

## **IW Number 011 Victoria Ironworks SO 17146 07529**

### **General Description**

The Victoria Ironworks, founded in 1836-38, was built as a complete unit with furnaces, coal and mine pits, five rows of cottages, a truck shop, schoolroom and officials' houses. The later development of the site is largely the result of its close association with the neighbouring Ebbw Vale Ironworks. Only the core area of what is a much more extensive ironworks landscape associated with both the Ebbw Vale and Victoria ironworks is defined for the purpose of this report. The 1<sup>st</sup> edition OS map depicts the site as it existed during the 1870s; coke ovens and adjacent rank of limekilns (calcining kilns) above and west of the blast furnaces are shown, separated by the lines of the site's internal tramway, while at the northeast and immediately south of the furnaces a number of other structures are indicated. What appears to be a large rail or rolling mill was located to the south. The area, which formed part of the garden festival site, has undergone landscape reclamation and is now given over to light industrial development and infrastructure. Given the thorough redevelopment of the site since closure little of interest is considered likely to survive, though remains associated with the massively constructed furnaces may survive in a buried state under the now landscaped slope, which bisects the site.

With the adjacent area to the south (part of the wider area associated with the former Ebbw Vale steelworks) the site of the former Victoria Ironworks was used for the final garden festival in 1992. The adjacent area to the south is now Victoria Park, Wales' first urban village, which includes 200 homes. Other developments on the site include a designer goods outlet, an owl sanctuary, fitness centre and a school for the visually impaired. Many festival features have been retained, including an ornamental lake, a pavilion and woodland.

### **Historical Background**

The Monmouthshire Iron and Coal Company under Sir Thomas Buckler Lethbridge began construction of the Victoria Ironworks in 1837, and work on the site coincided with the Queen Victoria's coronation. Initially two furnaces were put into blast with two further furnaces being constructed in 1839. The blast was provided by a 60in. x 8ft. beam blowing engine with a 122in. blowing cylinder.

The Ebbw Vale Iron Company bought the Victoria Ironworks in 1849 for £55,000; it was the second works to be purchased by the company. At this date the ironworks consisted of four blast furnaces, which were 45ft. high, 16ft. in diameter across the boshes and 8ft. in diameter across the tops. The blast was provided by the 60in. beam blowing engine with the 122in. blowing cylinder, which produced 20,000cu. ft. of air per minute with the furnaces being blown through a 24ft. diameter air receiver. Also included in the sale were four bridge lofts, extensive kilns for roasting ironstone and a water balance for raising limestone to the furnace tops. The ironworks also possessed a large casting house, three double refineries, a single refinery, a bar iron forge, ten puddling furnaces and a rolling mill making rails or merchant iron from eight balling furnaces. The mill was powered by a 90 h.p. engine and was capable of turning out 10,000 tons of bar iron each year. The sale document also lists a foundry with an air furnace and cupola, a waterwheel for blowing the cupola and turning the bar iron rollers and for turning and boring in general, a smith's shop, a carpenters', pattern makers' and fitting up shop, a punching machine, a brass foundry, a brick yard with two kilns and drying stoves, several reservoirs, seven pits sunk on the property, a shop, houses and two residences for the managers.

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The Victoria Ironworks was altered and extended but by 1870 only three furnaces remained on the site. Two of these remaining furnaces were demolished in the late 1870s leaving only one furnace in blast. This demolition was to make way for two new furnaces, which were completed in 1883. Each furnace was 60ft. high and possessed seven tuyeres. Also constructed at this time were six Cowper stoves. Two vertical blast engines built by Kitson and Company of Leeds with boilers by Adamson blew the furnaces. It was envisaged that after these alterations the Victoria Ironworks would be able to turn out 700 tons of iron per week.

In 1884 the Victoria Ironworks comprised two furnaces, which were 60ft. high with 20ft. diameter boshes. The blast at 5 psi was provided by two vertical engines with 50in. x 5ft. steam cylinders and 100m. blowing cylinders. The mills included a 12in. bar mill driven by a 24in. x 2ft. 6in. engine, an 8in. guide mill driven by a 21in. x 1ft. 8in. engine, an 18in. train for rolling fish bars driven by a pair of horizontal 30in. x 4ft. 6in. engines and a mill train worked by an old beam engine coupled to a horizontal engine. At this time a 36in. blooming mill was being constructed at Victoria powered by a pair of 36in. x 4ft. 6in. Galloway horizontal engines (Ince 1993).

The later configuration of the Victoria Ironworks is closely bound up with developments at its larger neighbour, the Ebbw Vale ironworks, and the development of the site can be charted to an extent by OS maps of the area. The late 19<sup>th</sup> century (c.1870) layout is depicted on the 1<sup>st</sup> edition OS map indicated are a series of coke ovens at the west, a bank of limekilns and three blast furnaces, to the south of the furnaces are a number of mill structures. The second edition shows the site as complete in 1884 with the new furnace arrangement, to the south of the previous, including the new Cowper stoves. The most drastic change to the entire site is depicted on the 3<sup>rd</sup> edition; this indicated a major remodeling had been carried out between 1902 and 1914. The reconstruction affected both the layout and scale of the Victoria Blast Furnaces, and the Victoria Foundry, together with the associated coke ovens, which are named as the Copper's Coke Ovens and Bye Products Plant.

As with Ebbw Vale itself, the decline of the Victoria works during the early 20<sup>th</sup> century was arrested, when Richard Thomas & Co bought the site in 1935 and built a new steelworks, which by the 1960s, was the most advanced in Britain. During the later 20<sup>th</sup> century, the site was further redeveloped as a tinplate works, the majority of the older buildings demolished in favour of an extensive complex of metal-sheeted buildings (Ince 1993, pp 110-111).

### **Ironworks Boundary**

The ironworks boundary for area IW011, is essentially based on the core area of activity shown on the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> editions of the 1:2500 OS map, though tied into current boundaries as depicted on landline mapping data.

### **Identified Threats**

Threats identified from the UDP are limited to the development of the area for industrial purposes: J1 (25) Industrial site Garden Festival Site.

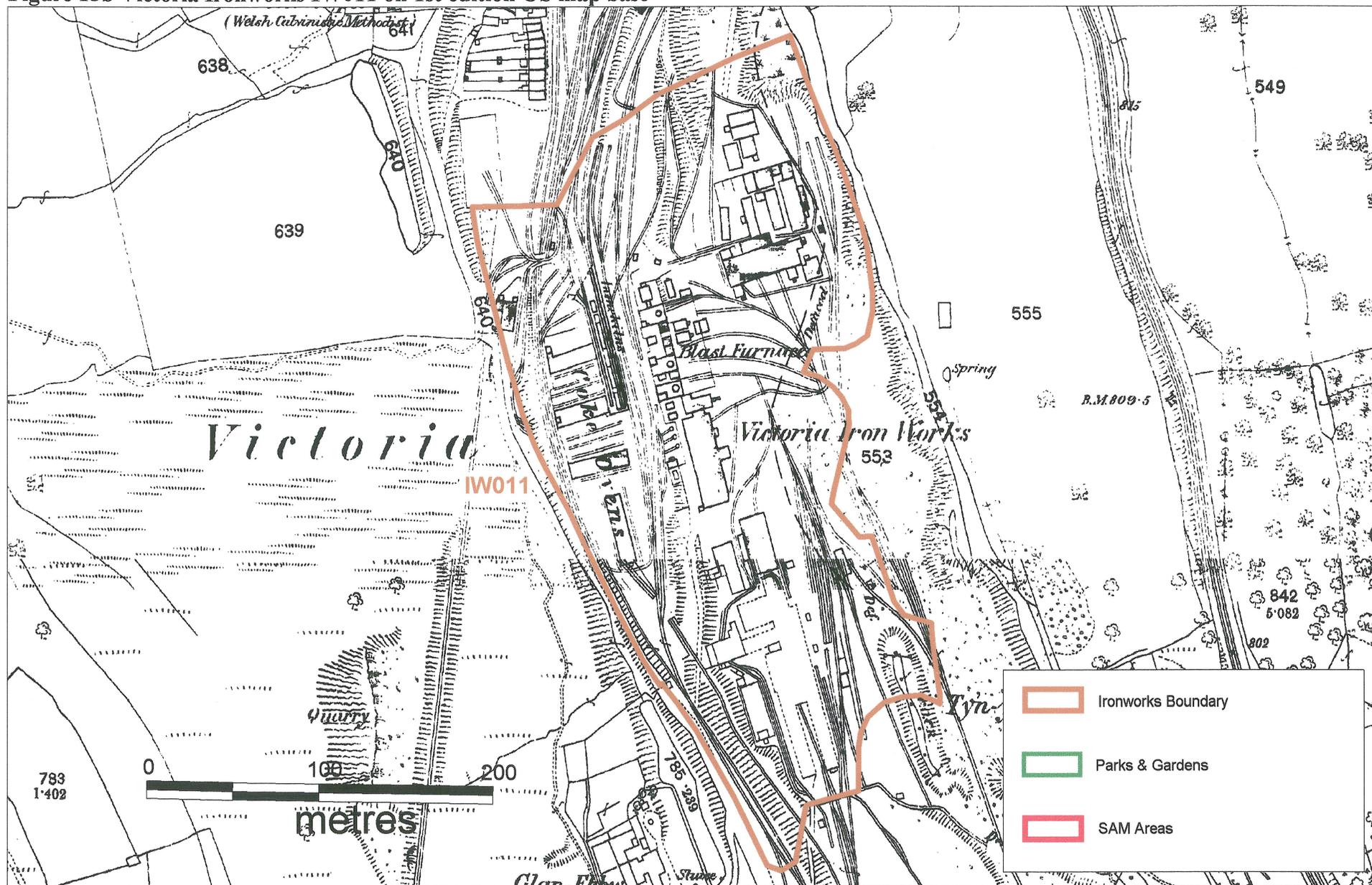
**Figure 15a Victoria Ironworks IW011**



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Figure 15b Victoria Ironworks IW011 on 1st edition OS map base



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## **IW Number 012 Beaufort Ironworks SO 16944 11244**

### **General Description**

The Beaufort ironworks founded from 1779 was important as one of the oldest iron making establishments on the northern outcrop of the coalfield, with notable associations with the Kendall family one of the most important group of charcoal ironmasters in Britain, who held extensive interests in the Midlands and the Lake District. The Beaufort ironworks was also noted for its Smeaton waterwheel of 1780 and a Smeaton atmospheric steam engine of 1782; neither of which now survive.

Unfortunately the site of the Beaufort Ironworks (IW012) has been progressively developed for housing since the start of the 20<sup>th</sup> century. The area of the furnaces and associated coke ovens appears to have been redeveloped for housing after 1971; though cartographic evidence indicates that the main features associated with the ironworks, ie the furnaces, coke ovens etc had been largely cleared previously. By the publication of the 2<sup>nd</sup> edition OS a few industrial features such as tram roads and mine are depicted, as well as associated industrial housing (ie Shop Row, Gantre Row, River Row, Upper Yard Row and Lower Yard Row); the furnaces are no longer shown, their remains presumably having been demolished between 1879 and 1901. The route of a sloping footpath given on later maps (see Plate 005), however, possibly preserves the line of the former charging ramp. By the 1920 edition OS, all the industrial housing associated with the ironworks, apart from (Upper) Yard Row has been either replaced, or is shown to be in a ruinous condition. Beaufort House, the former ironmasters residence, now demolished, is in use as an Isolation Hospital under the Ebbw Vale UD council.

### **Historical Background**

The Beaufort ironworks founded from 1779 was one of the oldest iron making establishments on the northern outcrop of the coalfield. In 1779 land was leased for the works from the Duke of Beaufort after whom the ironworks was named. The original partners were Jonathan Kendall, Henry Kendall, Edward Kendall and Jonathan Kendall. The Kendalls were one of the most important groups of charcoal ironmasters in Britain holding extensive interests in the Midlands and the Lake District. At Beaufort one coke-fired furnace was constructed which was blown by a Smeaton waterwheel erected in 1780. Two years later this was augmented by the building of a Smeaton atmospheric steam engine to return water to the furnace pool. Two melting fineries were added to the works in 1787 and during 1796 the Beaufort furnace produced 1,660 tons of iron.

Between 1801-02 a second furnace was constructed at the site and in 1805 the Beaufort Ironworks produced 4,696 tons of iron. The works grew steadily with three furnaces in blast in 1823 when 5,243 tons of iron was produced. A fourth furnace was built in 1824 and in 1830, the then operating company, Kendall, Bevan & Co., recorded an out put of 7,276 tons of iron. In 1833 the Beaufort Ironworks was bought for £45,000 by Joseph and Crawshay Bailey to supply pig iron to the puddling furnaces and rolling mills of the Nantyglo Ironworks.

By 1839 the Bailey Brothers were operating six furnaces at Beaufort in addition to their eight at Nantyglo, while during the 1850s and 1860s there were seven furnaces capable of production at each site. In 1871 the ownership of the Beaufort and Nantyglo Ironworks were transferred to the Blaina Iron & Coal Co. At this date the site comprised fourteen furnaces, sixty-seven puddling furnaces and four rolling mills.

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The end of the boom in the iron trade resulted by the end of 1873 in the closure of the Beaufort Ironworks, then under the Nantyglo and Blaina Iron Works Company (Limited), (Ince 1993, pp 129-131).

### **Ironworks Boundary**

The ironworks boundary for area IW012, is essentially based on the core area of activity shown on the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> editions of the 1:2500 OS map, though tied into current boundaries as depicted on landline mapping data.

### **Identified Threats**

No threats have been identified from the UDP.

The ironworks area has been generally developed for housing from the 1920s onwards and no visible standing remains associated with the ironworks are known. However, buried remains associated with the furnaces may survive in back gardens and the adjacent wooded steep slope to the east behind houses along Cambridge Gardens, specifically Nos 58-61, and also in the area of Nos 40-42 Beaufort Terrace. Further furnace remains may survive in a buried state at the break of slope to the west of Bryn Kendall, itself the site of former Coke Ovens.

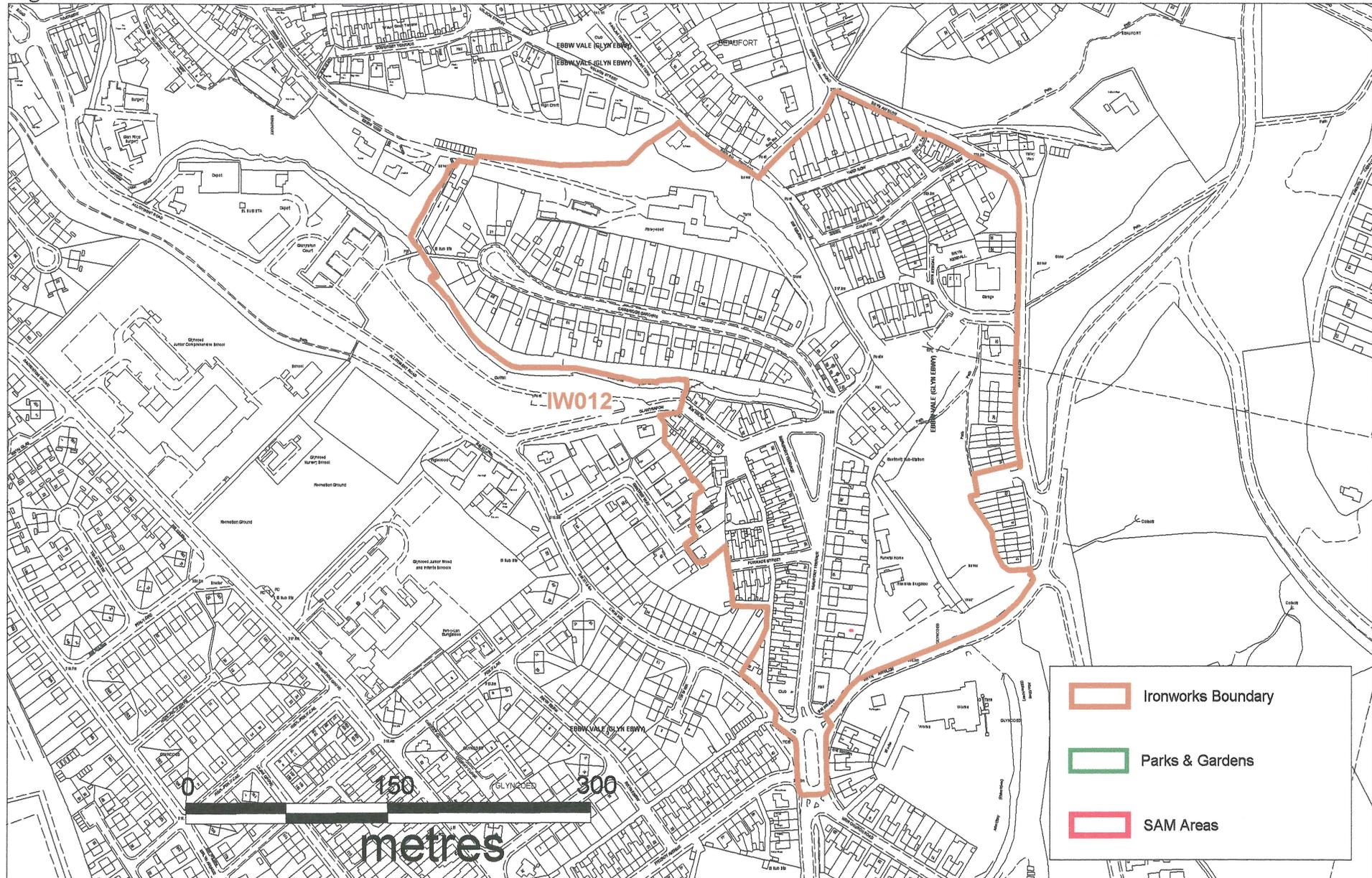
Within the area the survival/condition of buried remains associated with the ironworks is generally unknown.

**Plate 007 Beaufort Ironworks IW012**



Plate 007: Area of Furnaces Beaufort Ironworks, view to north (site of Furnaces located on steep slopes above and below footpath).

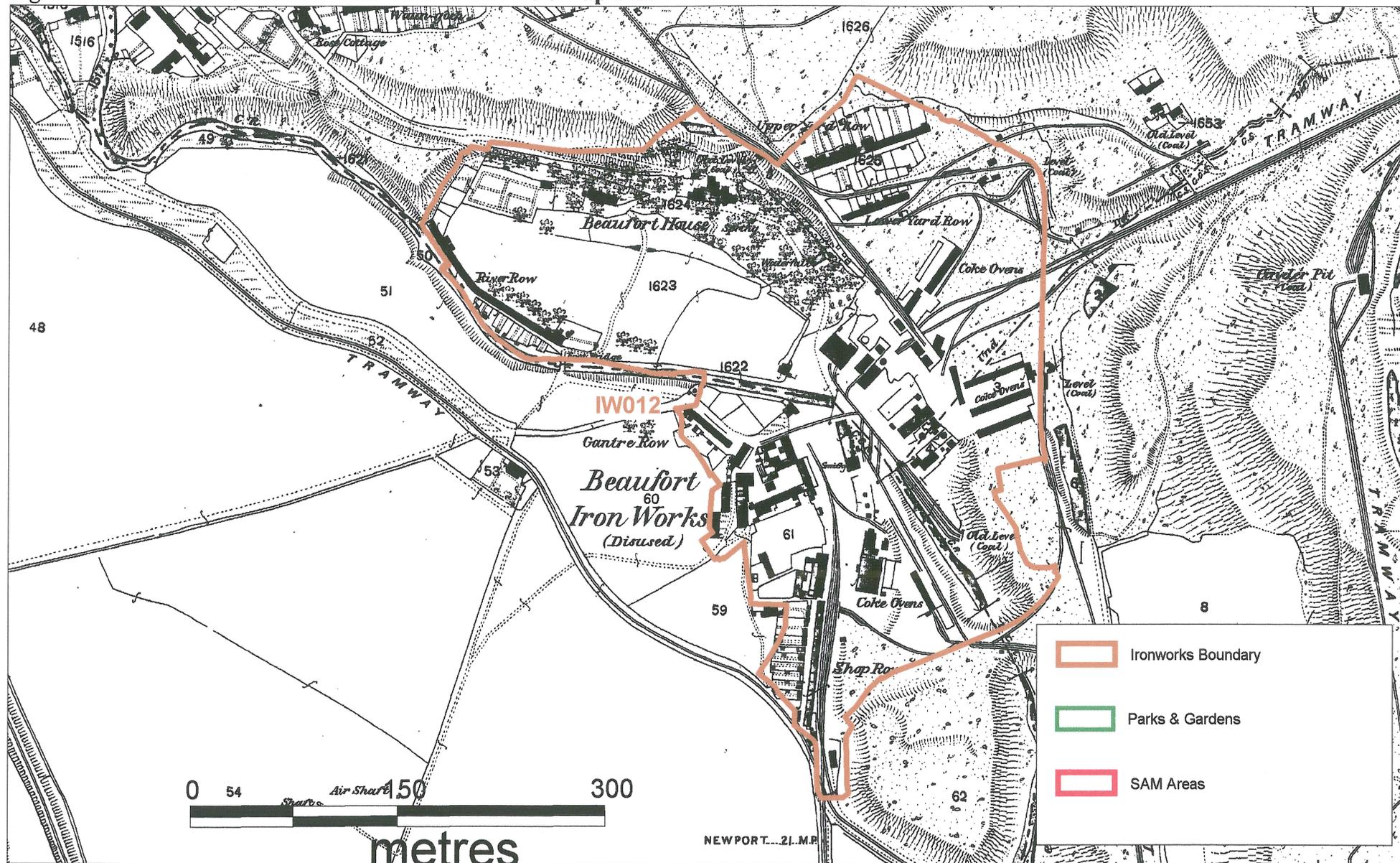
**Figure 16a Beaufort Ironworks IW012**



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Figure 16b Beaufort Ironworks IW012 on 1st edition OS map base



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## **IW Number 013 Tredegar Ironworks SO 14316 09255**

### **General Description**

The Tredegar Ironworks site is an early 19<sup>th</sup> century coke fired ironworks of considerable historical significance. Unfortunately the site, which forms a series of three level terraces located on an east-facing slope extending to the banks of the Sirhowy River, has been extensively cleared and landscaped since closure. The middle of the three successive terraces has a sharp break of slope along its eastern flank overlooking the cleared site of the furnace bank (buried?), below, and appears to represent the remains of the former charging platform/ramp.

The western half of the site, formerly an area dominated by coke ovens and limekilns, is now occupied by the Gwent Shopping Centre. The southeast corner of the site, formerly a complex of large sheds (1<sup>st</sup> edition OS) and latterly the Deighton Steel Works has been redeveloped as the Bridge Street Industrial Estate, while the northern section, formerly rolling mills, brickworks and Forge houses (1<sup>st</sup> edition OS) is currently in the process of being developed as a business park (Tredegar Business Park Development); the remainder of the site remains open ground. Whilst remains are largely no longer visible above ground, the survival of buried remains associated with the furnace banks is a strong possibility. Remains relating to other features, such as engine houses may also survive in a buried state. It should, however, be noted that the Tredegar works has undergone several phases of redevelopment, with the result that many of the earlier features of interest, which survived to be depicted on the 1<sup>st</sup> edition OS map, may have been later removed by this process.

### **Historical Background**

A forge is known to have operated at Tredegar during the 18<sup>th</sup> century; in 1794 the site, occupied by Harford and Partridge, comprised two refineries and a chafery. Large-scale development, however, dates from 1800, when the Tredegar Ironworks was constructed on land at Bedwellte Common leased from Sir Charles Gould Morgan of Tredegar House, Newport.

Samuel Homfray (the ironmaster of Penydarren near Merthyr) and partners Richard Fothergill of Sirhowy Furnace, Matthew Monkhouse of Sirhowy Furnace, William Thompson and William Forman were responsible for the development of the Tredegar Ironworks at an initial cost of £100,000. The Homfray family were to maintain the dominant holding in the Tredegar Ironworks, the partnership became known as Samuel & Watkin Homfray & Co. in 1834. By 1867, however the dominance of the Homfray family was replaced by the Forman family.

In the early part of 1801 a single coke fired furnace, Furnace No.1, was constructed using labour from the Sirhowy and Penydarren Ironworks, No.2 Furnace was completed a few months later and a steam blowing engine was added designed by the noted engineer Richard Trevithick, who was then with Homfray at Penydarren; this was a Boulton & Watt 40in x 8ft beam blowing engine connected to a 52ft diameter waterwheel which worked hammers and rolls. This engine remained in use as a mill engine up to 1856.

Tredegar was used to convert Pig iron from Sirhowy Ironworks into wrought iron; 1803 a visitor noted several puddling furnaces under construction, in addition to the one furnace in blast. Furnace no. 3 was ready for operation by the end of 1803. The Tredegar ironworks had two furnaces in blast in 1805, producing 4,500 tons of iron and the puddling and rolling mills went into operation in 1807. By 1810, 2 new furnaces had been constructed and the fifth and final

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furnace was added in 1817. By 1823 the five furnaces at the works were producing over 16,000 tons of iron per year, increasing to 18,514 tons by 1830.

The Tredegar Iron Company expanded its undertakings in the late 1830s and early 1840s. A 42in. beam blowing engine with a 122in. blowing cylinder was purchased from the Neath Abbey Iron Company in 1839 and two furnaces were under construction in 1840. At this time the furnaces were producing 440 to 450 tons of iron each week. Expansion continued with nine furnaces in blast at the end of the 1840s and in 1849 a large rolling mill was opened. Developments continued with a large blowing engine being constructed at the Tredegar Ironworks in 1860.

The Tredegar Ironworks was described in some detail in 1869. There were nine blast furnaces on the site with each furnace being 45ft. high with 16-17ft. boshes. Seven of these furnaces were closed and were making hot blast iron using ores from Wales, Northampton, Forest of Dean, Mwyndy and Spain. These furnaces were served by three hundred coke ovens. The furnace blast could be provided by five blowing engines although only three were in operation. The four forge trains were served by eighty puddling furnaces. In the older part of the mills were two rail mills, two blooming mills and a mill for merchant iron, driven by numerous engines. Also in these buildings were thirty-five balling furnaces and a recently added merchant mill and a guide mill. The machinery and plant was completed by a further seven balling furnaces, two small engines for shearing and bending cramp iron and an engine working twelve presses and two large shears. The scale of the operation reflects the output of the works, and some 1,000 to 1,100 tons of railway iron was produced weekly during 1869.

The Tredegar Ironworks continued to sell large amounts of rails, particularly in the export market, with exports to Galveston and Rio de Janeiro in 1872, when the works was operating eighty puddling furnaces and five rolling mills. In 1873 the works was bought by the Tredegar Iron Company Limited. In 1882, conversion to steel production was realized with two 8 ton Bessemer converters built by Davy Brothers put into operation. The manufacture of steel rails guaranteed the survival of the Tredegar Iron and Steel Works into the 1890s (Ince 1993. pp 81, 135-137).

### **Ironworks Boundary**

The ironworks boundary, as defined for the purpose of this report, is essentially based on the core area of activity shown on the 1<sup>st</sup> edition 1:2500 OS map, though tied into current boundaries as depicted on landline mapping data.

### **Identified Threats**

The area, currently level open terraced area adjacent to and east of the car park for the Gwent Shopping Centre has been identified in the UDP for a playing field and housing development: L1 (9) Playing fields plus major facilities proposed. HT22 Housing development on the British coal Site. This area located immediately west of and above the former blast furnace site, formerly contained a rank of limekilns and the furnace-charging bank. House construction and other development activities have the potential to damage any surviving buried remains associated with the former ironworks.

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### Plate 008 Tredegar Ironworks IW013



Plate 008: Site of charging ramp at Tredegar Ironworks, view to north (site of Furnaces indicated by red fence line on right side of picture).

**Figure 17a Tredegar Ironworks IW013**



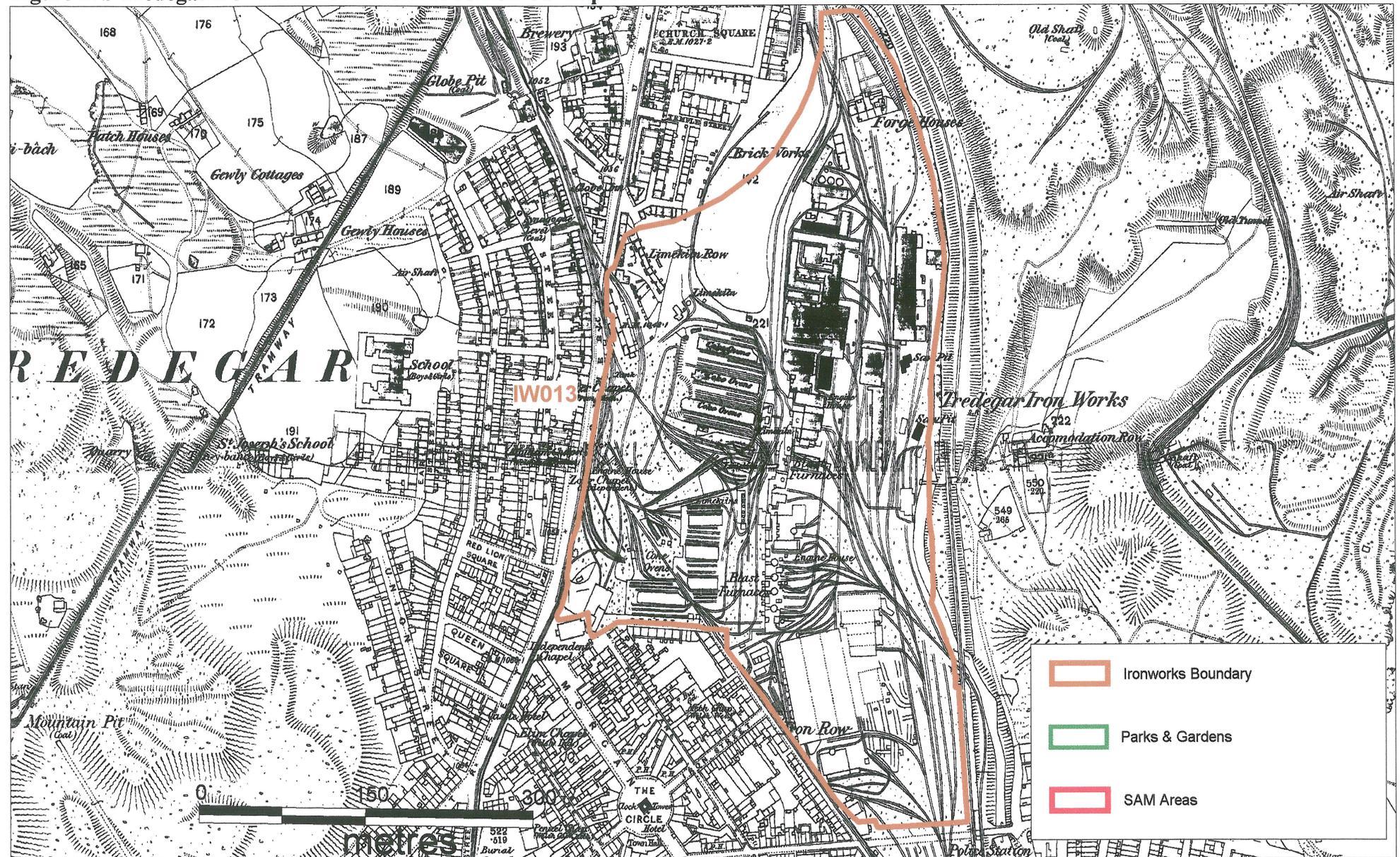
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Figure 17b Tredegar Ironworks IW013 on 1st edition OS map base



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