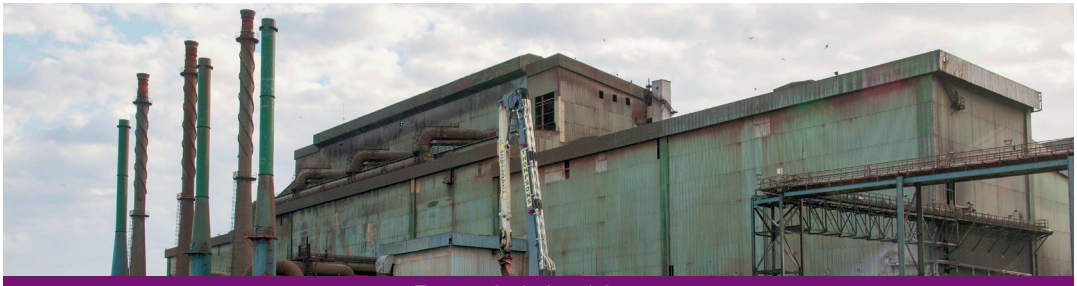
Buildings archaeology and development

The following pages present case studies that highlight the broad application of buildings archaeology. They show the breadth of skills and knowledge that buildings archaeologists offer. Each case study shows that understanding is the primary focus of the buildings archaeologist. Understanding incorporates not only an appreciation of the significance of the historic building, but also an interpretation of how it may have influenced or have been influenced by its local and national context.

A buildings archaeologist can help the stakeholders in a historic building or area to understand its values and how they contribute to significance. This includes communal value. Community is partly manifested through a city or town's heritage assets, many of which house important local services, such as libraries, and also businesses or projects. The historic environment is part of the fabric of day-to-day existence, and it contributes significantly to people's quality of life. It is on this understanding that a buildings archaeologist engages with all types of clients and assists in the development of proposals for historic buildings. The archaeologist's input enables those proposals to be informed by an interrogative, robust and thorough assessment of significance and an understanding of the opportunities and constraints a building presents, and to be focused on sustainable and viable uses that benefit communities.

We hope that the following case studies illustrate some of the contributions brought by an archaeological approach to understanding buildings and inspire those who are responsible for finding new uses for old structures to seek advice and support from a CIfA-accredited professional.



Teesworks industrial zone

Eastward Farmhouse and attached barns, The Lake District

A strategic approach to adaptive reuse

TEESWORKS INDUSTRIAL ZONE

A case study of the challenges of industrial archaeology and historic building recording

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Built heritage varies considerably, from a single small structure to an entire cohesive landscape of interconnected buildings and sites. Each site will present its own logistical challenges and the methodology for recording will need to be adapted to work within a project's timeframe, the level of detail required, and health and safety and access constraints.

The historic environment team at The Environment Partnership (TEP) Ltd was instructed by the Tees Valley Combined Authority, advised by the Teesworks Heritage Taskforce, to undertake historic building recording of a substantial industrial site comprising the Redcar Iron Works, the

Basic Oxygen Steelmaking (BOS) plant ©TEP

Lackenby Steelworks, and plant at South Bank. This area is collectively referred to as the Teesworks Industrial Zone or Teesworks. The work was not in accordance with a condition of planning but was undertaken as part of the local authority's commitment to the area's industrial heritage.

TEP is a CIfA Registered Organisation, which gave the commissioning body confidence that the archaeological recording would be undertaken ethically, to professional standards and by competent experts. TEP produced a detailed methodology for the proposed works as part of the commission, which ensured that the work would meet the needs of the client and the public.

Exterior view of BOS Plant ©TEP

BOS Plant Teeming Bay, showing a de-gasser unit ©TEP

THE SITE

Teesworks is located at Redcar, North Yorkshire, and is currently being redeveloped to transform Europe's largest brownfield site into a multi-sector industrial zone focused on clean energy and advanced manufacturing. The site covers 4,500 acres and will include the UK's first carbon capture utilisation and storage facility. It is envisaged to create 20,000 new jobs and contribute £1 billion annually to the Tees Valley economy.

The extensive site is over 5km from end to end and the larger buildings can be hundreds of metres long, with multiple levels, and containing substantial equipment and machinery. The principal objective of the survey was to produce an archaeological record of the site, including the various processes of materials movement and manufacturing that took place in the different areas of the works. The scope of recording encompassed many large and complex buildings and plant, including a blast furnace which at the time of construction in 1979 was Europe's largest and most technologically advanced.

The main areas to be recorded included raw materials handling facilities, coke ovens and by-products plant, sinter plant, power station and turbine hall, gasholders, workshops and offices, and the Basic Oxygen Steelmaking (BOS) plant. These were supported by an array of ancillary equipment including a network of conveyors and a dedicated rail system that carried raw materials around the site.

METHODOLOGY AND CHALLENGES

Producing a comprehensive record of the site, including all major buildings as well as the associated networks of conveyors and stockyards, presented the team with a logistical challenge because of time and safety constraints.

A detailed programme for the archaeological works was drawn up and included provision for project set up, archive visits, site survey, reporting and production of illustrations and archiving. The programme included a schedule of client meetings and updates, as part of which the project manager would keep the client team informed of progress and raise any risks to delivery. The team was able to keep to this tight schedule, delivering each stage of works within the allocated timeframe.

At the time of the archaeological recording, the site had been given over to demolition and was under Construction (Design and Management) regulations, requiring the team to prioritise areas in accordance with the demolition schedule and to undertake works in line with strict health and safety procedures, which limited access in certain areas and buildings.

The number and large scale of the buildings and site presented a major challenge as the on-site element of recording had only a two-week timeframe. The site was divided into recording areas and a daily recording schedule was created to ensure each area was completed. This schedule was communicated to all key stakeholders ahead of time and necessary site managers were put in place to enable access to all areas on the designated date.

Over 4,000 high-resolution digital photographs were taken over a two-week period and included main elevations, views of principal rooms and spaces, and details of plant and equipment. Interviews were carried out with key plant operators and site managers to provide technical information regarding the operation of the site. An archive visit was also carried out to help provide a comprehensive historic background and to aid in understanding the social significance of the site for the local area.

A particular challenge to photographic recording was the restricted access to parts of the site and interior of some of the buildings. The internal spaces were often large and poorly lit; flash photography was of relatively little use in lighting these spaces. The limited fieldwork time and strict recording schedule also restricted the use of long tripod exposures, requiring a balance between rapid data capture and image quality. Because of safety concerns and limited access, it was not possible to use tripods in certain areas and hand-held photography was the only option. The use of high-quality cameras with high ISO and recording in RAW helped to provide the best possible images in these conditions.

Interior view ©TEP

Blast furnace charging conveyor ©TEP

A highlight of the site and recording project was the blast furnace, which was prioritised early in the recording schedule because of its heritage significance and the level of detail required. Built in 1979, the uppermost plant was almost the same height as the top of St Pauls Cathedral, rising to approximately 104m. The blast furnace was the focal point in the flow of materials around the Redcar site and its primary purpose was to produce molten iron to a specific tonnage and quality as required at the steel plant. Although at first glance often taken as comprising the upstanding furnace, the blast furnace facility actually contains a wider sprawl of associated infrastructure including gas and dust collection, cleaning and processing, conveyors and charger, slag and waste material processing, as well as the gas, air and water required to drive the process. At the height of operation, the furnace provided the continuous production of iron at a capacity of 63,000 tonnes per week. The team was fortunate to be able to gain access into the blast furnace facility and was able to record the principal elements from inside the structure and from the multitude of working platforms.

The Basic Oxygen Steelmaking (BOS) Plant received the molten iron from the blast furnace. The iron was transferred into 240-tonne-capacity converter vessels where oxygen was blown in to convert the iron to high-quality steel. The steel works building was made up of a series of steel-framed bays measuring up to 700m in length and with the larger bays being up to 70m in height. Large overhead cranes were used to carry heavy ladles filled with molten metal around the various stations. The molten steel was poured into continuous casting moulds where it was formed into straight ingots for immediate use in adjacent rolling mills or for sale as raw material. The survey provided a record of the structure and layout of the building and there was specific emphasis on documenting and describing the process of manufacturing and materials through the building and its place within the wider site.

It was found that little published or archival material was available for the site because of its relatively recent construction and decommissioning. A large number of documents and plans were present in various site offices but had not been organised or digitised. It was considered vital, therefore, to make use of the knowledge of the site staff, many of whom came from generations of iron and steel workers. The team was accompanied by the relevant plant manager for each recording area, who were able to provide on-going commentary and explanation of each building and works process. On completion of the fieldwork a series of informal interviews was carried out, which considerably aided our understanding of the site and provided a valuable level of technical detail.

On return to the office, the photographic archive and all notes were reviewed and any areas of deficiency or which required further detail were identified. Return visits to specific areas were then arranged to ensure the record was as robust as possible.

CONCLUSION

The recording project was noted by Historic England as being among the largest of this type of recording undertaken by archaeologists of an industrial site. The archaeological survey was part of a wider effort by the Teesworks Heritage Taskforce to explore ways to capture, record and recognise the cultural economic and industrial heritage of the Teesworks site.

It was noted from the outset that there is considerable local community interest in the site and the project was designed specifically to engage with and enhance the public record. As an important site in Britain's steel and iron industry there is also a significant national as well as international audience.

The survey created a comprehensive and high-quality visual record of the site prior to demolition and the report provided a systematic descriptive account of the history and development of the local iron and steel industry, as well as a technical description of all the main buildings and manufacturing processes. A separate archive gap analysis was also produced which provided recommendations for ongoing and long-term heritage management, including public engagement and outreach and publicly accessible publications to help raise awareness of Teesside's rich iron and steelmaking heritage.

The work was well received by the client and has helped with the ongoing management of the site, which remains under development, providing guidance in the potential retention or conservation of heritage assets and historic features and forming a baseline for any further heritage projects and publication.

The grey literature report is available to the public through the Archaeological Data Service and the archive is held by the Teesside Archive.

Blast Furnace detail
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