexico (WHS, criteria (i), (iii), (iv)) is a fascinating water catchment and surface distribution network including, of course, the remarkable aqueduct, but it is an entirely different and incomparable property to Tarnowskie Góry’s underground water management system. The Tarnowskie Góry system is entirely complementary to the above-mentioned inscribed sites, managing water underground, innovatively intercepting high-quality water inflow from an aquifer as it reaches...
the mine workings and distributing it using steam-pumping for consumption as drinking water and to support the development of large-scale heavy industry.

1. Water supply – Waterworks

Steam-powered water pumping stations

Aside from the nominated site, no steam-powered waterworks integrated in a mine context have been identified anywhere in the world. There are a great number of surviving steam-powered waterworks that were designed for abstraction from aquifers and rivers. In terms of such examples there is a surprisingly uneven distribution from the relevant historical period. The large number of such works in Britain likely reflects the much greater historical development and conservation of this typology. Steam pumping installations of this kind were never built in countries such as Russia, much of Latin America, southern Europe (Barcelona being an exception), as these had not urbanised greatly during the steam era, or on a large enough scale to build water supply or waste drainage installations such as those found in Britain, Germany, Poland or the USA. Scandinavian countries relied mostly on surface water without the need for pumping. There were very few steam pumping waterworks in France, a rare example with beam engines being Usine des eaux de Saint-Clair, Lyon (1854). The immense searchable Merimée database confirms a distinct lack of station de pompage, or établissement élévateur des eaux to match the grand ones in Berlin or Prague, Nottingham and Staffordshire.

Comparisons with Tarnowskie Góry

DF Wouda Steam Pumping Station, the Netherlands (World Heritage Site, criteria (i), (ii), (iv)).

The largest and most powerful steam pumping station, built in 1920, and still in operation. Designed to prevent flooding of low-lying areas of Friesland, it is testimony to the prowess of Dutch engineers and their hydraulic technology.

Hydraulic Engineering and Hydropower, Drinking Water and Decorative Fountains in Augsburg, Germany (Tentative List property, criteria (ii), (v)).

Exceptional water management system with technical developments represented from the 15th to the early 20th century. Open water channels and canals characterize the system of potable water supply that was subsequently replaced by pumping from deep wells, notably by the Hochblass Waterworks. The open watercourses were subsequently used by industry: waterwheels, turbines and hydroelectric power installation.

Cruquius Pumping Station, Amsterdam, the Netherlands.

Exceptional 19th century (1849) steam-pumping station used to drain the Haarlemmermeer Lake and to maintain the water level of the polder (one of three stations, the other two, Leeghwater and Lynden, have been modernized). The Cruquius engine, based on the Cornish engine developed for mining purposes, survives and powered eight bucket pumps.

In general, outstanding surviving examples of first generation steam pumping stations, those using beam engines for pumping, are almost exclusively in England: Kew, Crossness, Clay Mills and others. Examples of the second generation, which employed horizontal compound engines from around the 1880s, are the most direct comparisons with the surviving Tarnowskie Góry engines and can be found in several European cities, notably Berlin (Wasserwerk Moschee, Potsdam, 1842, water supply for decorative fountains of Sanssouci) and Prague (Stara Cistina, 1906, major city wastewater treatment plant, Czech ICOMOS supporting the incorporation into the Tentative List), and the horizontal engines at Hochblass (1879), Augsburg, mentioned above. The best examples of the giant vertical triple
expansion engines which marked the culmination of steam pumping are located in the USA, along with other examples at Kempton Park, UK, and in Melbourne, Australia.

Several sites, notably: Kew Bridge Pumping Station, UK; Spotswood Pumping Station, Melbourne, Australia (1898, sewerage); and Hamilton Waterworks, Hamilton, Ontario, Canada (1859, potable water), are outstanding for including several generations of pumping technology on the same site, an important characteristic of pumping stations. Because pumps became so much smaller after diesel and then electricity replaced steam there was always excess space in the old engine and boiler houses so there was little necessity to demolish to accommodate the new technology. This was the case in the Adolph Shaft Waterworks in Tarnowskie Góry where a large horizontal compound steam engine survives alongside several generations of electric pumps, the latest still in operation.

Other sites investigated where surface installations include extant steam-pumping engines: Abwasser-pump station V, Berlin, Germany (1880, sewage pumping in response to cholera outbreaks, twelve extant pumping engines); Alten Wasserwerk, Friedrichshagen, Berlin, Germany (1888, water supply); Pump station XI der Stadtschen Kanalisationswerke, Berlin, Germany (1908); Hattersheim Frankfurt am Main, Hessen, Germany (1909); Riga Pumping Station, Adazi, Latvia (1904, twin horizontal steam engines); Barbadinhos Pumping Station, Portugal (1880, surviving pumping engines and associated 18th c aqueduct); Museu de las aigues, Cornella, Barcelona, Spain (1909, horizontal steam engines, water supply); In the UK, there are a number of water pumping stations: Claymills, Staffordshire (1885, waste water, complete beam engine pumping house, four beam engines); Goldstone Pumping Station, Hove (1866, water supply); Kempton Park, London (water supply), Papplewick, Nottinghamshire (water supply), Kew Bridge Pumping Station, London (1838, the first engine house with engine supplied by Maudsley, Sons & Field delivered the water to Paddington).

In Poland, one of the most notable examples is Zawada Historic Waterworks Station, Karchowice, Silesia (1895), which is planned to support interpretation of the Tarnowskie Góry water management story:

This station started supplying drinking water to the western counties in the Upper Silesian Industrial Region. Equipped with steam-powered pumping machines it was modernized and expanded throughout the years. The engine house survives, rebuilt 1927-1929 when new pumps and compressors were installed, together with a remodelled boiler room, workshop and a chimney. After modernizing was completed in 2001, the station is equipped with up-to-date pumping machinery powered with electricity and controlled electronically. Substantial equipment is preserved from the early years: two piston pumping sets, a pumping turbine set, steam compressors and other steam-powered machines from the 1930s, as well as the old boiler house with two boilers.

Architectural quality is a major attribute of historic water and waste pumping stations, reflecting their social and cultural importance in the 19th century. The standard for the exterior design and interior fittings of pumping stations is, in general, very high, the American examples being particularly noteworthy. At Tarnowskie Góry, industrial architectural qualities are notable in the two rare “Malakoff towers” and the large boiler house for Lancashire boilers used to generate steam to pipe underground to the steam engines located in engine halls at the water table.

2. Use and adaptation of the steam engine system

The importation of steam engines from the UK, their copying and manufacture locally, and their temporary and highly mobile installations (even using wooden engine houses) at shafts across the mining field of Tarnowskie Góry to facilitate the construction of the adit system, is unparalleled in the world. Never before have stationary steam engines in such numbers been planned to be so rapidly
mobile. The most well-known example of a large number of such steam engines being used – but in a truly stationary context - is the Great County Adit, Cornwall (Cornwall and West Devon Mining Landscape (World Heritage Site, criteria (ii), (iii), (iv)) – but in this case the steam engines were planned to be permanent and pumped water up to adit level where it was ultimately discharged to the sea as contaminated mine water.

The use of mine engines at Tarnowskie Góry soon turned to being applied for pumping to intercept clean mine water, the acme of the system being evidenced in the Adolph Shaft Waterworks where, uniquely, underground chambers were hewn out at a depth of -50m to install the latest horizontal compound steam engines located at the underground water table – itself innovatively managed by a system that was developed over centuries. Steam was generated in the boiler house at surface, where one boiler survives (electricity replaced steam), and was piped down the shaft to the engines.
DOCUMENTATION

The ICOMOS Panel found useful the tridimensional sketches depicting the underground system and its relation to the above ground structures provided in the November additional information. However, it also found that the technical documentation on the current configuration of the nominated property and particularly on the below ground system appears still at its preliminary stages and would require to be fully developed in order to, on one side, allow the understanding of how the mining, dewatering and later supply systems worked and, on the other side, develop the type and quality of documentation of the features supporting the values of the nominated property that is needed to ensure their proper protection and management.

There is an extensive and unusually detailed archive of maps of the Tarnowskie Góry undergrounds from the second mining period (examples enclosed in the Nomination Document) that proved extreme accuracy when cross-referenced with exploration and survey. These are used as a reference data. All maps, plans and section, which cover the entire mining field, have now been digitised in high-resolution, with originals kept in appropriate museum and archive storage.

Due to security and safety matters the inventory process has to be staggered. The network of the undergrounds is very complex. The air is transported to excavation corridors in a natural way, by gravitational force. It makes investigation not possible without careful planning and special equipment. The excavation corridors from the first mining period located near Srebrna Góra, Bobrownia and Repty Śląskie, identified on the basis of historic records, pose a safety threat and they are not yet fully investigated.

A special watershed made of corridors which provide water supply for citizens of Tarnowskie Góry has been created near Kaehler shaft, which makes the excavation corridors from the first and second mining period located in the vicinity of the shaft currently inaccessible whilst abstraction is in progress.

Nevertheless, from the very beginning of the TGLLA operations and the opening of the tourist routes “Black Trout Adit” and “Historic Silver Mine” the undergrounds have been meticulously recorded and successive measurements have been added to the existing data. In addition, since 2015, an inventory of the undergrounds with the use of 3D scanning has been conducted.
PROTECTION

The ICOMOS Panel noted that not all the features included in the nominated property are legally protected: the additional information provided by the State Party in November mentioned a time frame only for some of them. In this regard, it would be useful to receive detailed information on this point for all the features that still await legal protection.

With regard to the buffer zone, the November additional information clarifies that the boundaries of the buffer zone do not coincide exactly with the Natura 2000 site. In this regard, it would be useful if a map reporting all layers of protection for the nominated property and the buffer zone can be provided and if the State Party could explain how the parts of the buffer zone not covered by the Natura 2000 declaration will be protected.

The ICOMOS Panel noted that the Natura 2000 provisions aims at the protection of specific habitats of fauna and flora and not at protecting the attributes of the nominated property. Therefore, these provisions may not necessarily suffice as an added layer of protection as required by the Operational Guidelines. It has been understood that other 'special layers of protection' are being prepared and it would be important to receive more detailed information on the type of protection measures being developed and on the timeframe for their finalisation and implementation.

Nominated property

The protection regime has been described in the Nomination Document and elaborated in the Management Plan annexed to the Nomination. Since the submission of the Nomination, works on the final implementation of remaining aspects of legal protection have been carried out. An updated description of protection of the entire property has been provided within The response to the request for additional information submitted the 14th November 2016.

Forms of legal protection dedicated to cultural heritage are:

1. register of monuments,
2. cultural park in case of cultural landscapes,
3. conservation protection zone in a local development plan,
4. municipal inventory (so called ‘unnamed form’ of legal protection).

Here is current status of the legal protection (forms of legal protection) in a table format:

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<thead>
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<th>Areas/ Attributes</th>
<th>Protection of cultural heritage</th>
<th>Protection of natural heritage</th>
<th>Comments</th>
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</thead>
<tbody>
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<td></td>
<td></td>
<td>Entire underground area is under formal legal protection as a registered monument. Protection of cultural values (potential OUV) is supported by protection of natural values.</td>
</tr>
<tr>
<td>Areas/ Attributes</td>
<td>Protection of cultural heritage</td>
<td>Protection of natural heritage</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.0 Friedrich Mine Deep Adit</td>
<td>• Monument register: former Tarnowskie Góry ore mine&lt;br&gt;additionally:&lt;br&gt;Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>Entire underground area is under formal legal protection as a registered monument.&lt;br&gt;Protection of cultural values (potential OUV) is supported by protection of natural values.</td>
</tr>
<tr>
<td>1.2 Bohr Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine&lt;br&gt;additionally:&lt;br&gt;Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td>1.3 Adolph and Machine Shafts</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td>Areas/Attributes</td>
<td>Protection of cultural heritage</td>
<td>Protection of natural heritage</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------</td>
<td>---------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Help Happiness Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td>1.5 Adit Engine Shaft No. 22</td>
<td>• Monument register: former Tarnowskie Góry ore mine additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td>1.6 Adit Shaft No. 17</td>
<td>• Monument register: landscape park with remains of the former deer park and chestnut alley, constituting a fragment of the road from Repty to Tarnowice Stare • Monument register: former Tarnowskie Góry ore mine additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: landscape park with remains of the former deer park and chestnut alley, constituting a fragment of the road from Repty to Tarnowice Stare</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds • „Repty Park and Drama Valley” Landscape Complex</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td>Areas/Attributes</td>
<td>Protection of cultural heritage</td>
<td>Protection of natural heritage</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------</td>
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</tr>
<tr>
<td>Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1.7 Adit Shaft No. 13 | • Monument register: landscape park with remains of the deer park and chestnut alley, constituting a fragment of the road from Repty to Tarnowice Stare  
• Monument register: former Tarnowskie Góry ore mine  
additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: landscape park (former deer park); Repty Śląskie  
Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine | • Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds  
• „Repty Park and Drama Valley” Landscape Complex | The attribute is legally protected as a part of the registered monument. |
| 1.8 Adit Shaft No. 5 | • Monument register: former Tarnowskie Góry ore mine  
additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: Black Trout Adit outlet, tunnel, skylight  
Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine | • Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds  
• „Repty Park and Drama Valley” Landscape Complex | The attribute is legally protected as a part of the registered monument. |
<p>| 2.0 God Help Adit | • Monument register: former Tarnowskie Góry ore mine | • Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds | The attribute is legally protected as a part of the registered monument. |</p>
<table>
<thead>
<tr>
<th>Areas/ Attributes</th>
<th>Protection of cultural heritage</th>
<th>Protection of natural heritage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Angel Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td></td>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Viper Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td></td>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 God Bless Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td></td>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Heinitz Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td></td>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 Reden Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td>Areas/Attributes</td>
<td>Protection of cultural heritage</td>
<td>Protection of natural heritage</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------</td>
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<td>--------------------------------</td>
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</tr>
<tr>
<td>2.6 Kaehler Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td>2.7 Frederica Shaft</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a part of the registered monument.</td>
</tr>
<tr>
<td></td>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A2 FRIEDRICH MINE ADIT PORTAL AND DITCH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9 Friedrich Mine Adit Portal</td>
<td>• Monument register: former Tarnowskie Góry ore mine</td>
<td>• Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>The attribute is legally protected as a registered monument.</td>
</tr>
<tr>
<td></td>
<td>• Monument register: access portal to the “Fryderyk” Deep Adit</td>
<td>• „Repty Park and Drama Valley” Landscape Complex</td>
<td></td>
</tr>
<tr>
<td></td>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: Black Trout Adit outlet, tunnel, skylight</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Municipal Inventory of Historic Monuments, Tarnowskie Góry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas/Attributes</td>
<td>Protection of cultural heritage</td>
<td>Protection of natural heritage</td>
<td>Comments</td>
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<tr>
<td>------------------</td>
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</tr>
</tbody>
</table>

**A3 God Help Adit Portal and Ditch**

<table>
<thead>
<tr>
<th>2.8 God Help Adit Portal</th>
<th>Monument register: former Tarnowskie Góry ore mine</th>
<th>Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</th>
<th>The attribute is legally protected as a part of the registered monument.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.9 God Help Adit Ditch</td>
<td>Procedure for the inclusion of the ditch in the register of monuments initiated in 2016.</td>
<td>Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</td>
<td>Initiation of the procedure puts the area under supervision of the Regional Monument Conservator. Entire attribute is expected to be fully legally protected as registered monuments in late 2017 or early 2018.</td>
</tr>
</tbody>
</table>

**A 4 Adolph Shaft Waterworks**

<table>
<thead>
<tr>
<th>3.1 Adolph Shaft Waterworks</th>
<th>Monument register: former Tarnowskie Góry ore mine</th>
<th>Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds (underground part)</th>
<th>Entire attribute (above and under-ground) is legally protected as registered monuments.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monument register: Adolph Shaft Waterworks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: Adolph and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas/Attributes</td>
<td>Protection of cultural heritage</td>
<td>Protection of natural heritage</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------</td>
<td>--------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Maszynowy shafts and shaft top complex; Repty Śląskie</td>
<td>Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: former ore mine (underground part)</td>
<td>Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: narrow-gauge railway complex</td>
<td></td>
</tr>
</tbody>
</table>

**A5 Mining Landscape (19th century)**

<table>
<thead>
<tr>
<th>3.2 Mining Landscape (19th century)</th>
<th>conservation zone in the local development plan: former mining landscape protection zone</th>
<th>The area is considered as of archeological potential. According to the law it automatically puts it under supervision of the Regional Monument Conservator.</th>
</tr>
</thead>
<tbody>
<tr>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: narrow-gauge railway complex</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**A6 Silver Mountain and Washing Tip**

<table>
<thead>
<tr>
<th>3.3 Mining Landscape of Silver Mountain</th>
<th>Special Nature 2000 Protection Area – Tarnowskie Góry – Bytom Undergrounds</th>
<th>The area is effectively protected as Natura 2000 site (beech stands) and a nature reserve. The area is considered as of archeological potential. According to the law it automatically puts it under supervision of the Regional Monument Conservator.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>„Segiet” nature reserve</td>
<td></td>
</tr>
</tbody>
</table>

<p>| 3.4 Friedrich Mine Washing Tip | „Mine Washing Tip” cultural park in Tarnowskie Góry | The area is under formal legal protection as a cultural park |</p>
<table>
<thead>
<tr>
<th>Areas/ Attributes</th>
<th>Protection of cultural heritage</th>
<th>Protection of natural heritage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: „Mine Washing Tip“ cultural park</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**A7 Original Site of Friedrich Mine**

<table>
<thead>
<tr>
<th>3.5 Original Site of Friedrich Mine</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• conservation zone in the local development plan: former mining landscape protection zone</td>
<td>• „Kunszt Park“ Living Nature Monument</td>
<td>The area is protected under provisions of the local law. The area is considered as of archeological potential. According to the law it automatically puts it under supervision of the Regional Monument Conservator.</td>
<td></td>
</tr>
<tr>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: “Kunszt” commemorative mound on the Rudolfoina shaft slag heap; Bobrowniki Śląskie</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: narrow-gauge railway complex</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**A8 Municipal Park**

<table>
<thead>
<tr>
<th>3.6 Municipal Park</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monument register: municipal park</td>
<td>• Living nature monuments (selected trees)</td>
<td>Entire area is under formal legal protection as a registered monument.</td>
<td></td>
</tr>
<tr>
<td>additionally: Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: municipal park</td>
<td>• Inanimate nature monument – glacial erratic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Inventory of Historic Monuments, Tarnowskie Góry Municipality: narrow-gauge railway</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See the map, Annex No. 1*
Various institutions are in charge of the particular forms of protection. A list of these institutions is included in the table below:

<table>
<thead>
<tr>
<th>Forms of protection</th>
<th>Managing / responsible institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural heritage</td>
<td></td>
</tr>
<tr>
<td>Register of monuments</td>
<td>Silesian Regional Monument Conservation (Inspector’s) Office in Katowice</td>
</tr>
<tr>
<td>„Mine Washing Tip” cultural park</td>
<td>Tarnowskie Góry City Hall</td>
</tr>
<tr>
<td>„Tarnowskie Góry - Historical Silver Mine and Black Trout Adit undergrounds” national historic monument</td>
<td>Chancellery of the President of the Republic of Poland, Ministry of Culture and National Heritage, National Heritage Board of Poland on behalf of the Ministry (monitoring)</td>
</tr>
<tr>
<td>Additionally: Municipal Inventory of Historic Monuments</td>
<td>City Hall and Municipality</td>
</tr>
<tr>
<td>Natural heritage</td>
<td></td>
</tr>
<tr>
<td>„Repty Park and Drama Valley” landscape complex</td>
<td>Voivodeship Nature Conservator</td>
</tr>
<tr>
<td>„Kunszt Park” living nature monument</td>
<td>Tarnowskie Góry Mayor</td>
</tr>
<tr>
<td>„Segiet” nature reserve</td>
<td>Regional Environment Protection Director in Katowice</td>
</tr>
</tbody>
</table>

**Buffer zone**

Natura 2000 designation, in this particular case, does protect the attributes of the nominated property. The Natura 2000 Tarnowskie Góry-Bytom Undergrounds is aimed at protecting bat habitats which means safeguarding all existing underground tunnels and the way they have been functioning, the main attribute of the nominated property! Without the man-made underground structure and its stable environment the natural phenomenon would not exist. The Natura 2000 site as a legal tool/mechanism that supports effectively protection of the property’s cultural values. It is worth mentioning that its establishment was an initiative of the local community (appropriate studies conducted by the Tarnowskie Góry Land Lovers’ Association).

Boundaries of the buffer zone follow the boundaries, or are within the boundaries, of the Natura 2000 site except for very small bits to the North of the underground system. Protection of the Natura 2000 site is executed mainly through the local development plans. The provisions of the buffer zone will be introduced into the local development plans as soon as the property is inscribed on the World Heritage List within the nearest update of the documents.

*See the map, Annex No. 1*

*See the Natura 2000 management plan, Annex No. 2*

For the terrestrial attributes, as the Natura 2000 doesn’t protect aesthetic values, special layers of protection are delineated. They will be formally introduced into the local development plans as soon
as the property is inscribed on the World Heritage List within the nearest update of the documents. The general aim of their introduction into the local law is safeguarding the status quo of the current land use. Nevertheless, along with the preparation of the local development plans land use analyses will be conducted and appropriate provisions will be introduced if required.
DIRECTIVE OF THE REGIONAL DIRECTOR FOR ENVIRONMENTAL PROTECTION IN KATOWICE

of 24 April 2014

concerning establishing of a protection task plan for the Natura 2000 site

The Tarnowskie Góry – Bytom Underground Spaces PLH240003

Pursuant to art. 28 section 5 of the Act of 16 April 2004 on nature protection (O. J. of 2013, item 627, 628 and 842) it is hereby ordered as follows:

§ 1. There is established a protection task plan for the Natura 2000 site the Tarnowskie Góry – Bytom Underground Spaces PLH240003, hereinafter referred to as "the Natura 2000 site", located in the following communes: Zbrojownice, Radzionków and Tarnowskie Góry, in Tarnowskie Góry County and within the city of Bytom.

§ 2. Appendix 1 to the Directive comprises the description of borders of the Natura 2000 site.

§ 3. Appendix 2 to the Directive comprises the map of the Natura 2000 site.

§ 4. Appendix 3 to the Directive comprises the identification of the current and potential risks to preserving the proper conservation status of the natural habitats and plant and animal species and their habitats being the subject of protection.

§ 5. Appendix 4 to the Directive comprises the purposes of protective measures.

§ 6. Appendix 5 to the Directive comprises protective measures with the indication of entities responsible for their implementation and the areas of their implementation.

§ 7. The Directive shall enter into force 14 days following the day of their announcing.

Regional Director for Environmental Protection in Katowice

mgr Bernard Błaszczyk
Description of the borders of the Natura 2000 site

Identification of the current and potential risks to preserving the proper conservation status of the natural habitats and plant and animal species and their habitats being the subject of protection

<table>
<thead>
<tr>
<th>Subject of Natura 2000 protection</th>
<th>Risk</th>
<th>Description of risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>9130 fertile soil of beech forest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Dentario glandulosae-Fagenion, Galio odorati-Fagenion)</td>
<td>1.</td>
<td>The presence of Mock-orange Philadelphus sp., but in small amount.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Ecologically alien trees cause unfavourable changes of soil chemistry (dropping of needles).</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>Tree clearance leads to excessive growth of underbrush and expansive species.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential risks</th>
<th>Current risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Trampling, extensive use (G05.01)</td>
<td>1. Improperly implemented protective measures or no such measures (G05.07)</td>
</tr>
<tr>
<td>2. Urbanised areas, residential areas (E01)</td>
<td>2. Improper protection of the inlet leading to underground spaces – inadequately constructed grating in Blachówka Zachodnia. No protection of the openings leading to underground spaces – there is an unprotected inlet without a grating behind the main entry of gate Brama Gwarków leading to underground spaces.</td>
</tr>
<tr>
<td>2. The area in the vicinity of habitat is designed for single family houses; which may involve increased penetration of habitat; expansion of undesired species and littering.</td>
<td>2. Backfilling of inlets – as a result of erosion, dolomite runs backfilling the entry opening in stone pit Bobrowniki and near the shaft behind the main entry at gate Brama Gwarków.</td>
</tr>
<tr>
<td></td>
<td>3. Sport and recreation infrastructure (G.02)</td>
</tr>
<tr>
<td></td>
<td>3. Light and noise generated by mass events organised in the region of valley Sportowa Dolina frighten away bats. They have an especially negative influence during swarming. A similar effect</td>
</tr>
</tbody>
</table>
4. Motorised means (G01.03)  

is caused by approaching motor vehicles (motorcycles, quads, etc.) near the inlet to underground spaces Blachówka.

4. Motorcycle traffic in the region of the entry to the adit Blachówka Zachodnia and in stone pit Bobrowniki scares away and wakes bats and causes rock material running.

Potential risks

1. Speleology (G01.04.02)  

1. Exploration of underground spaces in the winter time and during swarming worries hibernating bats.

2. Constitution of isolated buildings (E01.03)  

2. Seeking to develop the closest area of the most important entry opening to underground spaces – Blachówka Zachodnia and designs of settlement building on unstable ground nearby sanctuary Segiet and the entry to adit Blachówka pose the risk of collapse of entry openings and underground corridors being the habitat of bats, which may lead to their loss.

3. Erosion (K01.01)  

3. Landslides may inhibit the access to hibernation sites in the region of entry Blachówka Zachodnia.

4. Paths, hiking and bicycle routes (D01.01)  

4. Marking of trails and paths may be conducive to running of dolomite in the region of inlets in Blachówka Zachodnia and in stone pit Bobrowniki.

5. Garbage and solid waste (H05.01)  

5. Illegal storage of different types of waste in the region of stone pit Bobrowniki may have a negative impact on foraging habitat.

6. Submergence (K01.04)  

6. The bodies of water banking up in drain-ways, flooding the basements of chambers, cutting off fragments of the system. Water banking up between adit Blachówka and gate Bramá Gwarków may prevent bats from the free movement between entrance openings.

7. Sport and recreation infrastructure (G.02)  

7. Motor vehicles (motorcycles, quads, etc.) approaching the entry to underground spaces Blachówka Zachodnia and in stone pit Bobrowniki generating noise may scare away bats during swarming. Using the place of entry in stone pit Bobrowniki as an area to do motorsports.

Official Journal of the Silesian Voivodeship -16- Item 2576

Appendix No. 4 to the Directive of Regional Director for Environmental Protection in Katowice of 24 April 2014

Aims of protective measures

No. Subject of Natura 2000 protection Aims of protective measures

1. 9130 Fertile soil of beech forest (Dentario glandulosae-Fagenion, Galio odorati-Fagenion) Maintaining habitat in the area in a condition not worse than before, i.e. at the minimum level of U1 – improvement in the assessment indicator "Ecologically alien species in the forest stand"

2. 1324 Large Mouse-eared Bat (Myotis myotis) Maintaining the species population in the area in a condition not worse than before, i.e. at the minimum level of U1
Protective measures with the indication of entities responsible for their implementation and the areas of their implementation.

<table>
<thead>
<tr>
<th>Subject of protection</th>
<th>Protective measure</th>
<th>Area of implementation</th>
<th>Entity responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9130 Fertile soil of beech forest (Dentario glandulosae-Fagenion, Galio odorati-Fagenion)</td>
<td>1 Removal of ecologically alien tree species. Elimination of Norway spruce, Scots pine and European larch from forest stand, including removing of the trunks remained successively as they reach the cutting age within care and sanitary cutting. The work should be conducted after the growing season (e.g. in winter) and in such a way so that minimise damage to undergrowth and deciduous trees.</td>
<td>Sub-branches: 609b, c, sub-branches: 619f, c, g, sub-branches: 630g, k, sub-branches: 631b, c, j, sub-branch: 639b.</td>
<td>Provided in Appendix No. 5 to the Directive of Regional Director for Environmental Protection in Katowice of 24 April 2014</td>
</tr>
<tr>
<td></td>
<td>2 Gradual conversion of forest stand intended to achieve the target species composition 78K 30D, W2, Lp, Gb in the long term.</td>
<td>Sub-branch: 619g, 631c, 631b, 639b.</td>
<td>Provided in Appendix No. 5 to the Directive of Regional Director for Environmental Protection in Katowice of 24 April 2014</td>
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<td>3 Gradual conversion of forest stand intended to achieve the target species composition 88K 20D, W2, Lp, Gb in the long term.</td>
<td>Sub-branch: 631b.</td>
<td>Provided in Appendix No. 5 to the Directive of Regional Director for Environmental Protection in Katowice of 24 April 2014</td>
</tr>
</tbody>
</table>

Appendix No. 5 to the Directive of Regional Director for Environmental Protection in Katowice of 24 April 2014

No. Measures concerning monitoring of the condition of the protected subjects and monitoring of protective measures implementation

<table>
<thead>
<tr>
<th>Subject of protection</th>
<th>Protective measure</th>
<th>Area of implementation</th>
<th>Entity responsible for implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9130 Fertile soil of beech forest (Dentario glandulosae-Fagenion, Galio odorati-Fagenion)</td>
<td>Measures concerning active protection of nature habitat, plant and animal species and their habitat</td>
<td>Provided in Appendix No. 5 to the Directive of Regional Director for Environmental Protection in Katowice of 24 April 2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Observation of the dynamics of changes and reaction of habitat. Taking a phitosociological photo.</td>
<td>Sub-branches: 609b, c, sub-branches: 619f, c, g, sub-branches: 630g, k, sub-branches: 631b, c, j, sub-branch: 639b.</td>
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<td>Provided in Appendix No. 5 to the Directive of Regional Director for Environmental Protection in Katowice of 24 April 2014</td>
</tr>
</tbody>
</table>

Coordinates of the sites where phitosociological photos were taken: 50 24 30.0’ N 18 50 55.3’ E 50 23 36.5’ N 18 50 47.9’ E 50 23 36.5’ N 18 50 59.8’ E
<table>
<thead>
<tr>
<th>No.</th>
<th>Measures concerning completion of knowledge about subjects of protection and conditions of their protection</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It was decided there was no need to complete knowledge about subjects of protection and conditions of their protection.</td>
<td>Inapplicable</td>
<td>Inapplicable</td>
</tr>
</tbody>
</table>

| No. | Measures concerning active protection of nature habitat, plant and animal species and their habitat | |
|---|---|
| 1 | Departure from the use of sound amplification and lighting in the period from 1 August to 30 October, 1 hour before sunset – to dawn. | Vicinity of the adit in Blachówka so called valley Sportowa Dolina. | Supervisory Regional Directorate for Environmental Protection in Katowice/ Owners and users of the area / organisers of events |
| 2 | Departure from using motor vehicles in the period from 1 August to 30 October, 1 hour before sunset – to dawn. | Vicinity of the adit in Blachówka so called valley Sportowa Dolina and stone pit Bobrowniki. | Supervisory Regional Directorate for Environmental Protection in Katowice/ Owners and users of the area / organisers of events |
| 3 | Developing guidelines for tourist access to stone pit Bobrowniki. Over the duration of the protection plan. | Stone pit Bobrowniki | Supervisory Regional Directorate for Environmental Protection in Katowice in agreement with owners and users of the area |
| 4 | Replacement of grating. Using elements without sharp edges and endings. The distance between vertical elements shall not be smaller than 40-45 cm. The distance between horizontal elements shall not be smaller than 15-17 cm. In the 4th year of plan duration. | Entry to adit Blachówka Zachodnia N 50° 24' 20.0” E 18° 51' 10.5” | Supervisory Regional Directorate for Environmental Protection in Katowice |

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|   | Identifying the capabilities of methods of providing protection to the inlet for bats against broken rock and securing the entry to underground spaces in stone pit Bobrowniki with grating. Over first six years during the lifetime of the plan. | Entry to the adit “W Kamieniotomie Bobrowniki” N 50° 24’ 40.3” E 18° 51’ 55.9” | Commune Zbrosławice/ Supervisory Regional Directorate for Environmental Protection in Katowice |

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3) – in accordance with the Forest Management Plan for Forest Inspectorate Brynek for years 2012 - 2021.
Map of the Natura 2000 area of the ‘Underground Site of Tarnowskie Góry-Bytom’

11/2013
*Tarnowskie Góry-Lead-Silver-Zinc Mine and its Underground Water Management System*

**FORMS OF LEGAL PROTECTION**

**CULTURAL**
- National Historic Monument:
- Register of monuments:
  - Former noble manor in Tarnowskie Góry
  - Adolph Shaft Waterworks
  - Friedrich Mine Adit Portal
- Landscape park with remains of the former deer park and chestnut alley
- Urban Park 'Hałda Popłuczkowa' (Washing Tip)

**NATURAL**
- Natura 2000 Special Protection Area of the ‘Undergrounds of Tarnowskie Góry-Bytom’, (PLH 240003)
- Landscape Complex
- Monument of living Nature ‘Park Kunszt’
- Nature Reserve of the ‘Segiet’ forest

**PROPERTY ADMINISTRATIVE UNITS LOCATION IN SILESIAN VOIVODESHIP**

**map 8 | FORMS OF LEGAL PROTECTION**

- Underground nominated property (production/out balance)
- Underground nominated property
- Surface nominated property

Map scale 1:25,000 at A2 paper format