

DESK-BASED ASSESSMENT  
OF  
THE NEW WHARF  
AND LIME KILNS,  
TARDEBIGGE,  
WORCESTERSHIRE

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11<sup>th</sup> May 2006

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Project 2883  
Report 1421  
WSM 35058



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# **Desk-based assessment of the New Wharf and lime kilns, Tardebigge, Bromsgrove, Worcestershire**

**Tom Vaughan**

## **Part 1 Project summary**

A desk-based assessment was undertaken of the New Wharf and lime kilns, Tardebigge, Worcestershire (NGR: SO 9949 6934). It was undertaken on behalf of British Waterways, to inform them on the conservation and management of the site. The aims of this assessment were to summarise the character and extent of any identified features of the historic environment, indicate their significance, the impact of the proposed development and identify mitigation measures, where appropriate.

The New Wharf was opened in 1811, although the southern half of the Worcester and Birmingham Canal was not opened to traffic until 1815. The wharf initially comprised the wharfage with an additional basin, a stone warehouse, machine house and weighbridge, and was primarily used by coal and agricultural merchants. Brick cottages and stables were also constructed to the rear to house the canal workers and their families. The capacity of the wharf was expanded in 1830 with the construction of a sluice arm off the existing wharf. From the 1840s competition from the railways caused canal revenues to decline and the Worcester and Birmingham Canal Company went into receivership in 1868. In 1873 it was bought out by Gloucester and Berkeley Canal Company and became the Sharpness New Docks (SND) Company, who introduced steam tugs and constructed Tug Row to house the additional workers, most of whom came from Gloucestershire. SND moved their maintenance yard to the wharf in 1909-11, constructing new machine shops, carpenters, blacksmiths, offices and converting part of the sluice arm into a dry dock. These structures remain, although no merchants have operated on the wharf since the mid 20<sup>th</sup> century. The yard is now the British Waterways depot with the buildings to the north-west leased out commercially.

The lime kilns were in operation from at least 1814. They comprise a bank of five “flare” or “draw” kilns utilising the natural slope. Fuelled with coal brought along the canal to the wharf, they burnt limestone probably for mortar and agricultural fertiliser, from Dunhampstead and Himbleton. It is unclear when they fell out of use, although trade directories up to 1908 list a lime merchant at the wharf. By 1927 only three of the kilns were extant, and by 1978 the entire bank had been buried under material dredged from the canal. Recent site clearance has re-exposed the kiln bank. Kiln 1 appears to have collapsed entirely; Kiln 2 appears to maintain its structural integrity, and Kilns 3-5 have partially collapsed. It is proposed that further clearance of the site be undertaken under archaeological conditions, including the full excavation of Kiln 2, and a project of building recording be undertaken prior to consolidation and conservation of the structure, to create a visitor amenity.

## Part 2 Detailed report

### 1. Background

#### 1.1 Reasons for the project

A desk-based assessment was undertaken at the New Wharf and lime kilns, Tardebigge, Worcestershire (NGR: SO 9949 6934). It was undertaken on behalf of British Waterways, and to inform them on the conservation and management of the site. Worcestershire County Council considers that a site of archaeological interest may be affected (WSM 01712 and 26297).

#### 1.2 Project parameters

The project conforms to the *Standard and guidance for archaeological desk-based assessment* (IFA 1999), Planning Policy Guidance Notes 15 '*Planning and the Historic Environment*', and 16 '*Archaeology and Planning*' and relevant EIA guidance and Legislation.

The project also conforms to a brief prepared by the Planning Advisory Section of Worcestershire Historic Environment and Archaeology Service (HEAS 2006a) and for which a project proposal (including detailed specification) was produced (HEAS 2006b).

#### 1.3 Aims

The aims of this assessment were to summarise the character and extent of any identified features of the historic environment, indicate their significance, the impact of the proposed development and identify mitigation measures, where appropriate.

More specifically the following aims have been identified.

- Recommend a further investigation or recording strategy of the lime kilns;
- Recommend management and conservation measures to offset detrimental effects of the aforementioned investigation.

This report should then form part of a Conservation Plan for future treatment of the kilns (Clark 2001, 62-4; Section 4 below).

### 2. Methods

#### 2.1 Study area

The study area included the site (Fig 2), although features of the historic environment were considered within the surrounding 1000m to encompass the settings of scheduled ancient monuments and Listed Buildings.

#### 2.2 Documentary search

A search was made of the Historic Environment Record (HER), County Records Office and Local Studies Library. The event reference given by the HER is WSM 35058. The following sources are relevant to the study area:

*Cartographic sources*

- 
- 1789 A Plan of the intended navigable canal from the town of Birmingham into the River Severn near the city of Worcester, Surveyed in the Year 1789 by John Snape (White 2005)
  - 1800, Road Closures and Diversions on the Land of Lord Plymouth, WCRO BA 10343/28 r899:520 (Fig 2)
  - c 1814, large scale map of Tardebigge area, Tim Brotherton Collection, Leeds University Library (White 2005, 81)
  - c 1811-1830, Tardebigg Wharf, No. 5 (with pencil amendments dated 1989) (Fig 3)
  - 1838/9, Tithe Plan and Rent Charge Apportionment for the Parish of Tardebigg, WCRO BA 1572 s760/564.1 (Fig 4)
  - 1844, Tithe Plan of Bentley Pouncefoot with Tutnal and Cobley and part of Redditch - Tardebigg, WCRO BA 1572 s760/564
  - 1876, Worcester and Birmingham Canal, Tardebigge New Wharf, June 1876, tracing from survey made by A Hobrough, scale 1 chain:1" (Fig 5)
  - 1879, map accompanying Indenture made 4<sup>th</sup> February 1879 between Thomas Dixon and Matthew Dixon of Tardebigg and the Sharpness New Docks and Gloucester and Birmingham Navigation Company (Fig 6)
  - 1884-5, 1<sup>st</sup> edition Ordnance Survey, Worcestershire sheet XXIII.2 (SO 9969), scale 25":1 mile
  - 1888, 1<sup>st</sup> edition Ordnance Survey, Worcestershire sheet XXIII NW, scale 6":1 mile (Fig 7)
  - 1904, Ordnance Survey, Worcestershire sheet XXIII.2 (SO 9969), scale 25":1 mile, WCRO BA 5897 x899:156.71 (Fig 8)
  - 1905, Ordnance Survey, Worcestershire sheet XXIII NW, scale 6":1 mile
  - 1927, Ordnance Survey, Worcestershire sheet XXIII.2 (SO 9969), scale 25":1 mile, WCRO BA 8795/66 s471 (Fig 9)
  - 1930, Ordnance Survey, Worcestershire sheet XXIII NW, scale 6":1 mile
  - 1954, Ordnance Survey provisional edition, sheet SO96 NE, scale 6":1 mile/1:10,560 (Fig 10)
  - 1978, Ordnance Survey provisional edition, sheet SO96 NE, scale 1:10,000
  - 2006, OS Superplan (Fig 11)

#### *Aerial photographs*

- 1951, OS 6" sheet 32/96 NE, vertical, WCRO BA 10420 f470
- c 1950/60s, Aero film ref. R27004, SO996693, oblique (Fig 13)
- 1968, Aerofoto film ref. 86.2.485, SO997697, oblique (WR 220)

#### *Documentary sources*

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- Mawer, A, and Stenton, F M, 1927 *The place-names of Worcestershire*, Cambridge University Press, London
- Thorn, F, and Thorn, C, 1982 *Domesday Book - Worcestershire*, **16**, Chichester
- VCH I, Doubleday, A (ed), 1971 *Victoria History of the County of Worcestershire*, **I**
- VCH II, Willis-Bund, J W and Page, W (ed), 1971 *Victoria History of the County of Worcestershire*, **II**
- VCH III, Page, W (ed), 1913 *Victoria History of the County of Worcestershire*, **III**
- Site archives (from earlier excavations, evaluations etc: see below).

The following sources have also been cited in this assessment.

- Baylis, T J S, 1956 Lime Kiln At Fladbury, pp45-48 in *Transactions of the Worcestershire Archaeological Society*, vol. XXXIII New Series
- British Geological Survey, 1989 *Redditch Sheet 183: Solid and Drift Geology*, 1:50,000 series
- British Waterways, 1993 *Architectural Heritage Survey*, Tardebigge New Wharf survey sheets and photographs
- British Waterways, 2005 *Structural Inspection of Worcester and Birmingham Canal, Tardebigge Lime Kilns*, inspection date: 13/06/05
- Buchanan, R A, 1972 *Industrial Archaeology in Britain*
- Cherrington, R H and Watt, S, 2002 *Land adjacent to Tardebigge Church of England School, Church Lane, Tardebigge, Bromsgrove, Worcestershire: an archaeological evaluation*, Birmingham University Field Archaeology Unit, report **1014**
- Clark, K, 2001 *Informed Conservation - Understanding historic buildings and their landscapes for conservation*, English Heritage
- Crowe, N, 1994 *Canals*, English Heritage, B T Batsford Ltd
- Dickens, M, 1931 *A Thousand Years in Tardebigge*, Cornish Brothers Ltd, Birmingham
- DoE, 1990 *Planning Policy Guidance Note 16: Archaeology and Planning (PPG 16)*, Department of the Environment
- DoE, 1995 *Planning Policy Guidance Note 15: Archaeology and the historic Environment (PPG 15)*, Department of the Environment



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- English Heritage Listed Buildings Online <http://lbonline.english-heritage.org.uk/SearchResultsForm.aspx>
  - IFA 1999a *Standard and guidance for archaeological desk-based assessment*, Institute of Field Archaeologists
  - IFA 1999b *Standard and guidance for archaeological excavation*, Institute of Field Archaeologists
  - Goodbury, V, 1994 *Herefordshire Limekilns*, Ironbridge Institute, University of Birmingham
  - HEAS, 2006a *Brief for an archaeological desk-based assessment for Tardebigge Lime Kilns*, Historic Environment and Archaeology Service, Worcestershire County Council unpublished document dated February 2006
  - HEAS, 2006b *Proposal for an archaeological desk-based assessment of the New Wharf and Lime Kilns, Tardebigge, Bromsgrove, Worcestershire*, Historic Environment and Archaeology Service, Worcestershire County Council, unpublished document dated 15<sup>th</sup> February 2006, revised 16<sup>th</sup> February 2006, **P2883**
  - Harris, D R, 1977 *A Short History of St Bartholomew's Church Tardebigge*, Worcester
  - Lancaster University Archaeological Unit, 1996 *Monuments Protection Programme: The Lime, Cement and Plaster Industries: Step 1 Report*
  - Lewis, S, 1820 *Worcestershire General and Commercial Directory of 1820*
  - Nash, T, 1795 *Collections for the History of Worcestershire*, **2**
  - Palmer, M and Neaverson, P, 1998 *Industrial Archaeology: Principles and Practice*.
  - Pevsner, N, 1968 *The Buildings of England: Worcestershire*, **BE35**
  - Ragg, J M, Beard, G R, George, H, Heaven, F W, Hollis, J M, Jones, R J A, Palmer, R C, Reeve, M J, Robson, J D, and Whitfield, W A D, 1984 *Soils and their use in midland and western England*, Soil Survey of England and Wales, **12**
  - RCHME, 1996 *Recording historic buildings: a descriptive specification (3rd edition)*, Royal Commission on the Historical Monuments of England
  - Soil Survey of England and Wales, 1983 *Midland and Western England, sheet 3, scale 1:250,000 + Legend for the 1:250,000 Soil Map of England and Wales (A brief explanation of the constituent soil associations)*
  - Topping, J, 1996 *Watching brief at St Bartholomew's Church, Tardebigge, Tutnall and Copley*, County Archaeological Service, Hereford and Worcester County Council, report **422**
  - White, A, 2005 *The Worcester and Birmingham Canal: Chronicles of the Cut*, Brewin Books
  - Williams, P and Cook, M, 2003 *An archaeological evaluation of land adjacent to Tardebigge Wharf, Alcester Road, Tardebigge, Worcestershire*, Mercian Archaeology, report **PJ113**

The following sources were not used or were unavailable at the time of this assessment.

- c 1807, Details of land taken from two estates in Tardebigge Parish for the Worcester and Birmingham Canal, British Waterways Archive, Gloucester, BW106/1/1
- late 19<sup>th</sup> century, Plan of Tardebigge New Wharf, British Waterways Archive, Gloucester, BW120/14/7/4 (this may be the 1898 map referred to above)
- 11<sup>th</sup> June 1909, W J Griffiths Site plan of Tardebigge New Wharf, British Waterways Archive, Gloucester, BW120/14/7/5
- 23<sup>rd</sup> May 1924, Plan of lean-to shed to be erected at Tardebigge New Wharf by Messrs T & M Dixon Ltd, British Waterways Archive, Gloucester, BW120/14/6/1

### 2.3 Other methods

A site visit was undertaken on 20<sup>th</sup> March 2006.

Consultation has been undertaken with Elizabeth Turner (British Waterways Heritage Advisor) and members of the Worcester and Birmingham Canal Society to establish the key issues likely to be of importance in determining the future investigations.

A detailed specification has been prepared by the Service (HEAS 2006b).

### 2.4 Results

The results are mapped on Figures 2-11 and the details of individual features of the historic environment are given in Appendix 1. Figure 11 is annotated with the probable date of construction of each building. Event records have been omitted where this would repeat information in other record types, and would not materially affect the assessment. HER references have been used throughout this assessment (WSM) but during its preparation any further historic environment features identified (reference numbers have been allocated with the prefix HEF) have been listed in Appendix 2. The results of the British Waterways Architectural Heritage Survey of Tardebigge (WB), undertaken in 1993, are tabulated in Appendix 3.

### 2.5 Impact assessment criteria

The criteria cited in Table 1 have been used.

*Table 1: Significance Criteria for Cultural Heritage Issues*

<p><b>Severe Adverse:</b> Loss of integrity of nationally important archaeology/cultural heritage including Scheduled Ancient Monuments, Grade I/II* registered parks and gardens and registered battlefields. Demolition of a Grade I/II* Listed Building. Dramatic adverse change in the setting or visual amenity of the feature/site.</p>
<p><b>Major Adverse:</b> Land take resulting in the degradation of a cultural heritage site of national importance and/or extensive change to the setting or visual amenity of such a site e.g. intrusion into the setting of a Scheduled Ancient Monument. Loss of integrity of sites of archaeological interest of regional value, or Grade II registered parks and gardens, e.g. a dramatic change in the setting or visual amenity of a regionally important site such as a Conservation Area. Widespread adverse effects on the setting or structure of a Grade I/II* Listed Building. Demolition of a Grade II Listed Building.</p>

<p><b>Moderate Adverse:</b> Land take resulting in the degradation of a cultural heritage site of regional importance and/or extensive change to the setting or visual amenity of such a site. Extensive change to the setting or structure of a Grade II Listed Building. Demolition of a locally listed or other historically important building. Encroachment upon a Conservation Area, historic parkland or other historic landscapes where the quality of the setting or its amenity would be noticeably impaired. Slight change to the setting or structure of a Grade I/II* listed building. Removal of a historically important hedgerow (after the Hedgerows Regulations).</p>
<p><b>Minor Adverse:</b> Loss of integrity of an area where archaeological features/areas of local importance have been identified. Slight change to the setting or structure of a Grade II Listed Building. Limited encroachment upon a Conservation Area or historic parkland or other historic landscape where intrusive views are created or slight effects upon its integrity would result.</p>
<p><b>Not Significant:</b> Landscape or ecological planting on an area where locally important archaeological features have been identified but impacts are thought to have no long term effect on the resource. Removal of common hedgerows and limited damage to important hedgerows where no replacement proposed.</p>
<p><b>Minor Beneficial:</b> Perceptible improvement in the setting or structure of a Grade II listed building, Conservation Area or Grade II historic parkland. Improved management of locally/regionally important archaeological site.</p>
<p><b>Moderate Beneficial:</b> Perceptible improvement in the setting or structure of a Grade I/II* listed building, Conservation Area or Grade I/II* historic parkland. Improved management of nationally important archaeological site.</p>

## 2.6 The methods in retrospect

The methods adopted allow a high degree of confidence that the aims of the assessment have been achieved.

## 3. Archaeological and historical background

### 3.1 Site location and topography

The site comprises a sub-rectangular area of approximately 1.8 hectares. It is bounded by the B4184, Alcester Road to the north-east, the Worcester to Birmingham Canal to the south-east, and fields to the south-west and north-west. The wharf itself is generally level, at a height of approximately 135m AOD, however the road to the north rises to approximately 140m AOD over the canal tunnel, while to the south-west below the kilns the site slopes sharply down to approximately 130m AOD (Fig 1).

Tardebigge itself lies to the south of the wharf, on the high ground overlooking the canal. It comprises St Bartholomew's church, a primary school and the Old Rectory house.

### 3.2 Geology and soils

The predominant soils along this section of the canal belong to the Salwick Soil Association (572m; cite reference). These comprise deep reddish fine loamy soils with slowly permeable subsoils and slight season waterlogging, some deep well-drained coarse loamy soils, and fine loamy soils affected by groundwater. The parent material comprises reddish till and glaciofluvial drift derived from the west.

Immediately to the north-west, soils of the Bromsgrove Soil Association (541b) predominate. These comprise well-drained reddish coarse loamy soils mainly over soft sandstone, deep in places, associated fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging, with a risk of water erosion. The parent material is Permo-Triassic and Carboniferous sandstone and siltstone.

The site lies on a north-west to south-east swathe of Bromsgrove Sandstone (BmS) comprising red, brown and buff sandstone and siltstone with red mudstone bands. This solid geology is part of the Sherwood Sandstone Group from the Triassic period. The solid geology to the west is the Mercia Mudstone Group (MMG; Keuper Marl), of red-brown mudstone with subordinate skerries of sandstone and siltstone also from the Triassic (Soil Survey of England and Wales 1983; British Geological Survey 1989).

### 3.3 **Historic environment**

#### 3.3.1 **Prehistoric and Roman Tardebigge**

A quantity of Mesolithic and Neolithic flint tools and flakes were found in the later 19<sup>th</sup> century over four fields at Tutnall, including spindle whorls, arrowheads, awls, thumb scrapers, an axe and a hammer stone (VCH I, 197-8; Pevsner 1968, 41-2).

A possible ring ditch has been identified through cropmarks in a field to the south-east of the canal, and conjectured to be of prehistoric date (WSM 12179). This was the subject of a recent archaeological evaluation, which did not reveal any significant archaeological deposits and is therefore considered to be of natural origin (WSM 33429; Williams and Cook 2003).

There are no recorded sites or stray finds of Roman date from the immediate vicinity of the site.

#### 3.3.2 **Anglo-Saxon and medieval Tardebigge**

Tardebigge appears to have been situated initially within the Saxon Hundred of Came and later in the medieval period it moved to the upper division of Halfshire Hundred. The name Tardebigge has been recorded under many variations: in 974 as *Tærdebiggan*, *Terdebiggan*, *Tyrdebiggan*, *Terdebigan*, in 1086 as *Terdeberie*, in 1266 as *Terdesbigga*, in 1138, 1169-92, 1275 and 1327 as *Terdebigga*, in 1230 as *Terdebig*, in 1258 as *Therdebigge*, in 1275 as *Tertebigge*, in 1486 and 1499 as *Terbygge*, in 1675 as *Tardbick*, in 1680 as *Tarbeck*, in the 17<sup>th</sup> century as *Tarbick*, *Tarbeck*, *Tarbigg*, *Torbick* and *Turbick* (Mawer and Stenton 1927, 362).

The name is conjectured to derive from the Old English personal pronoun *Tyrdda* or from *Tyrde Bicgan*, meaning 'Big Tower' or 'Tower on the Hill', which may refer to the siting of the church. In the 18<sup>th</sup> century the parish church of St Bartholomew was described as Norman and considered to have been erected before 1138. However it contained a number of Saxon architectural features, such as the circular arch over the south door and ruck column capitals indicating that an earlier church probably existed prior to the Norman Conquest. The medieval church is thought to have lain to the south of the present building (WSM 01891; Nash 1795, 402-9; Mawer and Stenton 1927, 362; Harris 1977, 5; Thorn and Thorn 1982, 1).

One of the earliest references to Tardebigge dates from the late 10<sup>th</sup> century, when Aethelside/Aegelsi/ Ethelsige, Dean of Worcester, is recorded as having bought three manors of King's Swinford, Clent and Tardebigge from King Aethelred/Ethelred II (979-1016), with the intention of bequeathing them to the monastery at Worcester. On his death c 1016 they were however seized by Eric/Aevic, Sheriff of Staffordshire during the war between Edmund and Cnut. The sheriff is recorded as holding the manor on behalf of the king in the Domesday Survey of 1086, when it comprised nine hides (c 1180 acres), with one carucate (equal to one hide under the plough, c 120 acres) and possibly another in demesne

(the manorial farm), two villains (yeoman farmers), 28 bordarers (smallholders) with 12 further carucates (*c* 1440 acres under the plough), paying 20 shillings and 100 mits (measures) of salt (Nash 1795, II, 402; Harris 1977, 5).

The major part of Tardebigge manor, including the church, was granted by Matilda / Empress Maud *c* 1138 to the Cistercian monks at Bordesley Abbey under whose control it remained until the dissolution in 1539/40. The rights of the sheriff of Staffordshire over Tardebigge were rescinded by Henry III in 1266, although confusingly documents relating to Feckenham Forest in 1300/1301 still placed it in Staffordshire (Nash 1795, II, 403; VCH III, 223).

Tardebigge is conjectured to have been a larger settlement in the medieval period, but which subsequently shrank, for as yet unknown reasons. The earthwork of a house platform and a holloway in the field between the school and High House Lane indicates that occupation previously extended to the south-east of the church (WSM 05694).

An archaeological evaluation undertaken to the south of Tardebigge school in the area of the conjectured shrunken medieval village identified no significant remains, just demolition debris probably related to structures denoted on the 1<sup>st</sup> edition Ordnance Survey map, overlying an earlier plough soil (Cherrington and Watt 2002).

Traces of ridge and furrow, which surrounded the medieval village, are still extant as earthworks (WSM 03312-6, 24879). They represent the remains of the old strip-field method of farming which was practiced throughout much of the country until enclosure of the common fields in the late 18<sup>th</sup> and early 19<sup>th</sup> century, often enforced by Act of Parliament.

### 3.3.3 **Post-medieval and modern Tardebigge**

Tardebigge manor passed to Sir Andrew Windsor *c* 1544. From the late 18<sup>th</sup> century it was owned by the Clives, the earls of Plymouth, whose seat was at Hewell Grange, within a large park to the east side of the village. The present building dates from 1884-91 and was designed by Bodley and Garner to replace an early 19<sup>th</sup> century hall by Thomas Cundy; the park was laid out by Repton. It was a Youth Custody Centre in the later 20<sup>th</sup> century (Nash 1795, II, 403; VCH III, 224; Pevsner 1968, 276-7).

The tollgate and house were located to the north of the New Wharf (along the modern B4184 Alcester Road). It was not recorded as a toll road in documents of 1770 and 1789 as the two others around Tardebigge were, but only in 1831. This route, known as New Road in 1812, is thought to have been turnpiked when Back Lane was closed in 1798 and the Alcester to Bromsgrove traffic began to use the road, which Lord Plymouth had requested before the Sessions Courts and subsequently had constructed between Hewell Park and Dark Lane. The earliest maps to depict the Turnpike Road and Old Toll Gate House are from 1876 and 1879 (number 14 on the 1879 map). They show the toll house to the north-west of the entrance to the New Wharf. The 1<sup>st</sup> edition OS (1884-5) also notes the tollhouse, although by the 1904 edition it had been demolished. White describes it as having existed prior to the construction of the New Wharf, which would place its construction to between 1798-1810, although he confusingly goes on to place it on the site of the superintendent's house on the south-east side of the entrance (Dickins 1931, 96; Williams and Cooke 2003, 3; White 2005, 322).

The present St Bartholomew's church was designed by R. Francis Hiorn and built in 1777, following the destruction of the medieval building caused by the collapse of the octagonal tower in 1775. The original church straddled the then boundary between Worcestershire and Warwickshire, however the new building was erected further north, placing it wholly in Worcestershire. It was largely constructed reusing the old stone, following a sale of materials to raise funds. It has been subsequently renovated and altered, particularly in 1877-9, when part of the southern wall of the medieval church were uncovered (WSM 01892; Listed Building 156224; Nash 1795, II, 402-9; VCH III, 228-30; Dickins 1931, 85-7; Pevsner 1968, 275-6; Harris 1977, 6-7). A watching brief on groundworks within the churchyard north of the church in 1996 identified a robbed out 19<sup>th</sup> century wall and back-filled brick vault, but

no structures related to the medieval church or any earlier deposits (WSM 23774; Topping 1996, 2; White 2005, 175)

North of the church lay Church Quarry. It provided sandstone for the construction of the canal and wharf adjacent, connecting with it via a tramway to the tow path near the Top Lock. It largely fell out of use by 1813, although limited extraction continued until 1827 (WSM 26321 and 26322). Two fields in Dust House Quarry to the north-west of the canal were bought by the canal company and operated between 1811-1869, the sandstone from which was transported to the New Wharf along a tramway to Top Lock and along the towpath. The stone was largely used for canal-related works. It has been suggested that the stone may also have been burnt in the lime kilns. This is however, very unlikely given that the quarry produced sandstone, which is not suitable for lime burning. The quarry fell out of use and the tram rails were removed in 1870, although not entirely as in-situ rails have been found at either end at both the wharf and quarry (WSM26295 and WSM 26296; White 2005, 175-6).

Before the construction of the Birmingham and Gloucester Railway in 1840, coal bound for Redditch was also a major commodity unloaded at the New Wharf. Corn was also transported via the canal, particularly from Alcester market (Dickins 1931, 100).

Plymouth House, located on the north side of the B4184 Alcester Road, north of the wharf was formerly an inn and public house, The Plymouth Arms, serving the road traffic, canal workers and merchants. Along with the stables and ancillary buildings to the south it was erected in 1812 by the local landowner, the sixth earl of Plymouth, using materials transported via the recently opened New Wharf (Section 3.5 below; Plates 6-9). It is a wide fronted three-storey red brick Georgian building. The inn closed its doors in 1878/9, became a guest house and is presently a rest home. The stable block across the road is of similar date and is presently known as Plymcot and in domestic use. It is enclosed to the south by a substantial brick retaining wall bedded on a stone foundation (WB 095 and 096; WSM 01434; White 2005, 325-7).

Tardebigge tithe map and apportionment of 1838/9 indicates the individual land holdings, their usage, ownership and occupancy (Fig 4). The slightly later tithe map and apportionment of 1844 for Bentley Pouncefoot also includes part of Tardebigge, and denotes no difference to the earlier survey.

No.	owner	occupant	name	Usage	Area (acres/rods/perches)
304	Robert-Henry Clive	John Vincent	Sidling Close	arable	8 / 1 / 23
305	Robert-Henry Clive	John Vincent	Pleck	arable	- / 2 / -
306	Robert-Henry Clive	John Durham	Church Hill	pasture	2 / 1 / 28
307	Robert-Henry Clive	William Millward	Church Quarry	arable	5 / 1 / 15
311	Robert-Henry Clive	William Millward	Church Hill	pasture	9 / 12 / 15
383	Robert-Henry Clive	William Millward	Cow Pasture	pasture	5 / 3 / 33
385	Robert-Henry Clive	William Millward	Pool Meadow	pasture	3 / 2 / 10
386	Robert-Henry Clive	William Millward	Alder Close	pasture	3 / - / 3
387	Robert-Henry Clive	William Millward	Upper Meadow	pasture	3 / 3 / 38
388	Worcester & Birmingham Canal Company		Wharf	wharf and houses, etc	1 / 2 / 8
391	Robert-Henry Clive	John Durham	Great Shaw	pasture	3 / 2 / 0
392	Robert-Henry Clive	John Durham	Plymouth Arms Inn	-	- / 3 / -
394	Robert-Henry Clive	John Durham	Dole Meadow	pasture	5 / 3 / 7

Under the acts of Parliament of 1832 and 1844 the north-eastern part of the parish, containing the hamlets of Tutnall and Cobley, formerly within Warwickshire, were transferred to Worcestershire. In the mid 19<sup>th</sup> century the parish also included Redditch, Bentley Pouncefoot and Webheath (VCH III, 223-4). Hence the reason for the repeat of the tithe survey.

The modern A448 dual carriageway was constructed in the early 1970s to bypass the minor villages and connect Bromsgrove with Redditch. It runs parallel to the B4184 Alcester Road for much of its length.

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### 3.4 **The Worcester and Birmingham Canal**

A very detailed account of the history of the Worcester and Birmingham Canal has recently been published (WSM 12000; White 2005). There is clearly no need to repeat this work in depth. However the following summary draws heavily on White's work.

The Act of Parliament for the construction of the Worcester and Birmingham Canal was granted after the third attempt in June 1791, although the controversial plans for a canal to link Birmingham with the River Severn at Worcester had been the subject of public debate since at least 1785 (VCH II, 252). The route was initially surveyed by John Snape in 1789. His plan was to avoid the need for a tunnel at Tardebigge, by swinging the alignment round the west of the higher ground. Amongst the engineers who worked on the scheme were Thomas Cartwright, John Woodhouse and William Crosley the younger. Construction commenced in early 1792 (Crowe 1994, 125). The northern summit level section, between Birmingham and Hopwood took five years to complete, finally opening in March 1797. Due to debts caused in part by the appropriation of funds by the treasurer Dr Thomas Hooper, the route was not continued southward until 1805, by which time sufficient monies had been raised by the auction of surplus land, buildings and equipment. The section to Tardebigge Old Wharf (WSM 34505), north of Tardebigge tunnel was opened in March 1807 (White, 2005, 55-61).

After earlier minor works the main excavation for Tardebigge tunnel (through solid rock) commenced in early 1809 (WB 094; Plate 5). Although it was completed by late 1810, no traffic passed through until the following year when the New Wharf was completed (WSM 26297). Until 1875, all the canal barges were propelled through the tunnel by 'leggers'; two men lying prone on a plank and walking the barge through the tunnel (Dickins 1931, 100; Crowe 1994, 125; White 2005, 160).

The canal south of the tunnel bisected Dark Lane between Tutnall and Webheath. In order to avoid the need for the construction of a separate bridge, it was agreed in 1810 with the earl of Plymouth to realign the road northwards so that it lay over the top of the tunnel (the present A4184 Alcester Road). Although it was agreed to maintain the spur of the old road to the east of the canal up to High House Lane, it rapidly fell out of regular use due to its steep gradient and its limited access solely to the tow path. It remains today as a holloway and public footpath (Figs 1, 2 and 13; Williams and Cooke 2003, 3; White 2005, 69-70).

The lock flight at Tardebigge is the longest in Britain, containing 30 locks between Tardebigge and Stoke Prior to the south-west (Crowe 1995, 34). Problems with the construction of three of the locks caused a delay in the opening of the southern section of the canal, which was finally completed in late 1815. The first boat to navigate the southern section of the canal, owned by a Worcester coal merchant (and landlord of the Kings Head inn, Sidbury, Worcester) by the name of Thomas Vaughan, did so in just over 8 hours, on 4<sup>th</sup> December (White 2005, 105).

The Worcester and Birmingham Canal has been described as a "heroic" canal, being one of the second generation of canals built across the country c 1780-1835. They were so named as their designers did not allow their routes to be entirely dictated by the topography of the land as had the previous generation of "pioneering" canals, but used hitherto unseen feats of intensive engineering to overcome major natural obstacles, which were previously regarded as too risky or too expensive to overcome. Pioneering canals were built in sympathy with the landscape. They were generally narrow and lay along river valleys, large numbers of spread out locks were designed to span changes in height and embankments, cuttings and tunnels were avoided wherever possible, while aqueducts were low and oversized; all so as to reduce the amount of water needed and to keep costs down. By contrast the heroic canals are characterised by imaginative planning on a scale not seen before, using direct routes with deep cuttings and tunnels through rock, huge embankments, wide channels, aqueducts spanning river valleys and intensive flights of locks, built using prefabricated components

and new technologies developed between c 1790-1820 with classically inspired designs (Crowe 1994, 20-2).

Following the railway boom of the 1840s, the canal's revenues began to fall as more goods were transported by train. In spite of a number of proposed mergers and amalgamations with other canal companies and railway companies and even an aborted plan to use the land corridor for a canal-side railway, by 1868 the Worcester and Birmingham Canal Company was bankrupt. A further takeover attempt by Midlands Railway was abandoned in late 1871 and finally in mid 1873 an acceptable proposal was made by the Gloucester and Berkeley Canal Company. This was confirmed by Act of Parliament the following year after which the new amalgamated company became the Sharpness New Docks and Gloucester and Birmingham Navigation Company, generally abbreviated to the Sharpness New Docks Company or SND (White 2005, 153-8).

Immediate changes introduced by the Sharpness Company included the provision of a steam dredger in 1875 to clear out the mud, which had been allowed to build up over the previous years of financial problems and neglect, and the introduction of steam tugs in 1876 to haul boats through the tunnels (White 2005, 161-2). The steam tugs were finally replaced by diesel powered boats in 1912.

During WWII all canals and railways were taken under government control. The canals were formally nationalised in early 1948 under the British Transport Commission: Docks and Inland Waterways Executive. The Worcester and Birmingham Canal was administered by one of the Midland Region Groups based at Gloucester. In 1962 the British Waterways Board was established to run the canals as an entirely separate entity. The Worcester and Birmingham Canal fell under the Southern region, again administered from Gloucester. This was again modified in 1988/9 when the canal came under the auspices of one of six Midland Regions. Subsequent reorganisation has divided the canal into two administrative regions (White 2005, 171-2).

### 3.5 **The New Wharf**

The yard is typically situated close to the lock flight, and was used for storage of materials, repair of boats and canal paraphernalia such as lock gates, bridges and paddle gearing. Early canal buildings were of local materials put up by local contractors. Maintenance was often initially contracted out, although by the mid 19<sup>th</sup> century with the increase in competition, it was often taken in-house and brick buildings with slate tiles became the universal norm. Typical yards included a dry dock, a crane, stables, open sheds, workshops, stores or open bunkers, a paddle pit, a pattern shop, and dwellings for the craftsmen, labourers and the engineer (Crowe 1994, 41-3).

The New Wharf was completed and opened to traffic in January 1811 (WSM 26297). It was located to facilitate the transfer of goods between the canal boats and New Road between Redditch to Bromsgrove road. Occupied by both a commercial wharf and canal maintenance yards, it became the focus of a small community of canal and wharf workers and their families (Crowe 1994, 43).

It initially contained an approximately 90 feet square basin (c 27x28m), a weighing machine or weighbridge in front of a machine house on the north-west side of the entrance and a warehouse against the canal (Plate 12; WB 108; WSM 34504). The weighbridge was maintained until 1920 and was primarily used for coal wagons. It was operated from a cellar, accessed from the weigh house (no. 1, New Wharf, WB100). The warehouse was two-storeys, and is of sandstone, with walls two feet thick at the base and 1 foot 6 inches in the upper floor, built gable end onto the canal (Plates 1-4). It was constructed by John Smith, a 'stone-getter' who acquired the materials from the quarry owned by Mr Field off Dusthouse Lane to the west (WSM 26296; Crowe 1994, 79 and 91; White 2005, 70).



The majority of the goods passing through the New Wharf was coal destined for Redditch, Bromsgrove, Finstall and surrounding areas, transported by such dealers as Jenkins and Wright (from 1813) and Thomas Dixon, plus materials relating to the lime kilns (Crowe 1994, 79; White 2005, 71, 221 and 323).

Houses were often built on the wharf itself for the wharfingers (wharf keeper) and their warehousemen and porters. They followed two patterns, either attached to warehouses or as detached dwellings, often with a connecting office. At Tardebigge a small cottage was added to the rear (north-north-west) elevation of the aforementioned warehouse sometime before 1876 and occupied by the wharfinger. (Fig 5; Plate2; WB 108; WSM 34504; Crowe 1994, 79 and 91). The first wharfinger and machine clerk was John Heywood. He was replaced by Benjamin Smith in 1815 when he moved to Lowesmoor. From 1813 a boy was employed to assist in supervision of the warehouse and collection of fees, with a weekly wage of 12 shillings (White 2005, 70-1).

The most common form of housing for communities of canal boatmen and their families (ie those not living on the water) was the small terrace or row of cottages. These were generally sited to the rear of wharfs or along the towpath, and were two-storeys. Whilst generally built by the same local contractor, they were not always of a uniform height. They were generally not decorated beyond chequered brick-work on the frontage and/or dentilled eaves. Often vegetable patches were provided in the gardens to the rear, with space for fruit trees and a fresh water well (Crowe 1994, 88). There is a similar pattern at the New Wharf where a detached terrace of five early/mid 19<sup>th</sup> century split-level irregular cottages lies to the rear of the roughly triangular site (Plates 12-6; WB 100-2). They stand in contrast with the grand double fronted supervisors house and toll office with long garden on the opposite side of the entrance (Plate 10; Crowe 1994, 79; White 2005, 162).

A map of *c* 1814 indicates the tunnel, the Plymouth Arms, the square canal basin, the spur of Dark Lane and the aborted lift (rejected in mid 1811 in favour of the lock flight), but is otherwise at too large a scale to depict any buildings or the internal layout of the wharf itself (White 2005, 81). The earliest detailed map of the wharf, which depicts the layout of individual buildings and wharf allocations, dates from between 1811-1830 (Fig 3; with amendments in pencil dated 1898). The stone warehouse (no. 2; WSM 34504) is occupied by the canal company, as is the machine/weigh house (no. 21) against the entrance. The wharfage is divided into seven plots, the easternmost of which is a 'free wharf'. The superintendent's house and garden (no. 24) lie to the north-east of the wharf entrance and nine further buildings lie along the north-west side of the area, including six houses (13-5, 17-9), some with gardens (12, 14-7, 20), a hovel (no. 11) and three stables (nos. 10 and 13-5). The principal tenants are Thomas Dixon (4, 11, 14, 15 and 18), William Hughes (6, 9 and 20) and Thomas Wright (7, 10, 16, 17 and 24).

In December 1830 it was decided to excavate an additional sluice or arm off the north-east corner of the canal basin to provide extra wharfage space (Plate 24). This was undertaken the following year, to approximately two boats width and two boats length (*c* 43m long by 5m wide). Part of this arm was reused as the dry dock, which was built in 1924 (White 2005 133 and 323).

The title map of 1838 (Fig 4) shows little detail of the layout of the wharf - merely the rough location of four buildings and the basin. Three of these probably represent the stone warehouse, the row of five cottages and the superintendent's house, although the fourth, located between the warehouse and the basin along the canal side is unknown. The sluice arm is not noted.

The steam tugs introduced by SND in 1876 worked in two shifts and hence required two engineers and two steerers. At Tardebigge the first engineers were Frank Rowles and Isaac Bolton; the steerers were John Millard (replaced by William Hawkins in 1876) and William Veale. Many of the Sharpness workers came from Gloucester and its environs, but settled around Tardebigge and married locally. Tug Row, a terrace of four cottages was built by

SND along the Alcester Road to the north-west of the wharf for these men and their families (Plate 11). Percy Hawkins, son of William, also became a steerer and fitter, and his son became a tug engineer after him. The tunnel tugs continued in use until the mid 1950s, the last crews comprising John Colledge (steerer) and Charles Hawkins (engineer), probably the grandson of the aforementioned William Hawkins (White 2005, 161-2, 168 and 323).

The merchant Thomas Dixon first used the Old Wharf from 1807 for shipping of coal and farm produce. On the death of Thomas in 1838, his sons took over the business, renaming it T and M Dixon limited. At some stage in the early/mid 19<sup>th</sup> century they expanded into the New Wharf, and are recorded to have burnt lime at the kilns. The company continued to use the New Wharf until the 1930s, and the Old Wharf (which had become known as Dixon's Wharf due to their pre-eminence in the later 19<sup>th</sup> century) until after WWII. They were also the principal merchants at the New Wharf, occupying the stone warehouse, which was initially used to store perishable/agricultural goods. In the latter half of the 19<sup>th</sup> century they converted it with a portable steam engine to mill animal and poultry feeds and in 1924 they constructed a lean-to against its south-west façade (White 2005, 220-2 and 322).

The next detailed plan of the wharf was drawn up in 1876 (Fig 5), probably as part of a long-overdue wide-scale survey by the new company SND. The surveyor was one A Hobrough, probably a relation of Francis Hobourgh, SNDs Engineer. This reveals a number of changes to the wharf over the preceding 50-60 years. A stable block had been constructed to the north-east of the stone warehouse and another demolished adjacent to the kilns. Tug Row terrace of four cottages had been built along the main road (WB 099), the canal arm and kilns are noted for the first time, three small square free standing buildings lie across the middle of the wharf, the wharfinger's cottage and two ancillary buildings lie against the end of the stone warehouse, a coal yard butts the canal basin, the superintendents house has gained two small extensions, a new house has been inserted into the middle of New Wharf terrace (WB 100; the present no 2, New Wharf), and finally the three original buildings to the south-west end of the terrace have been demolished and two rebuilt (WB 102). The aforementioned stable block was recorded elsewhere as a two-storey building, incorporating a saddlery above, and two 'closets'. It was demolished in 1957 (White 2005 324).

The map accompanying an indenture of 1879 (Fig 6) indicates no changes to the wharf, although it includes a key and brief descriptions. One of the additions to the stone warehouse is recorded as a 'wooden house' (no. 2) and 'two closets' (no. 1) abut the stables to the east.

The 1<sup>st</sup> edition OS of 1884 denotes no changes, although it does identify cranes to either side of the warehouse and indicates that no. 3, New Wharf was then a Post Office. Between 1881-1918 the postmaster and shopkeeper was Tom Colledge (possibly the father of the aforementioned John Colledge). He was also chief boatman for T and M Dixon Ltd. As he was illiterate, his wife was in reality the postmistress, and their daughter took it over until 1922 when she emigrated to New Zealand and the post office closed. A descendent, George Colledge, oversaw the New Wharf as Section Inspector between 1959-1974. White notes that members of the Colledge family occupied no. 3, New Wharf for over 130 years. Further details of the individuals employed at the wharf are recorded in his volume (White 2005, 199-227, 322).

The OS map of 1904 (Fig 8) notes few changes over the previous 20 years, the only notable one being an extension on the north-east side of the warehouse. By the time of the 1927 OS map however (Fig 9), the wharf had undergone radical alterations, which set the layout as it appears today.

The present maintenance yard was established between 1909 and 1911, under the guidance of W T Griffith to rationalise the servicing of the steam tugs with general canal maintenance. It is probably not coincidental that 1908 was the year Francis Hobrough, who was based at Stoke Wharf, retired. The SND yard was constructed in the south-west corner of the wharf, at the corner of the canal and basin. It comprised the main machine and carpenters shop, stables and fitting shop built in 1909 to the south-west, the office built in 1910 to the north-east, and

the black smiths against the wharf arm built in 1911, all of blue engineering brick and slate roofs (Plates 17-22; WB 105-7). The superintendent's house was rebuilt in 1912/3 (Plate 10). The end of the wharf arm off the basin was converted into a dry dock in 1924. A wooden building and a further brick building were also erected to the north-west side of the arm, and were used as sawmill, timber store and workshop (Plates 25-6; WB 103 and 104). In addition a cottage and stable along the north side of the wharf had been demolished, further extensions had been raised around the stone warehouse, and two cranes installed (and those two around the warehouse apparently removed) (White 2005, 322).

The New Wharf presently comprises the wharf with a roughly square basin, the dry dock and associated yard, which is commercially leased and the British Waterways maintenance yard. The existing crane was brought to the site in 1953, replacing an earlier metal one with a timber jig, which was declared unsafe after 40 years service in 1951 (Plate 23). Until 1961 all the lock-gates were made at the yard, although subsequently the work has largely been contracted out. It has only been since the 1990s that the yard has once again been brought back into use, as the importance of the canal as an environmental and leisure resource has been recognised (White 2005, 168-9, 199, 213-4, 374 and 323-4).

### 3.6 **The lime kilns**

The lime kilns are located to the south-west of the New Wharf utilising the natural slope (WSM 01712). They had been established at least by 1814, fired by coal and charged with limestone brought by canal to the New Wharf, whilst also using the canal to transport the fired lime (White 2005, 323).

The bank comprises five kilns, grouped in three toward the canal, then a slight gap separating the final two further away from the basin. The earliest small-scale plan of the wharf, of c 1811-1830, does not depict them, although they are mentioned in the accompanying reference, as 'lime kilns, wharfs, etc' occupied by Thomas Wright (Fig 3). Confusingly the tithe maps and apportionments of 1838 and 1844 make no mention of the kilns (Fig 4). The first to depict the kilns cartographically date from 1876 and 1879 (Figs 5 and 6), which depict the three to the south-west to be slightly smaller than the two to the north-east. This suggests either that the kilns were peripheral to the original layout of the basin or that they were in fact constructed after the basin had been completed. Observations during the site visit of the partially cleared kiln flues did not reveal any substantial difference in their size.

Although at present unexcavated, the lime kilns appear to be of purely functional design. They are either of the 'flare' kiln type (also known as 'intermittent' or 'periodic') or the 'draw' (or 'continuous') type. They comprise permanent structures, largely of stone within a 'bank' or 'block', with brick flues and arches. The 'pot' or main body of the kilns appear to have been brick lined. They are barrel or dome shaped, with a large circular hole for top loading the charge (the calcium carbonate/lime stone) and a tall arched draw hole or eye at the base for the fuel and to draw out the lime. The difference between the 'flare' and 'draw' kilns is that in the former the stone charge above is separated from the stoke pit or furnace below by a wooden arch which burns through and a single load is fired and removed; whereas in the latter the fuel and stone are built up in sequential layers, and more stone and fuel may be added as the lime is drawn out (Goodbury 1994; Lancaster University Archaeological Unit 1996, 14)

As quick lime gives off a violent reaction on contact with water (creating slaked lime), the arches of kiln banks often opened under a continuous covered way (Palmer and Neaverson 1998, 53). There is no direct evidence for this at Tardebigge, although this is not unexpected given that it would probably have been a timber and tarpaulin structure. The 1<sup>st</sup> edition, 1904 and 1927 OS maps do denote a parallel wall in front of the kilns, probably representing the retaining wall and raised platform, which is still partially extant (Figs 8 and 9).

The flare and draw lime kilns are the most common nationally and also are very similar to the majority identified in Herefordshire. Here 252 kilns have been recorded in total, of which just

over 100 remain extant either as standing structures, in a ruinous state, or as buried remains (Goodbury 1994).

A boom in the lime industry was caused by the many enclosure acts of the late 18<sup>th</sup> and early 19<sup>th</sup> centuries which brought into cultivation a lot of poor land needing lime to improve its potential. The boom was short lived however and the industry fell into decline in the later 19<sup>th</sup> century due to the increase in use of chemical fertilisers and later, during WWI, the rapid mechanisation of many agricultural processes. The invention of Portland cement in 1824 by Joseph Aspdin also had an impact, causing a decline in the demand for lime mortar by the end of the century (Buchanan 1972, 185; Goodbury 1994)

Although it is generally the case that limestone quarried locally was burnt in kilns adjacent, it appears that the stone from Dusthouse Quarry to the west of the kilns would have been unsuitable as a fuel (WSM 26296). It is reported that limestone was brought from Dunhampstead, south-east of Droitwich, to be burnt at the Tardebigge kilns (White 2005, 323), although the HER lists only a lime kiln there (WSM 29951). Additional stone may also have come from an extensive quarry at Himbleton, adjacent to Dunhampstead, which is recorded as producing stone to be burnt in kilns along the canal generally (White 2005 176). It has been suggested that the stone from Dust House Quarry adjacent (WSM26296) may have been burnt in the lime kilns. This is very unlikely, however, given that the quarry produced sandstone, which is not suitable for lime burning (*pers comm* Peter Oliver).

It is unknown whether the lime was used primarily as a fertilizer or in mortar. The lack of documentary references may indicate that the kilns were of only minor importance or even only sporadically used. The trade directories of 1855, 1892, 1896, 1904 and 1908 list T & M Dixon variously as coal, lime, manure and corn merchants, but those of 1873/4, 1884 and 1916 onwards list coal and corn with no mention of their dealing in lime. The directory of 1855 also lists a Thomas Hall as a coal and lime merchant at 'Wharf', which may be Tardebigge New Wharf (Billings 1855, 373). The mid century may then have been when the lime kilns were in greatest demand.

It is unclear exactly when the lime kilns fell out of use. All five kilns are noted on the 1<sup>st</sup> edition OS map of 1884-5 and the 2<sup>nd</sup> edition OS map of 1904 (Figs 7 and 8). Confusingly the 1898 amendments to the 1811-1830 map, denote three kilns extant toward the northern end of the bank, although on the 1927 and 1954 editions only the southern three are recorded (Figs 3, 9 and 10). After 1908 there is no reference in the commercial directories to Dixon's dealing in lime (Kelly's). No kilns were visible by the 1978 OS edition, indicating that by this date they had all been obscured by material dredged from the canal.

The bank has been re-exposed in the last few years and cleared of vegetation, by British Waterways and volunteers of the Worcester and Birmingham Canal Society (Plates 26-7; White 2005, 323). The site comprises the bank façade pierced by the kiln arches, a low outer retaining wall and an abutting wall to the south-west. Only four of the five kilns are visible - the north easternmost (Kiln 1) is either still buried or has entirely collapsed (Plate 30). Kiln 2 is the best preserved, retaining its internal structure, brick arched façade and top flue intact (Plate 31). Kilns 3, 4 and 5 the south-western most) are in a poor state, having largely collapsed (Plates 33-6). The bank façade has been damaged by root activity at various points, as has the retaining wall (32). There is at present no exposed works surface in front of the kilns (Plate 36; British Waterways 2005).

### 3.7 Statutory and other designations

The New Wharf is a designated Conservation Area, and a number of the structures have Listed Building status (Appendix 3 below).

Under the English Heritage Monuments Protect Programme (MPP) Monument Class Description (MCD) the kilns may be defined as flare or draw kilns (Section 3.6 above; Lancaster University Archaeological Unit 1996, 16-18).

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#### 4. **Recommended fieldwork and survey of the lime kilns**

With the aim of increasing visitor amenity through making more of a feature of the lime kilns the client wishes to undertake further clearance of the exterior of the lime kilns, to include excavation of at least one of the interior pots. This should be done under archaeological supervision using accepted archaeological excavation techniques (IFA 1999b) so as to:

- determine the presence of ancillary structures, the survival of the bank, any evidence for a covered area at the front, and other surfaces;
- determine the date of the disuse of the kilns and the subsequent deposition of dredged material and other debris;
- allow the retrieval of materials which may be reused in subsequent consolidation works.

It is recommended that the client seeks guidance on the principals for the proposed works aiming to establish the scope of the project (to expose, consolidate and interpret the kilns as they currently survive, or to reconstruct to give a better impression of their scale and operation), in agreement with the consultees listed below.

The selection of which kiln or kilns to be excavated is dependent on both their structural and archaeological integrity, so as to limit potential health and safety issues and provide maximum information. At this stage it is considered that Kiln 2 (the visible one of the group of two toward the north-east side) is the best candidate (British Waterways 2005, 5 and 6).

Once clearance has been completed and prior to consolidation, a building survey of the excavated kiln/s and the main bank elevation, retaining wall and abutment should also be undertaken, to at least Level 2 of the Royal Commission on the Historic Monuments of England guidelines (RCHME 1996), so as to:

- determine the exact construction methods used;
- determine the exact type of kiln and how it functioned;
- provide a permanent record;
- inform the subsequent consolidation works and prevent further deterioration

The consolidation and conservation of the lime kilns should be undertaken after consultation with an architectural conservator and a structural engineer. The existing structures are not complete and the works will expose unprotected faces of the structures, while any existing faces are likely to require consolidation. The scope and specification of this work, in the form of a Conservation Management Plan, should also be agreed with the English Heritage Regional Inspector, Worcestershire County Council Historic Environment Planning Advisor and the Conservation Officer of Bromsgrove District Council (Clark 2001, 62-71).

Finally it is recommended that permanent interpretation panels be erected containing information, illustrations and photographs from this research, the excavation and building survey.

It is considered that these works would have a **Minor Beneficial** effect, improving the management, knowledge and access to a locally important archaeological site (Section 2.5 above).

The historic environment is a non-renewable resource and therefore cannot be directly replaced. However recording and investigation also produces an important research dividend

that can be used for the better understanding of the county's history and contribute to local and regional research agendas. Thus any site investigation works would be concluded by production of an archaeological report (and appropriate publication) to be deposited for public consultation with the county Historic Environment Record (HER) and a project archive to be deposited at Worcestershire County Museum at Hartlebury.

## 5. **Publication summary**

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, the Service intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

*A desk-based assessment was undertaken on behalf of British Waterways of the New Wharf and lime kilns at Tardebigge, Worcestershire (NGR: SO 9949 6934; HER ref. WSM 35059).*

*The New Wharf was opened in 1811, although the southern half of the Worcester and Birmingham Canal was not opened to traffic until 1815. The wharf initially comprised the wharfage, an additional basin, a stone warehouse, machine house and weighbridge, and was primarily used by coal and agricultural merchants. Brick cottages and stables were also constructed to house the canal workers and their families. The capacity of the wharf was expanded in 1830 with the construction of a sluice arm off the existing wharf. From the 1840s competition from the railways caused canal revenues to decline and the Worcester and Birmingham Canal Company went into receivership in 1868. In 1873 it was bought out by Gloucester and Berkeley Canal Company and became the Sharpness New Docks (SND) Company, who introduced steam tugs and constructed Tug Row to house the additional workers, most of whom came from Gloucestershire. SND moved their maintenance yard to the wharf in 1909-11, constructing new machine shops, carpenters, black smiths, offices and converting part of the sluice arm into a dry dock. These structures remain, although no merchants have operated on the wharf since the mid 20<sup>th</sup> century. The yard is now the British Waterways depot with the buildings to the north-west leased out commercially.*

*The lime kilns were in operation from at least 1814. They comprise a bank of five "flare" or "draw" kilns utilising the natural slope. Fuelled with coal brought along the canal to the wharf, they burnt limestone probably for mortar and agricultural fertiliser, from Dunhampstead and Himbleton. It is unclear when they fell out of use, although trade directories up to 1908 list a lime merchant at the wharf. By 1927 only three of the kilns were extant, and by 1978 the entire bank had been buried under material dredged from the canal. Recent site clearance has re-exposed the kiln bank. Kiln 1 appears to have collapsed entirely; Kiln 2 appears to maintain its structural integrity, and Kilns 3-5 have partially collapsed. It is proposed that further clearance of the site be undertaken under archaeological conditions, including the full excavation of Kiln 2, and a project of building recording be undertaken prior to consolidation and conservation of the structure, to create a visitor amenity.*

## 6. **Acknowledgements**

The Service would like to thank the following for their kind assistance in the successful conclusion of this project: Malcolm Atkin (Worcestershire County Archaeology Officer), Elizabeth Turner (British Waterways Heritage Advisor), Ian Hunter, Alan White and Barry Morris (Worcester and Birmingham Canal Society) and Peter Oliver (Geological Records Centre - RIGS, University of Worcester).

## 7. **Personnel**

The assessment was undertaken by Tom Vaughan. The project manager responsible for the quality of the project was Simon Woodiwiss. Illustrations were prepared by Carolyn Hunt and Tom Vaughan.



## Appendix 1 Features of the historic environment registered with the HER (those within the site are indicated in bold)

Reference	Site name	Grid reference	Record type	Date	Description
WSM 01434	Plymouth House, Alcester Road, Tardebigge	SO 99625 69417	Dwelling	1601-1800	Listed Building II
WSM 01700	Vicarage, Church Lane	SO 99636 69099	Vicarage	1701-1900	Building
WSM 01712	Kilns, north of Tardebigge Wharf, Tardebigge	SO 99457 69317 - 99506 69348	Lime kilns	1701-1900	Building/monument
WSM 01891	Possible site of Old St Bartholomew's Church, Tardebigge, Tutnall	SO 99541 69087	Church	1100-1799	Monument
WSM 01892	St Bartholomew's Church, Tardebigge, Tutnall	SO 99555 69133	Church	1601-1800	Listed Building II*
WSM 03312	Ridge and furrow, north of Tardebigge	SO 99400 69320	Ridge and furrow	1066-1600	Monument
WSM 03313	Ridge and furrow, south of Tardebigge	SO 99540 69000	Ridge and furrow	1066-1600	Monument
WSM 03314	Ridge and furrow, south-east of Tardebigge	SO 99500 69060	Ridge and furrow	1066-1600	Monument
WSM 03315	Ridge and furrow, north-west of Tardebigge	SO 99390 69220	Ridge and furrow	1066-1600	Monument
WSM 03316	Ridge and furrow, Tardebigge	SO 99420 69150	Ridge and furrow	1066-1600	Monument
WSM 05694	House platform, south of church, Tardebigge	SO 99630 69020	Shrunken village & holloway	1066-1600	Monument
WSM 12000	Worcester to Birmingham canal	SO 91906 62107	Canal	1601-1800	Monument (Tunnel: Listed Building II)
WSM 12179	Ring ditch, east of Tardebigge	SO 99700 69300	Ring ditch	<100-42	Monument
WSM 12652	Holloway, south of Dusthouse	SO 98939 69199	Holloway	<100-42	Monument
WSM 23774	St Bartholomew's Church, Tardebigge, Tutnall	SO 99572 69135	Watching brief	1701-2050	Vault & wall
WSM 24879	Ridge and furrow, Tardebigge	SO 99650 69450	Ridge and furrow	1066-1600	Monument
WSM 26295	Dust House Tramway, Tardebigge New Wharf	SO 99250 69400	Tramway	1701-1900	Monument
WSM 26296	Dust House Quarry, Tardebigge	SO 99000 69500	Stone quarry	1701-1900	Monument
WSM 26297	Wharf on Worcester-Canal, Birmingham	SO 99300 69200	Wharf	1701-1900	Monument



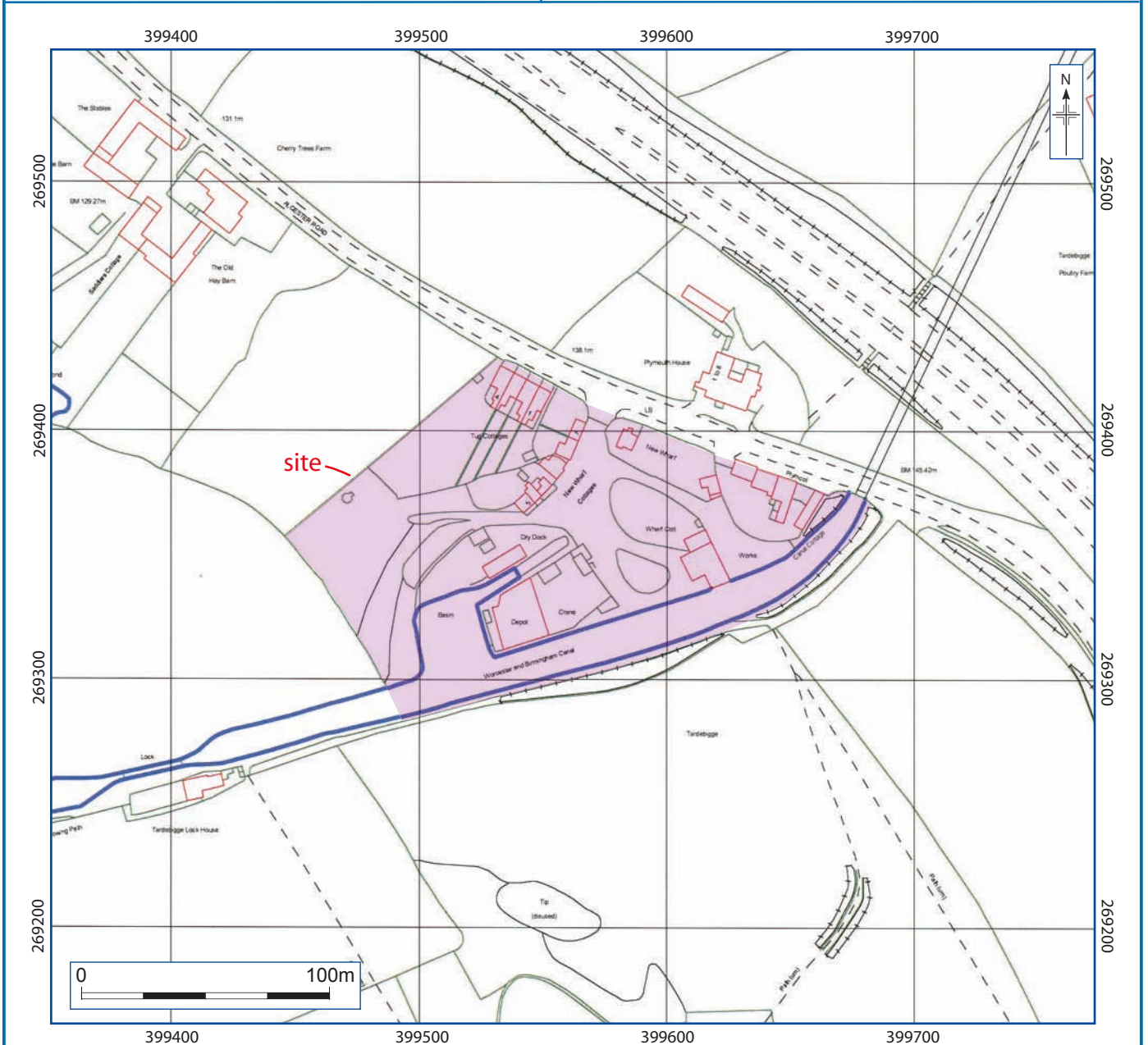
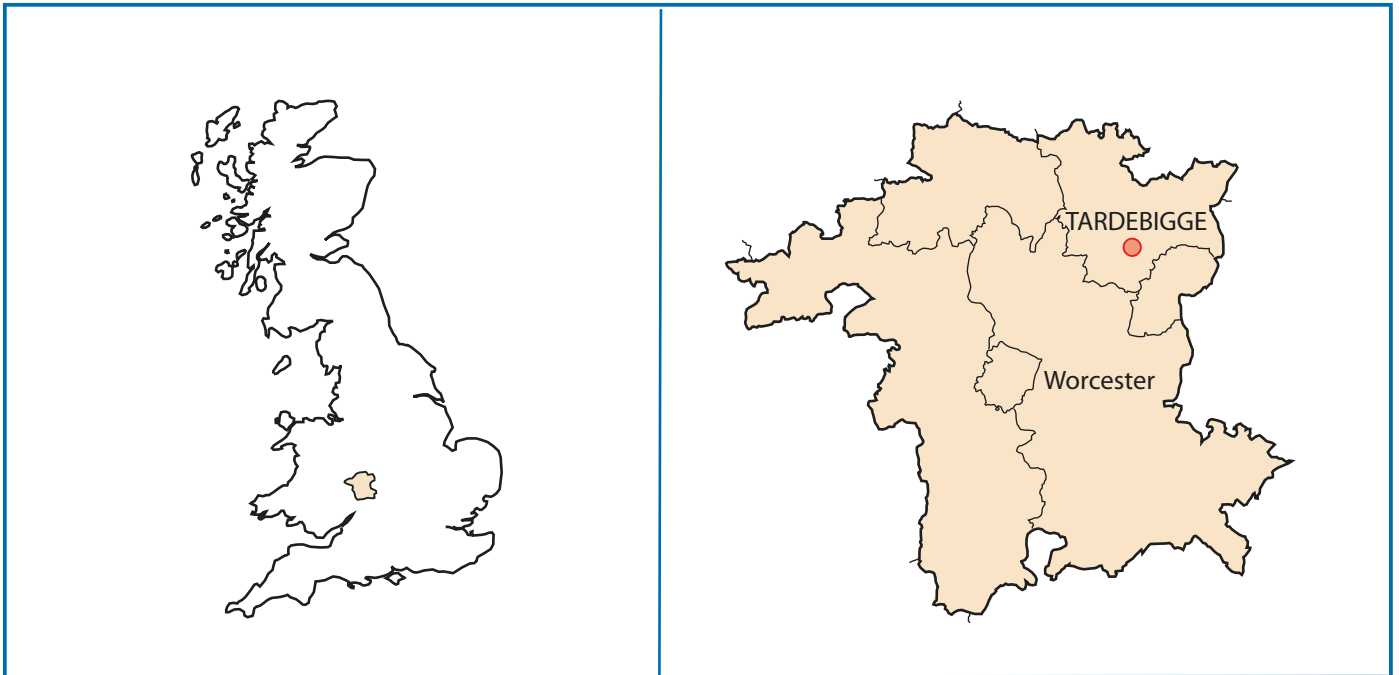
	Tardebigge				
WSM 26321	Church Quarry Tramway, Tardebigge	SO 99500 69250	Tramway	1701-1900	Monument
WSM 26322	Church Quarry Tramway, Tardebigge	SO 99550 69250	Stone quarry	1601-1800	Monument
WSM 27823	Boat Lift, Top Lock, Tardebigge	SO 99394 69252	Boat lift	1701-1900	Monument
WSM 32074	Land adj. to Tardebigge School, Church Lane, Tardebigge	SO 99555 69059	Evaluation	1801-2000	event
WSM 33429	Land adj. to Tardebigge Wharf, Tardebigge	SO 99684 69338	Evaluation	1901-2050	Negative evidence
WSM 34504	Warehouse, Tardebigge New Wharf, Tutnall	SO 99619 69351	Canal warehouse	1701-2000	Building
WSM 34505	Site of Wharf and Coal Yard, Tardebigge Old Wharf, Tutnall	SO 99503 69330	Canal wharf	1701-1900	Monument

**Appendix 2 Additional features of the historic environment (any within the site are indicated in bold)**

Reference and status	Site name	Grid reference	Source	Date	Description
HEF 001	Former Dark Lane, Tardebigge	SO 9967 6933-9976 6915	White 2005, 70	Med/post med	Holloway and footpath, former road, diverted to north in 1810

## Appendix 3 British Waterways Architectural Heritage Survey of Tardebigge (1993)

Reference number	Site name	Grid reference	Status	Date	Description
WB 094	Tunnel, New Wharf, Alcester Road, Tardebigge	SO 9968 6937	Tunnel portal: Listed Building	E19 <sup>th</sup> C and 20 <sup>th</sup> C	Stone portal with blue brick quoins and red and blue brick flanking walls
WB 095	Plymcot, Alcester Road, Tardebigge	SO 9965 6937	Dwelling: house	M19 <sup>th</sup> C	Red brick two-storey coach house, stables and outbuildings
WB 096	New Wharf, Alcester Road, Tardebigge	SO 9965 6936	Wall	19 <sup>th</sup> C	Retaining wall, boundary of Plymcot, stone plinth below blue brick topped by red brick
WB 099	1-4, Tug Cottages, Alcester Road, Tardebigge	SO 9954 6942	Dwellings: cottages	c 1913 (? 1874)	Terrace of four two storey cottages stepped in pairs, with painted brickwork
WB 100	1 and 2, New Wharf Cottages, Tardebigge	SO 9956 6939	Dwellings: cottages	M19 <sup>th</sup> C	Two attached two storey double fronted cottages with painted brickwork
WB 101	3, New Wharf Cottages, Tardebigge	SO 9955 6958	Dwelling: cottage	M19 <sup>th</sup> C	Detached brick double-fronted two storey cottage with fin-wall
WB 102	4 and 5, New Wharf Cottages, Tardebigge	SO 9954 6937	Dwellings: cottages	M19 <sup>th</sup> C	Two detached brick cottages with clay tiled pitched roofs
WB 103	New Wharf, Tardebigge	SO 9953 6936	Workshops	M19 <sup>th</sup> C	Two attached single storey brick workshops
WB 104	New Wharf, Tardebigge	SO 9954 6935	Workshop	L19 <sup>th</sup> / E20 <sup>th</sup> C	Single storey timber clad workshops with brick plinth
WB 105	British Waterways Yard, New Wharf	SO 9955 6933	Workshops	M19 <sup>th</sup> / E20 <sup>th</sup> C (? 1909)	Three bay single storey brick workshops, with slate roofs
WB 106	British Waterways Yard, New Wharf	SO 9555 6934	Workshop: Listed Building	1911	Single storey blue brick workshop, with slate roof
WB 107	British Waterways Yard, New Wharf	SO 9557 6934	Workshop: Listed Building	1911 (? 1910)	Single storey blue brick workshop (office), slate roof with 20 <sup>th</sup> C lean-to additions
WB 108	Warehouse, New Wharf, Tardebigge	SO 9961 6933	Warehouse: Listed Building	E19 <sup>th</sup> C	Stone warehouse with later cottage and extensions



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Location of the site.

Figure 1

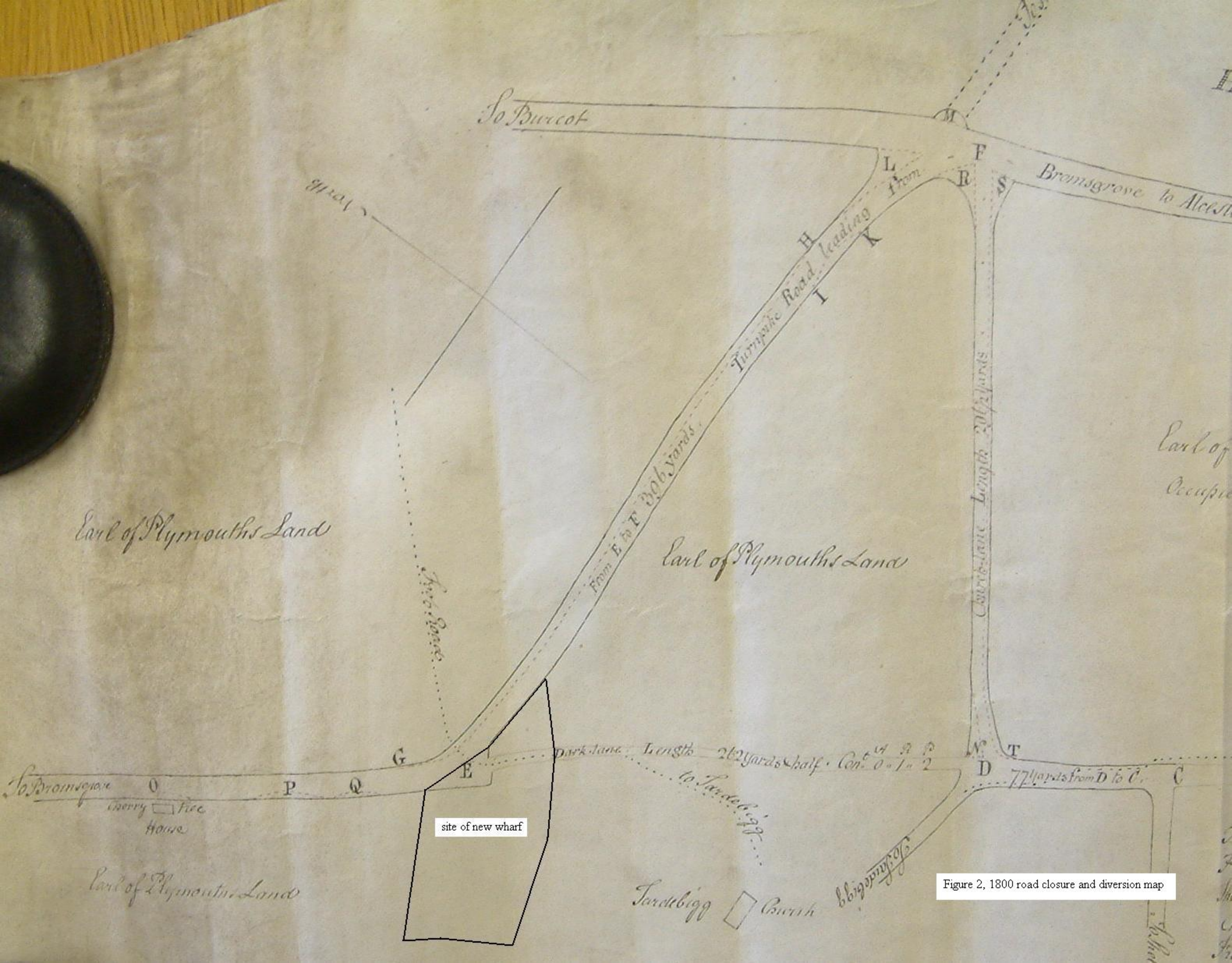
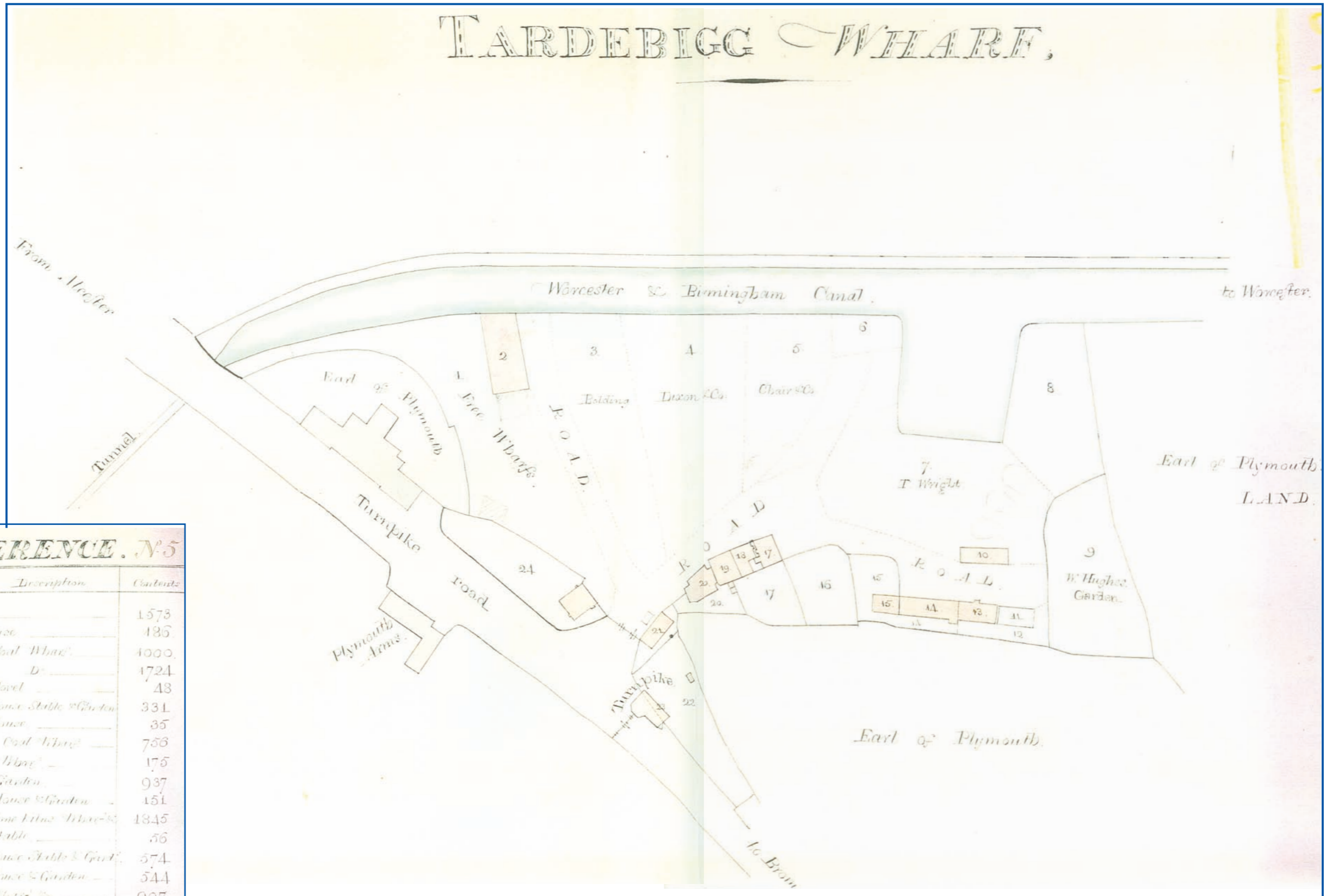


Figure 2, 1800 road closure and diversion map

# TARDEBIGG WHARF,



**REFERENCE. N<sup>o</sup> 5**

Tenants	Description	Contents
1	Free Wharf	1573
2	Company's Warehouse	485
3	John Holding Coal Wharf	4000
4	Thos Dixon & Co D	1724
4	D	48
14, 15	D House Stable & Garden	331
18	D House	35
5	Mr. Chair Sumner Coal Wharf	756
6	Will. Hughes Wharf	176
9	D Garden	937
23	D House & Garden	151
7	Thos Wright Lime & Stone Wharf	1845
10	D Stable	56
16, 17	D House Stable & Gard	574
24	D House & Garden	544
8	Leake & Co. Wharf	907
12	John Howard Garden	114
15	Thos Jenkins House	18
19	John Sumner House	58
21	Company Machine House	94
22	Will. Nash Garden	490
23	Earl of Pembroke house	13
<b>TOTAL</b>		<b>11664</b>

c1811-1830 map with amendments dated 1898

Figure 3



Figure 4, 1838 Tithe map

Tracing from Survey made by  
A. Hobrough in 1876.

Worcester and Birmingham Canal.

Tardebigg New Wharf.

June 1876.

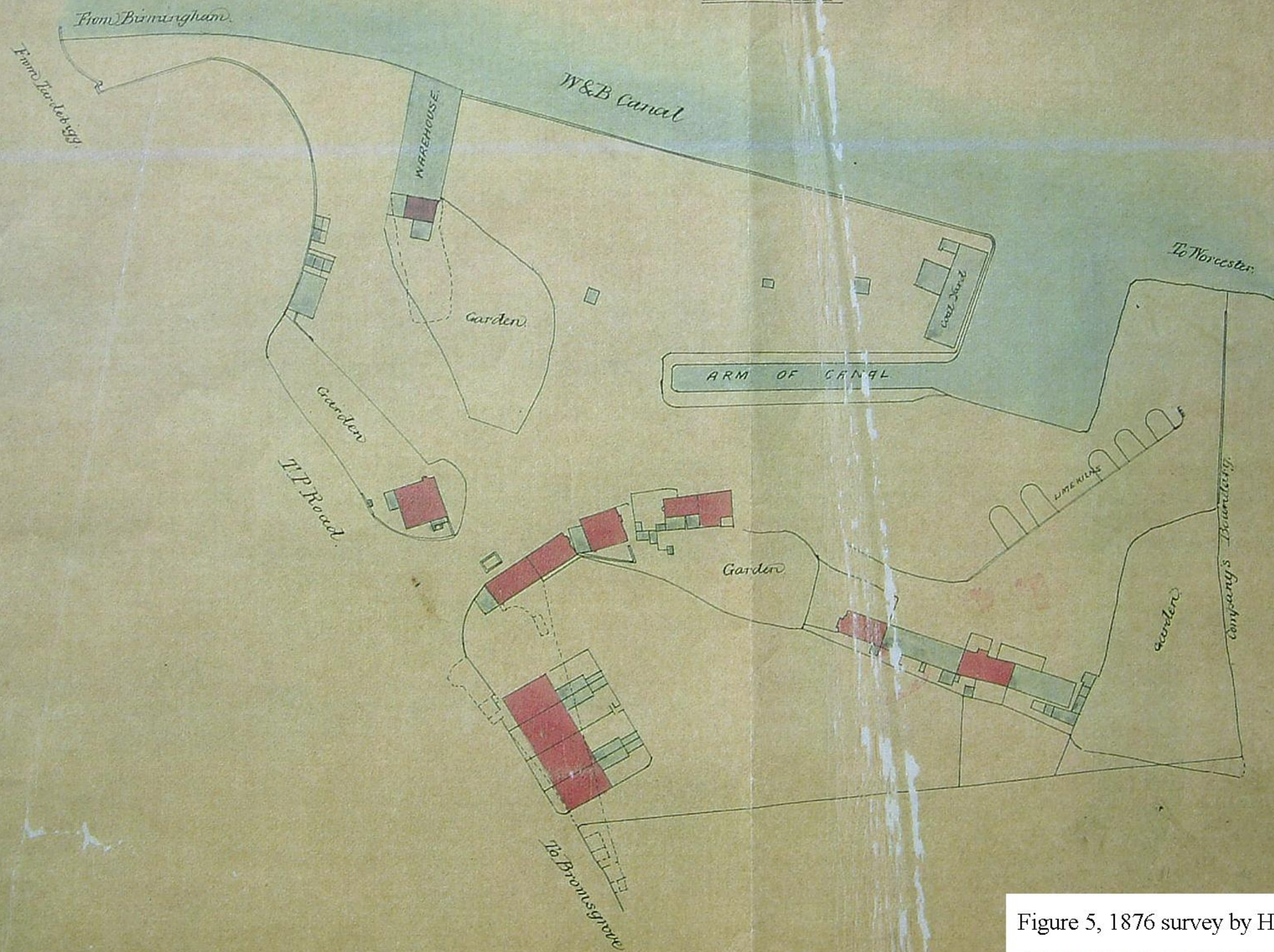
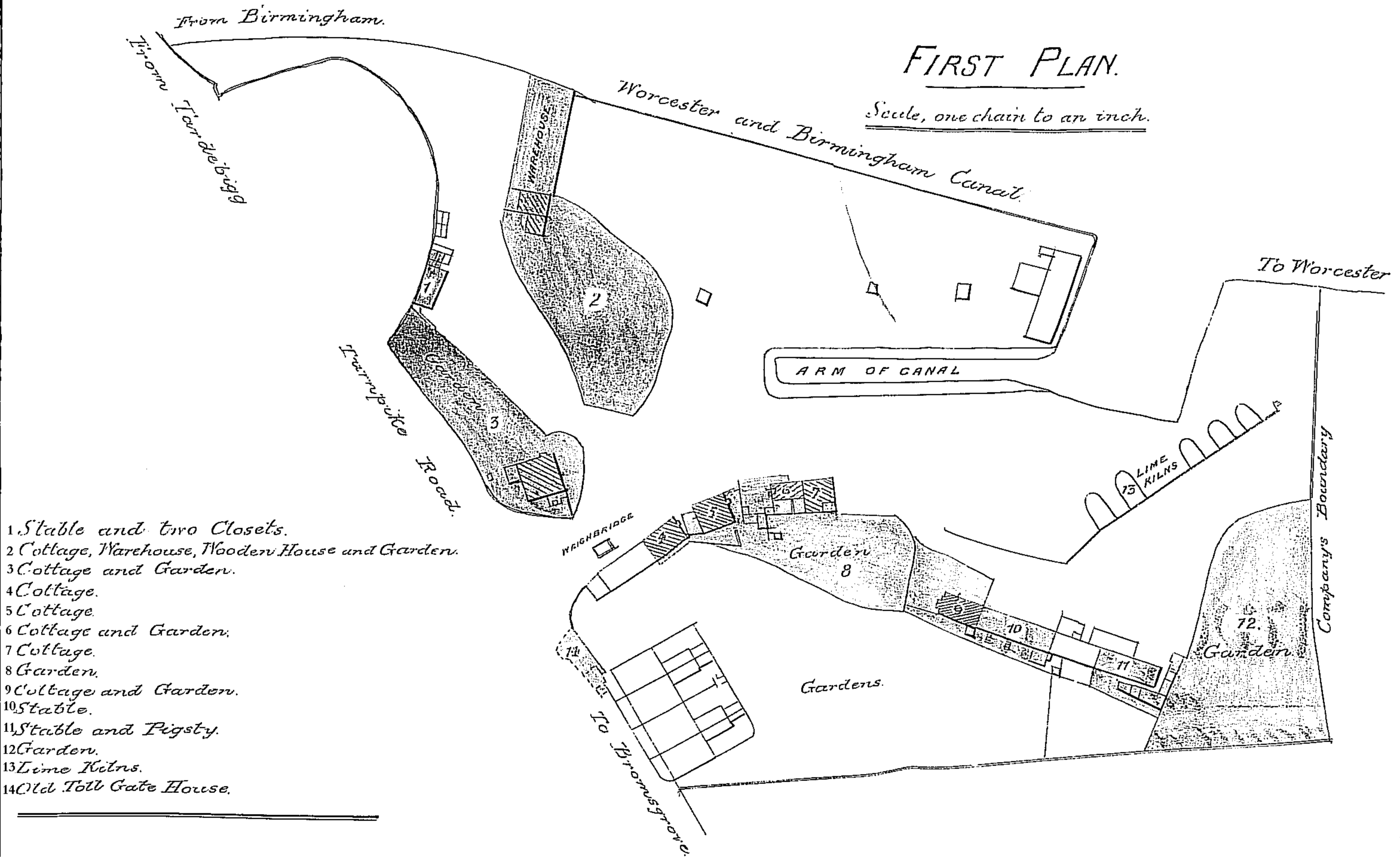


Figure 5, 1876 survey by Hobrough

Scale one chain to an inch





# FIRST PLAN.

Scale, one chain to an inch.

- 1 Stable and two Closets.
- 2 Cottage, Warehouse, Wooden House and Garden.
- 3 Cottage and Garden.
- 4 Cottage.
- 5 Cottage.
- 6 Cottage and Garden.
- 7 Cottage.
- 8 Garden.
- 9 Cottage and Garden.
- 10 Stable.
- 11 Stable and Pigsty.
- 12 Garden.
- 13 Lime Kilns.
- 14 Old Toll Gate House.

Figure 6, 1879 Indenture map

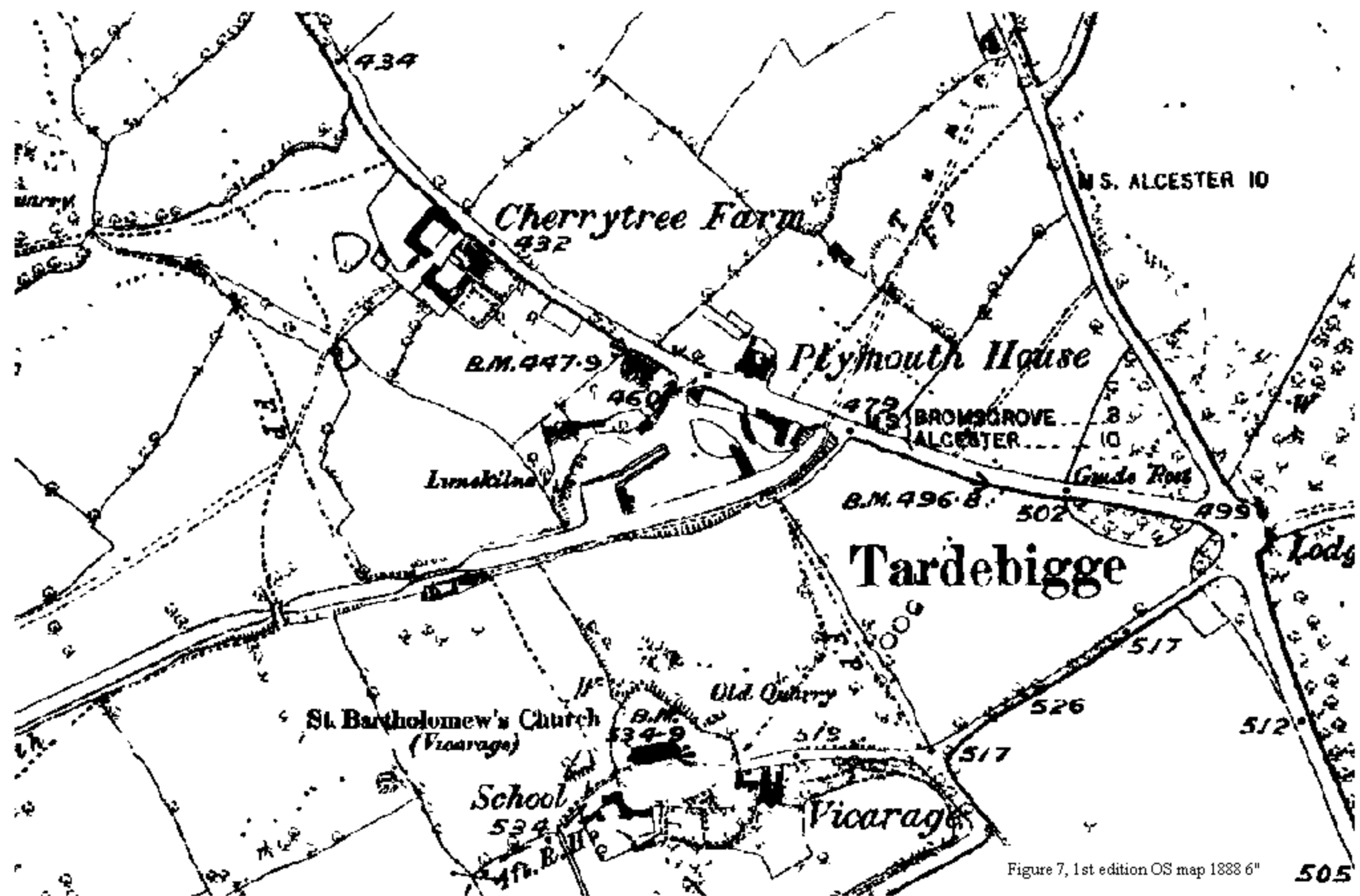


Figure 7, 1st edition OS map 1888 6"

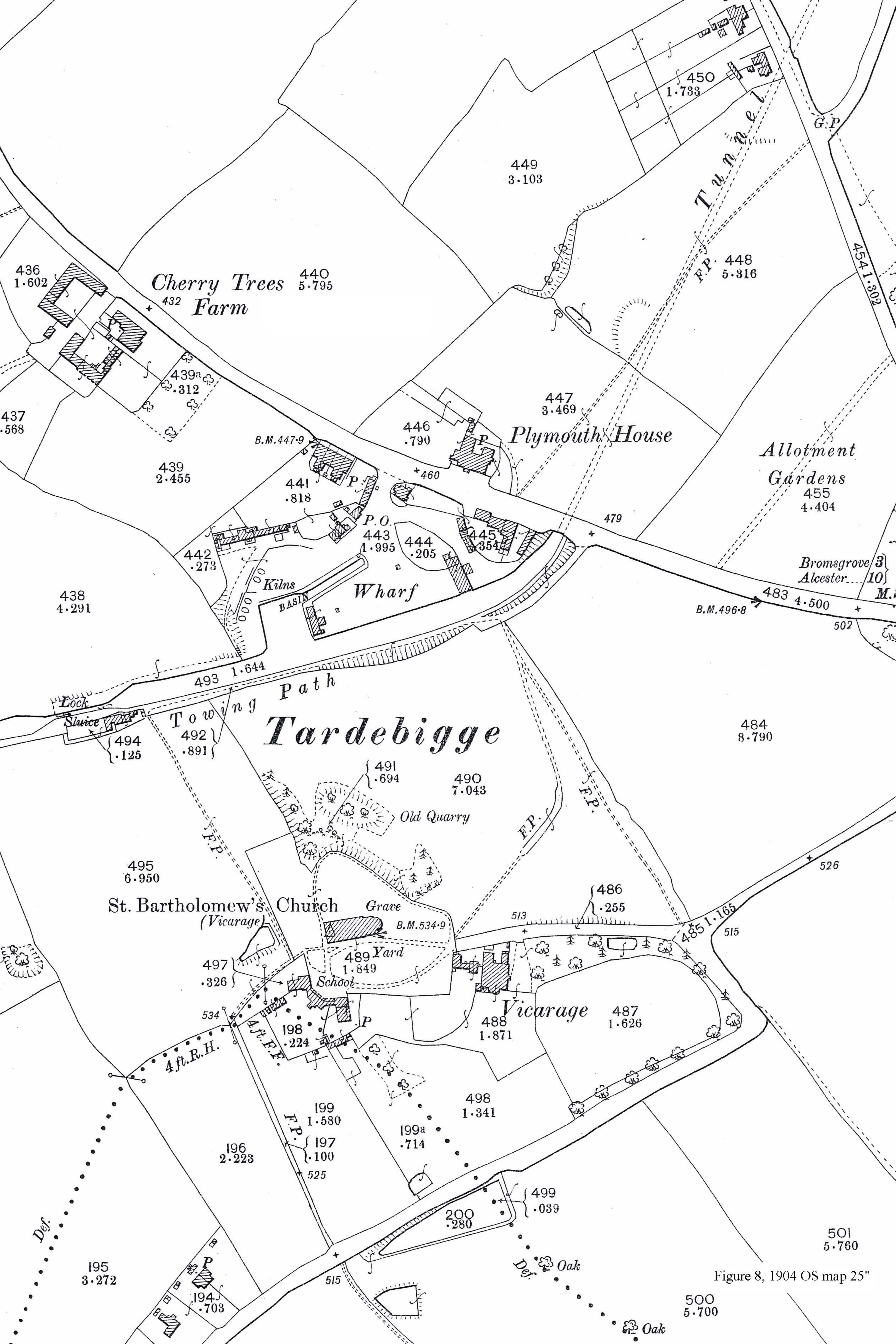


Figure 8, 1904 OS map 25"

500  
5.700

501  
5.760

484  
8.790

449  
3.103

Cherry Trees  
Farm  
432  
440  
5.795

Plymouth House  
446  
.790  
447  
3.469

Allotment  
Gardens  
455  
4.404

Wharf  
443  
1.995  
444  
.205  
445  
354

Kilns  
B.M. 447.9  
441  
.818

St. Bartholomew's Church  
(Vicarage)  
497  
.326  
489  
1.849  
488  
1.871  
487  
1.626

School  
498  
1.341  
499  
.039

Old Quarry  
491  
.694  
490  
7.043

St. Bartholomew's Church  
(Vicarage)  
497  
.326  
489  
1.849  
488  
1.871  
487  
1.626

495  
6.950

498  
1.341

499  
.039

496  
2.223

497  
.100

495  
3.272

494  
.703

492  
.891

491  
.694

490  
7.043

495  
6.950

497  
.326

489  
1.849

488  
1.871

487  
1.626

498  
1.341

499  
.039

496  
2.223

497  
.100

495  
3.272

494  
.703

493  
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436  
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437  
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439  
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438  
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441  
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442  
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445  
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450  
1.733

451  
1.302

452  
4.500

453  
5.02

454  
8.790

455  
4.404

456  
3.272

457  
7.03

458  
3.272

459  
7.03

460  
3.272

461  
7.03



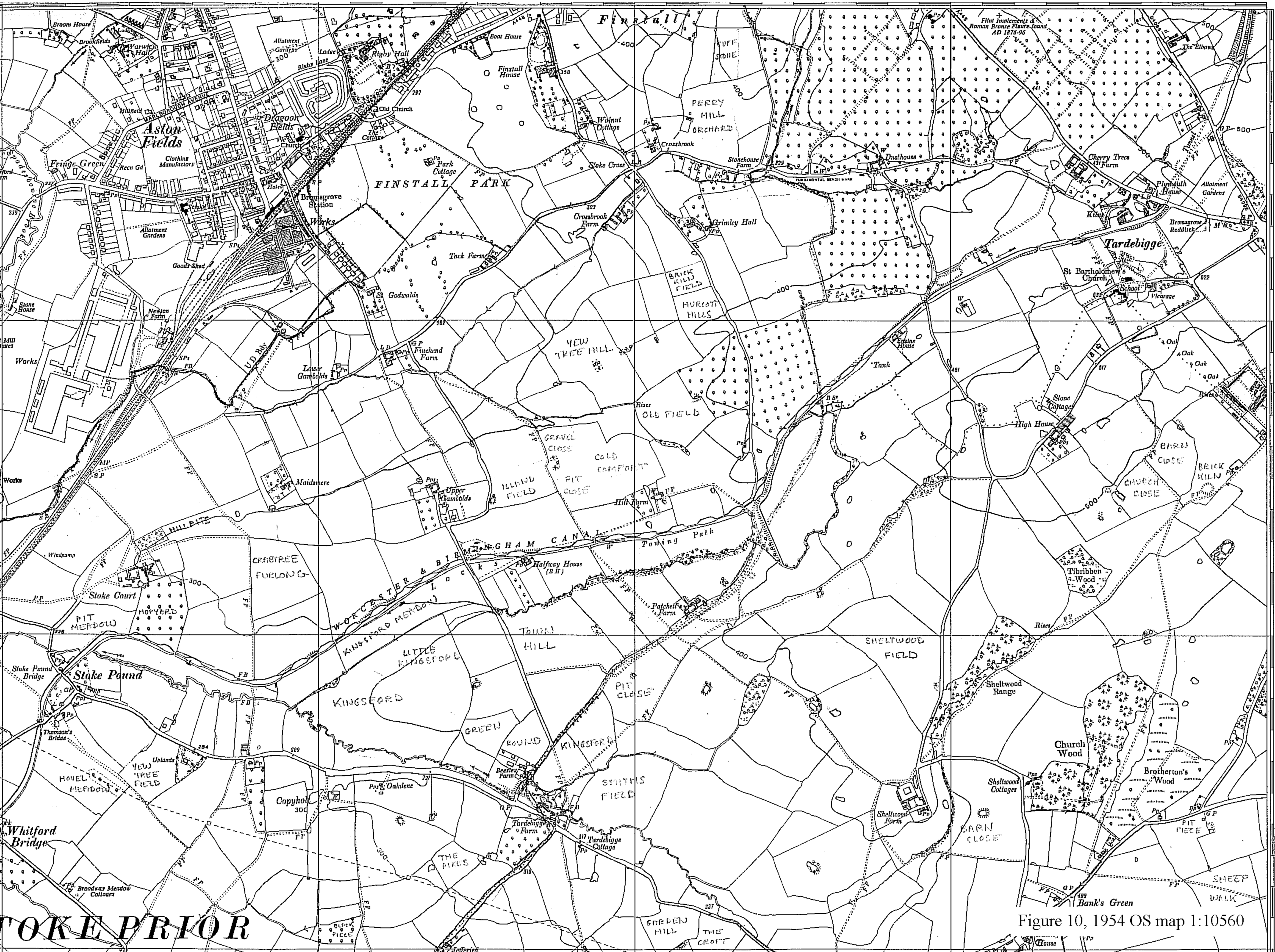


Figure 10, 1954 OS map 1:10560

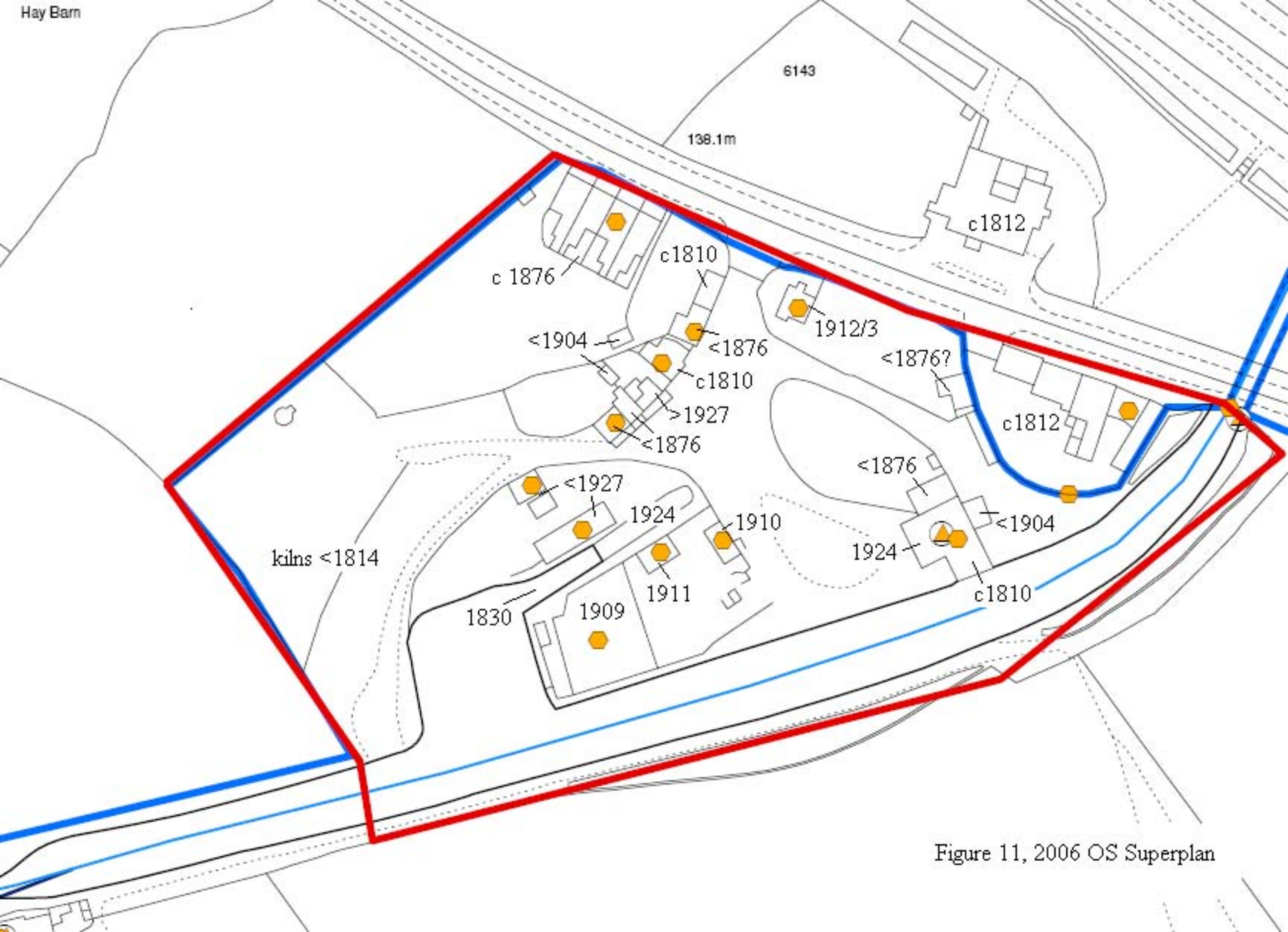


Figure 11, 2006 OS Superplan

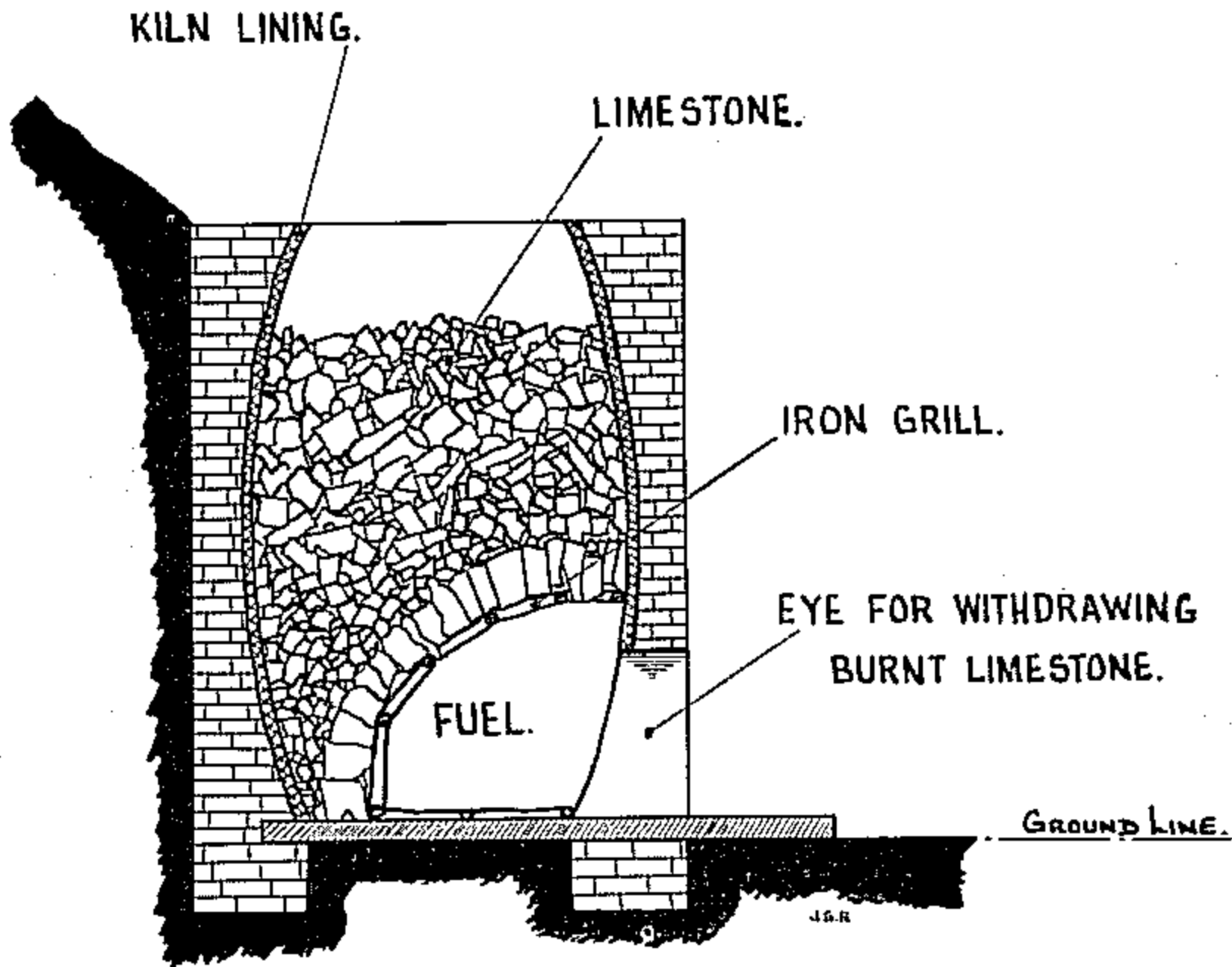


Figure 12, Section through a Flare Kiln (Baylis 1956, 48)



Figure 13, c 1950/60s oblique aerial photo