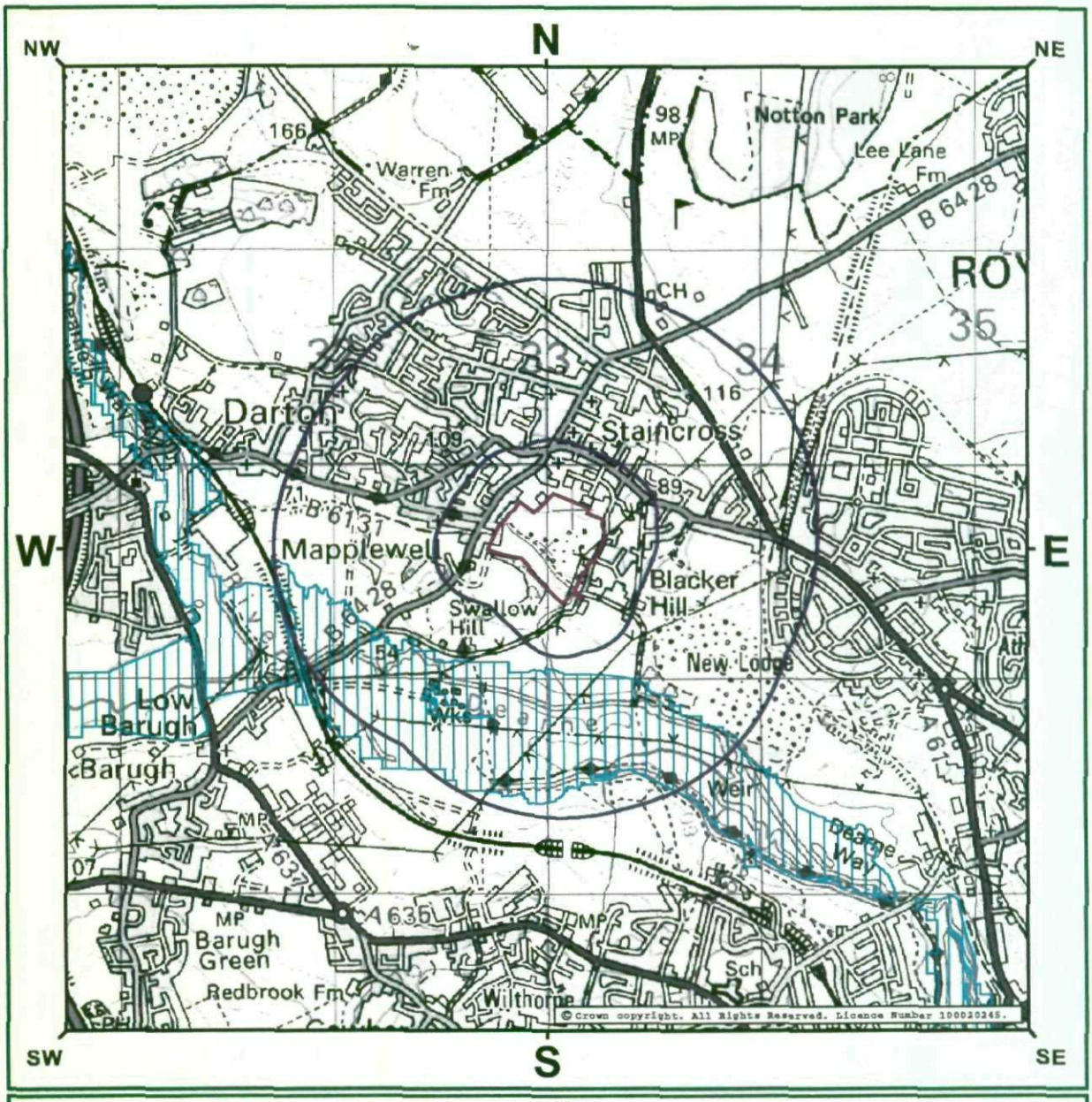


KEY

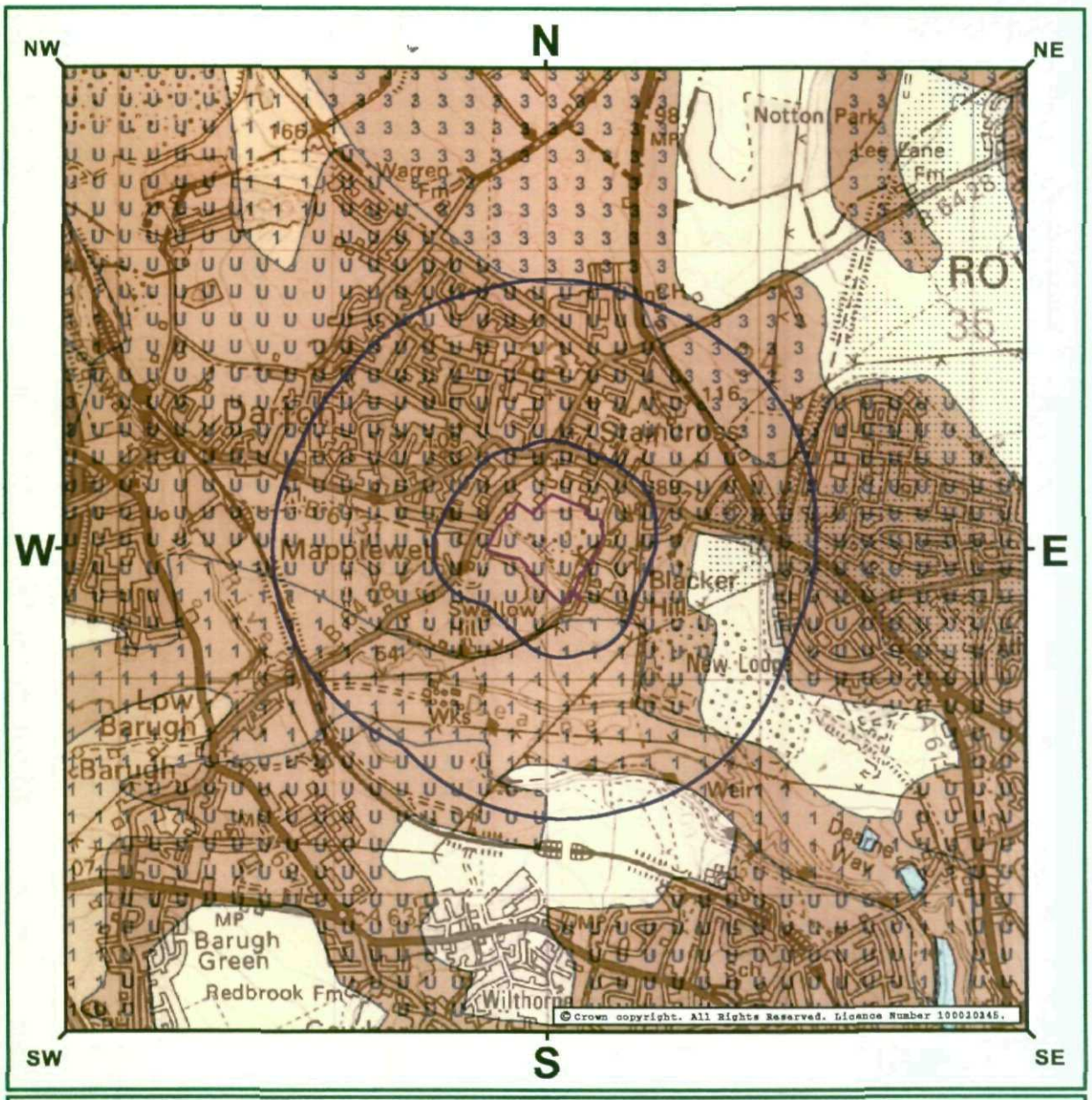
General

- Specified Site
- Bearing Reference Point
- Buffer

Agency & Hydrological

Environment Agency Indicative Floodplain

- Indicative Fluvial Floodplain
- Indicative Tidal Floodplain



KEY

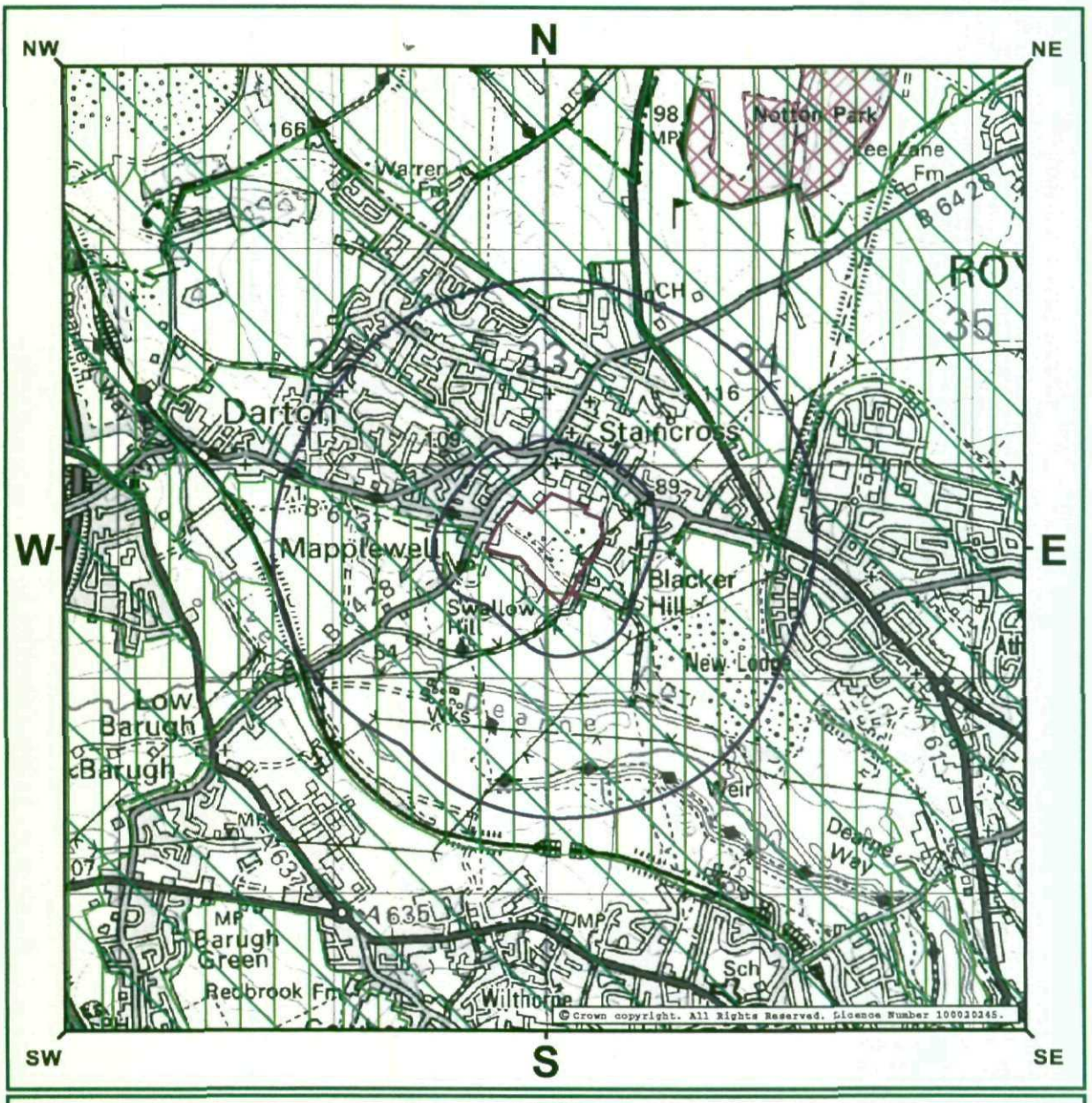
General

- Specified Site
- Bearing Reference Point
- Buffer

Groundwater Vulnerability

Geological Classes	Soil Classes
Major Aquifer (High Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variable Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	

- Drift Deposit



KEY

General

- Specified Site
- Bearing Reference Point
- Buffer

Sensitive Land Uses

- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- National Scenic Area
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area



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Customer Ref: Mr A Coverdale,SDA/04014
Scott Doherty Associates
5, Derwentside Business Centre Consett Business Park
Consett
County Durham DH8 6BP

SITE DETAILS Grid Reference 433000 409610

North Gawber Colliery
Barnsley

KEY TO THE LEGEND DATABASE

General

- Specified Site
- Bearing Reference Point
- Buffer (1000m)
- Reference Number
- Several of Type at Location

Waste

- Point Location of BGS Recorded Landfill Site
- BGS Recorded Landfill Site
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facilities (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Point Location of Local Authority Recorded Landfill Site
- Local Authority Recorded Landfill Site
- Registered Landfill Site

Agency and Hydrological

- Air Pollution Control
- Air Pollution Control Enforcement
- Point Location of Contaminated Land Register Entry or Notice
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement Or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Pollution Incident to Controlled Waters
- Substantiated Pollution Incident Register
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Quality Sampling Point
- Water Abstraction
- Water Industry Act Referral

- Point Location of Registered Waste Transfer Site
- Registered Waste Transfer Site
- Point Location of Registered Waste Treatment or Disposal Site
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Borehole
- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

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Customer Ref: Mr A Coverdale,SDA/04014
Scott Doherty Associates
5, Derwentside Business Centre Consett Business Park
Consett
County Durham DH8 6BP

SITE DETAILS Grid Reference 433000 409610

North Gawber Colliery
Barnsley

KEY TO THE LEGEND DATABASE

General

- Specified Site
- Bearing Reference Point
- Buffer (250m)
- Reference Number
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Waste

- Point Location of BGS Recorded Landfill Site
- BGS Recorded Landfill Site
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facilities (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Point Location of Local Authority Recorded Landfill Site
- Local Authority Recorded Landfill Site
- Registered Landfill Site

Agency and Hydrological

- Air Pollution Control
- Air Pollution Control Enforcement
- Point Location of Contaminated Land Register Entry or Notice
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement Or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Pollution Incident to Controlled Waters
- Substantiated Pollution Incident Register
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Water Abstraction
- Water Industry Act Referral

Waste

- Point Location of Registered Waste Transfer Site
- Registered Waste Transfer Site
- Point Location of Registered Waste Treatment or Disposal Site
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Geological

- BGS Borehole
- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

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APPENDIX C

COPY OF BRITISH COAL'S DESK STUDY REPORT (1990)

172,16(199)

Desk Top Study of Possible Opencast Site at Gawber

Approved by:

W C Pearce

Dr W C Pearce
Head of Chemistry

Distribution:

Mr A Stopher, Opencast, Central North Region, Thorncliffe Hall, Thorncliffe Business Park, Chapeltown, Sheffield, S30 4PX
Mr M Greenwood, Opencast, Central North Region
Surface Environment File

Ref: LW/AM

December 1990

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1. INTRODUCTION

This study is of a part of Yorkshire which in the mid 19th Century was primarily given over to textiles and small mining concerns. Prior to this, industry had been semi-domestic, usually glass or nailmaking. However, in the latter part of the century with the arrival of the railways, mining became the dominant industry. Coalmining was largely in the hands of the land-owning class and some collieries were composite undertakings, ie, with coke oven plants or brickyards, attached.

The following industries/activities have been examined:

	Location on Main Map
Mining developments	(sites 1/2/8/9/16/18)
Coking/Chemical/Bleach Works	(sites 6/12/16/17/22)
Tip and Spoil Heaps	(sites 3/4/5/11/13/14/20/23/24/25/26/27/28/29)
Water Courses	(sites 7/10)
Sewage Works	(sites 15/19/21)

2. MINING

There have been four collieries within the area of interest and three of any size outside. The former are:

2.1 North Gawber Colliery and Coke Works (Grid ref: 333 098)

There has been mining at North Gawber since 1849 and during the latter half of the 19th Century coke and gas were also produced. Dearnley (History of Darton) quotes this colliery as closing in 1922. A new North Gawber Colliery opened in 1926, was extended in 1949 and eventually closed in 1988 after merging with Woolley Colliery.

During the lifetime of the 'old' colliery, 82 beehive ovens were used to produce 550 tons of blast furnace coke per week. Both coal and coke were transported by rail to join the Lancashire and Yorkshire Railway near Darton.

It is assumed that any by-products from carbonisation would have been processed at one of the nearby chemical works. Since Barugh Green Chemical Works was not operational until 1912, the Yorkshire Tar Distillers at Stairfoot is the more likely. The latter was sited at the junction of rail lines from several collieries.

2.1.2 Contamination

Areas of concern would be the mineral railway (now mostly dismantled), the tip (site 13 on main map) and tanks and pipework. Some likely contaminants are PAHs, phenols, sulphates and cyanides.

2.2 East Gawber Hall Colliery and Coke Works (Grid ref: 345 088)

East Gawber Hall opened, with ancillary coking plant, in 1855 and closed in 1921. The 1906 map (Appendix 1) shows a route for waste material under the railway line to an area south east of Standhill Wood (9a on main map). The map identifies the oven sites but does not mark storage tanks, etc. The 1931 map (Appendix 2) shows no trace of the colliery other than the waste heaps.

2.2.1 Contamination

It is possible that tanks containing waste tar are buried at site 9a on main map. As with similar sites, pipework (if still in existence), tanks, railway sidings and waste heaps are areas of concern. Likely contaminants would be PAHs, phenols and other organics as well as sulphates and cyanides.

Asbestos from lagging is also a possible contaminant if demolition waste was disposed of into nearby tips.

2.3 Wharncliffe Carlton Colliery and Coke Works (Grid ref: 347 064)

Kelly's 1889 edition lists Wharncliffe Carlton and East Gawber Hall Collieries as being in the ownership of R Craik & Co. The 1906 map (Appendix 1) gives the layout of the coke ovens and waste heaps. By 1931 (Appendix 2), demolition is more or less complete. It is possible that in its later years this colliery became part of the Wharncliffe Woodmoor group. According to British Coal's Mines Records, this colliery closed in 1921. As with North and East Gawber, it is assumed that tar would be processed at Stairfoot.

2.3.1 Contamination

As East and North Gawber collieries.

2.4 Darton Colliery and Mapplewell Brickworks (Grid ref: 323 096)

The 1906 map (Appendix 1) shows an adit and tramways. Shafts were finally sunk in 1910 and the colliery appears to have been worked in conjunction with the Mapplewell Brick Works. Both would have made use of the North Gawber Railway. Clay pits at Belle Vue (where there was also mining in a small way), supplied raw material for the Brickworks. The colliery was also known as Swallow Hill. According to Mine Records, Darton Colliery merged with the North Gawber complex (date unknown).

2.4.1 Contamination of this site is unlikely.

Outside the main boundary are:

2.5 Primrose Main Colliery (Grid ref: 348 085)

The 1906 map (Appendix 1) shows a colliery adjacent to Wharncliffe Carlton and intersected by the railway. The 1932 map (Appendix 2) shows only the spoil heaps remaining. This research has uncovered no other reference to this colliery.

The area is now occupied by a tarmacadam works (site 22).

2.6 Redbrook Colliery (Grid ref: 328 079)

Sunk in 1903, the Redbrook Colliery was sold to the Church Lane Co of Dodworth and connected with the Church Lane Colliery. There was also a link with the Old Silkstone Colliery which was also known as 'Church' or 'Dodworth'. Redbrook closed in 1988 after merging with Woolley.

2.7 Old Silkstone Colliery (Grid ref: 317 085)

The Colliery was sunk in 1862 and expanded in 1912 to include a coking and by-products plant (see 3.1). The chemical works closed in 1958 and further mining activity was merged with that of Woolley Colliery.

2.8 Other Mining

Small mining concerns proliferated throughout the area. Appendix 6 is marked where there is any evidence of mining whether via shaft, adit, bell pit or dayhole. In addition, there are no doubt many other instances of mining of which there is no record.

3. CHEMICAL WORKS

3.1 Barugh Coking and By-product Plant (Grid ref: 318 084)

Also known as Dodworth Coking Plant, the name within the coking industry was given as the Old Silkstone Collieries. The plant operated between 1912 and 1958 and produced around 200,000 tons of coke annually. The by-product list included tar, sulphate of ammonia, benzole, toluol, creosote, naphtha and refined benzol.

3.1.1 Processes

The basic process of carbonisation involved heating coal in an oxygen-deficient atmosphere to produce a mixture of gaseous and liquid products and coke as the solid residue.

The volatile materials would be separated producing an impure gas mixture, ammonia liquor and tar. Following further purification, the gas would be stored and distributed and the ammonia liquor and tar would be processed as required.

3.1.2 By-products

Tar - mostly used in primary condition, ie, road tar, pitch for briquetting and creosote but would also be processed to produce feedstocks for the chemical industry.

Benzole - a primary product both from tar distillation and by direct removal from gas. Benzole from tar distillation required pre-treatment with acid (40% sulphuric acid) to remove pyridine bases and alkali (6-12% sodium hydroxide) to remove phenols. Alkaline wash (to remove hydrogen sulphide) a and preliminary distillation (to remove carbon disulphide) would be used for removal of inorganic sulphur.

The process of removing other sulphur compounds by washing benzole with concentrated sulphuric acid would also result in the production of waste acid tars. Such materials are particularly hazardous and would require an on-site neutralisation.

Sulphur free benzole would then be further refined by fractional distillation to produce benzene, toluene, xylene solvent and naptha.

Ammonia - ammoniacal liquor would be heated, resulting in the decomposition of ammonium carbonate and sulphide and the release of free ammonia. Fixed ammonia would be freed by distillation with strong alkali (calcium hydroxide suspension). The steam-ammonia mixture entered a saturator containing sulphuric acid in which ammonia would be absorbed and from which solid ammonium sulphate separated. Excess steam, carbon dioxide and hydrogen sulphide passed from the saturator through heat exchangers and condensers where the condensed water dissolved compounds such as phenols, hydrogen sulphide, etc. The condensate would be returned for re-distillation, or waste liquor treated.

3.1.3 Contamination

Contamination caused by coal tars, spent oxides, etc, would be likely in tanks, pipeworks and railway sidings (where materials were transported), as well as in areas of waste disposal. Since it is possible that tar, etc, from the Coalite Works would be processed at the By-Products Plant, then further contamination of the railway up to Silkstone junction must be considered. Typical contaminants would be PAHs and other organics as well as sulphates and cyanides. The presence of acid tars, as already mentioned, is cause for concern and would require on-site neutralisation.

Contamination of the bed of the Barnsley canal by effluents discharged to drain is also possible.

3.1.4 Other Industries On Site

i) Adjoining was the Yorkshire Electric Power Co which used the surplus gas from the coke ovens. This is now the Electricity Sub Station.

ii) The Waste Heat Co also generated electricity from surplus gas.

iii) The Sensible Heat Distillation Co attempted to patent new by-products from coal but were bankrupted in 1933, after six years of operation.

3.1.5 Photographs

A number of photographs on the site taken during construction of the plant during 1911 and 1912, are included in Appendix 5.

3.2 Barugh Coalite Works (Grid ref: 323 084)

Dearnley refers to the works as opening around 1907 but other references give the date as 1913. In 1917 the company was bought by Low Temperature Carbonisation Ltd and in 1926 was re-organised and re-built. In 1927 production was 100,000 tons per annum. By 1937 the company, grossly overstocked, built railway sidings across the footpath from Swallow Hill to the Day House and stored large quantities of fuel in fields (this area is currently opencast workings). The plant closed in 1939. During the war the fuel stocks were sold but the plant was not re-opened.

3.2.1 By-products

The yield of tar from low temperature carbonisation is usually 2-3 times higher than that produced at high temperature, although the pitch content is relatively low.

The oils produced are of a mixed chemical nature since they are paraffinic, aromatic and napthenic. They mix well with petroleum oils and do not crystallise at low temperatures. It was because of these virtues that contracts with the Air Ministry (aviation fuel) and the Admiralty were given in 1933.

3.2.2 Contamination

Contamination would differ in some respects from that found at coking sites as low temperature carbonisation results in tars with a higher content of phenolics. In respect of areas of contamination, the same general rules apply.

The presence of a drain to the Barnsley Canal would extend the area of possible contamination to the bed of the canal.

3.3 Specialised Aerosol Co Ltd (Grid ref: 333 095)

The company produces aerosol cans of cleaning and maintenance products using a wide variety of organic and inorganic compounds. These include, acids, alkalis, descalers, solvents (some chlorinated), disinfectants, surfactants, lubricants and anti-freezes.

The company has been operating since 1976 at least, as planning permission for a storage building for chemicals was then granted. Chemicals are not manufactured on site but bought in, made up and canned. This site would be of concern if there had been any instances of spillage or evidence of inappropriate handling.

3.4 Vitriol Works

The information provided by Emma Pearce-Jenkins in her study of Gawber is:

'There were two vitriol or acid works in this area during the nineteenth century but both had closed down by the beginning of the twentieth century - Swallow Hill vitriol works (ref 324094) and Staincross vitriol works (ref 334098). These works were likely to have provided acids for the bleaching processes, which were carried out in connection with the linen trade which was flourishing during the mid 1800's. Also hydrochloric acid would have been supplied to the local metal works and foundries for cleaning processes, etc. This process would have utilized the spent oxide producted as a by-product of gas purification processes - the coal gas produced would have been purified by passing it through iron oxide in order to remove a large percentage of the impurities sulphur and cyanide compounds. The spent oxide which results is rich in sulphur. It is then roasted at the vitriol works to produce sulphur dioxide which, with water, forms sulphuric acid - this is then used in the manufacture of chlorine bleaches. Waste products will have included: pitch/tar (loaded onto barges on the canal during the 1870's) and phenols also acid residues, heavy metals, eg, lead, arsenic and, with leaching from spent oxides - cyanide and sulphate'.

NB: The Swallow Hill vitriol works site was subsequently used as a landfill site (see section 4.2.2). The Staincross site has subsequently been overlaid by North Gawber Colliery's Coal Stocking and Home Delivery Yard.

3.5 Bleach and Dye Works

Emma Pearce-Jenkins states the following:

'Within the Barnsley area the textile industry was very important in

the 19th Century and a number of Linen works, often referred to as Bleach Works were situated in this study. Redbrook (Grid ref: 326 078) and Greenfoot (Grid ref: 338 082) were two works within the area.

Originally the linen produced at these works was bleached on bleaching greens using such substances as sour milk and pigeon droppings. By the beginning of the 19th Century some weak acids were being used, the actual bleaching powders (calcium hypochlorite or slaked lime saturated with chlorine) took several years to come into common use. Due to its elevated price many continued to use traditional bleaching methods.

Greenfoot closed sometime in the early 20th Century but Redbook, after a reprieve in the 1920's, was one of the last Linen works to survive finally closing in the 1950's. In Bretton's account these works consisted of Yarn sheds, boiling pans, dye houses, troughs and dressing sheds.

These works produced their own gas on site and therefore there will be the potential contamination spots where this was produced, ie, coal tar, phenols, cyanides, etc. Greenfoot's gasometer is marked clearly on the map but no other reference is made. Bretton refers to Redbrook's gasometer being in the plantation where gas 'was made for use in the mill and properties', however no other reference has been found to support this.

Contamination on the older sites is less likely than at Redbrook where more modern techniques in dyeing and bleaching may have left contamination'.

NB:

It would appear that the grid reference for the Redbrook site has been mis-typed. This should read 320 078.

3.5.1 Processes in bleaching and dyeing

Yarn would be bleached using soda ash, chlorine and weak sulphuric acid in a series of steps and then dyed.

Dyes in common use at the time Redbrook was operating were:

i) Acid (especially used for wool and protein fibres)

ii) Azoic (fast colour dyes for cotton and linen)

iii) Basic (hydrochloride dyes, use of which was latterly restricted because of poor 'fastness'. They were however sometimes used to 'top' up the brightness of other dyes)

iv) Mineral pigments (of restricted use, usually for khaki dyes)

v) Mordant dyes (among the oldest dyes the most common of which is Alizarin)

vi) Sulphur dyes (a very important cotton dye)

vii) Vat dyes (indigoid or anthraquinonoid)

In addition to the dyes a number of 'assisting' chemicals would be used, eg, glauber salts (sodium sulphate), sodium hydrosulphite, sodium chlorate, acid and alkalis.

Since there is evidence of the mill producing uniforms and other Services materials during the war, we can assume that both mineral pigment and vat dyes were used.

* It is possible that some of the dye chemicals used at Redbrook were carcinogenic.

3.6 Tarmacadam Works (Grid ref 348 085)

The works is on the site on the old Primrose Main Colliery. It may be that it originally functioned as a by-product plant, possibly for processing of tars from coking collieries along the railway route. It has been referred to as being owned by Hinchcliffe's (or Inchcliffe) and then Wards. Regional Drawing 05/11996 (Appendix 9) shows the works adjacent to Tilcon Concrete Works and possibly working in conjunction with it.

Tarmac is produced by the mixture of tar with sand and gravel.

This site would be of concern if there were any evidence of spillage onto the site, either along the nearby dismantled railway or down the embankment to the north.

3.7 British Benzol (Grid ref: 318 083)

The company buys base oils in bulk and blends and cans for re-sale. A planning application has been submitted for extensive warehousing and additional storage tanks. Since there is no manufacturing on site there is little product waste.

4. TIPS AND SPOIL HEAPS

There are a number of spoil heaps, landfill sites and transfer stations in the area.

4.1 Tips Associated with Mining

4.1.1 North Gawber Tip (sites 13 and 14 on main map)

The tip area surrounds the Mineral Railway and is no longer in use. Prior to closure, North Gawber merged with Woolley

Colliery and coal and spoil were processed at Westside Coal Preparation Plant. The area east of Spark Lane (site 14) has been unused since 1965 and subsequently re-claimed. Part of the tip, east of Carr Green Lane was the Coal Stocking and Home Delivery Yard and was previously the site of the Staincross Vitriol Works. This part of the tip may be contaminated (see Section 3.4).

4.1.2 North Gawber Hill End Tip (site 11 on main map)

An extensive, conveyor and roadway fed spoil heap which was made redundant by use of Westside facilities.

Discard was conveyed from the washery but dredged tailings brought by dumpers, deposited in tailing drying areas and then overtipped.

Sections of the tip were opencasted in 1952/3. The Two Foot, Winter, Kilnhurst and Beamshaw seams were worked then the area restored. Plan ref NG 113/3/D shows the extent of opencast workings. In 1977 Winter, Top Beamshaw and Low Beamshaw seams were worked by opencast. Some of the overburden filled the disused railway cutting to the North. Because of extensive opencasting the greater part of the spoil heap rests on backfill.

Tipping ceased in 1985.

4.1.3 Darton Colliery Tip (site 4 on main map)

Darton Colliery spoil heap has been reclaimed. To the north and north east (either side of Cockshot Pit Lane), are two smaller sites which had been used as coal stocking areas by North Gawber Colliery.

4.1.4 Redbrook (site 24 on main map)

Assumed to be the spoil heap from Redbrook Colliery and to be uncontaminated.

4.1.5 Wharncliffe Carlton Tip (site 8 on main map)

Since this disused tip was once part of Wharncliffe Carlton Colliery and Coke Works there may be the degree of contamination associated with industry of this type (see 2.1.2).

4.2 Other Sites

4.2.1 Whaley Road (site 28 on main map)

Around this areas there are three landfill sites for the disposal of inert and non-hazardous waste. One of the sites is operated by Bayford Explorations who worked the opencast site across the railway. There has been an instance of illegal tipping which has been assumed to have been inert by the Opencast Executive's own research with Yorkshire Hazardous Waste Unit.

4.2.2 Spark Lane Quarry (site 26 on main map)

The quarry has been filled with inert waste and reclaimed. However it should be noted that the Swallow Hill Vitriol Works was sited next to the quarry and that associated contamination may be present (see Section 3.4).

4.2.3 Shaws Carpets

A landfill site for waste arising from the factory, ie, non-hazardous industrial and construction/demolition waste.

An amendment to the original licence allowed disposal of small quantities of asbestos. Since the site has been operational since 1967 (prior to the Control of Pollution Act) no assumptions can be made as to the content of this site. It would be prudent to treat this area as contaminated.

4.2.4 Blackerhill Quarry (site 23 on main map)

Operated by Blackerhill Quarry for the disposal of hardcore and builders rubble together with non-hazardous combustible waste. Permission was given for excavation of fuel ash.

4.2.5 Transfer Station, Wentworth Road (site 29 on main map)

Although this station was only to hold inert and non-hazardous waste, the licence was revoked in 1988 because of the inclusion of asbestos. The licence has been transferred but the whereabouts of the asbestos is unclear. This area should be considered contaminated.

4.2.6 Dumpit Site (site 20 on main map)

This is a public tip operated by Barnsley Metropolitan Borough Council (BMBC).

4.2.7 Industrial Estate Tip, Redbrook (site 27 on main map)

This is a landfill site operated by Tara Civil Engineering for disposal of inert waste. Although the site seems to have been correctly operated with regard to the nature of the waste, some tipping in an unapproved area resulted in the issue of a warning.

5. Water Courses

5.1 The Barnsley Canal

The Barnsley canal is a section of the Aire and Calder Canal which was built to exploit the coalfields around Silkstone and worked for almost 150 years. Coal and grain appear to have been the main cargoes although Emma Pearce-Jenkin refers to carrying of flax, burned lime and limestone pitch.

The combination of an expanding rail network and the decline of canal side collieries dealt a serious blow to the canal and repeated subsidence damage led to its closure in 1953. The canal is now in poor condition with only some sections still in water although the towpath is in relatively good condition.

The Barnsley Canal Group mentioned the possibility of old barges being sunk near the former wharf by Willow Bank (approximate Grid ref 342 081). This could be of concern if cargoes of pitch etc were present.

5.1.2 Water Quality

The canal water quality is monitored at a number of points as part of the River Dearne survey carried out by Scientific Services. Full details of this survey will be included at Stage II but it must be stated that a large quantity of lubricating oil was registered at points 11 and 12 during October 1990. Appendix 11 shows monitoring sites.

Past discharges from Barugh Chemical Works and the Coalite Works may have contaminated the canal bed by Barugh.

5.2 The River Dearne

The river flows from west to east across the site in a convoluted manner. Immediately upstream is Woolley Colliery and the Shaw Carpet factory. The river enters the area of primary interest at Barugh Bridge.

River quality is extremely poor and would appear to be substantially damaged by effluents from various industries. Scientific Services have monitored the river at a number of points, as part of the River Dearne survey, since March 1990. Full details of the survey will be included in Stage II but it should be noted that the Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) increase unexpectedly between points 8 and 9. This is after clearing from the Swallow Hill sewage works and indicates a contaminating source other than the Swallow Hill Works.

5.2.1 Consents to discharge

i) Yorkshire Water Authority
Carr Green Lane
Mapplewell (Grid ref: 330 092)
Limits are restricted to the size of solids and rate and type of flow.

ii) Yorkshire Water Services
Darton Lane Surface Water Sewer
(Grid ref: 319 091)
No precise limits given.

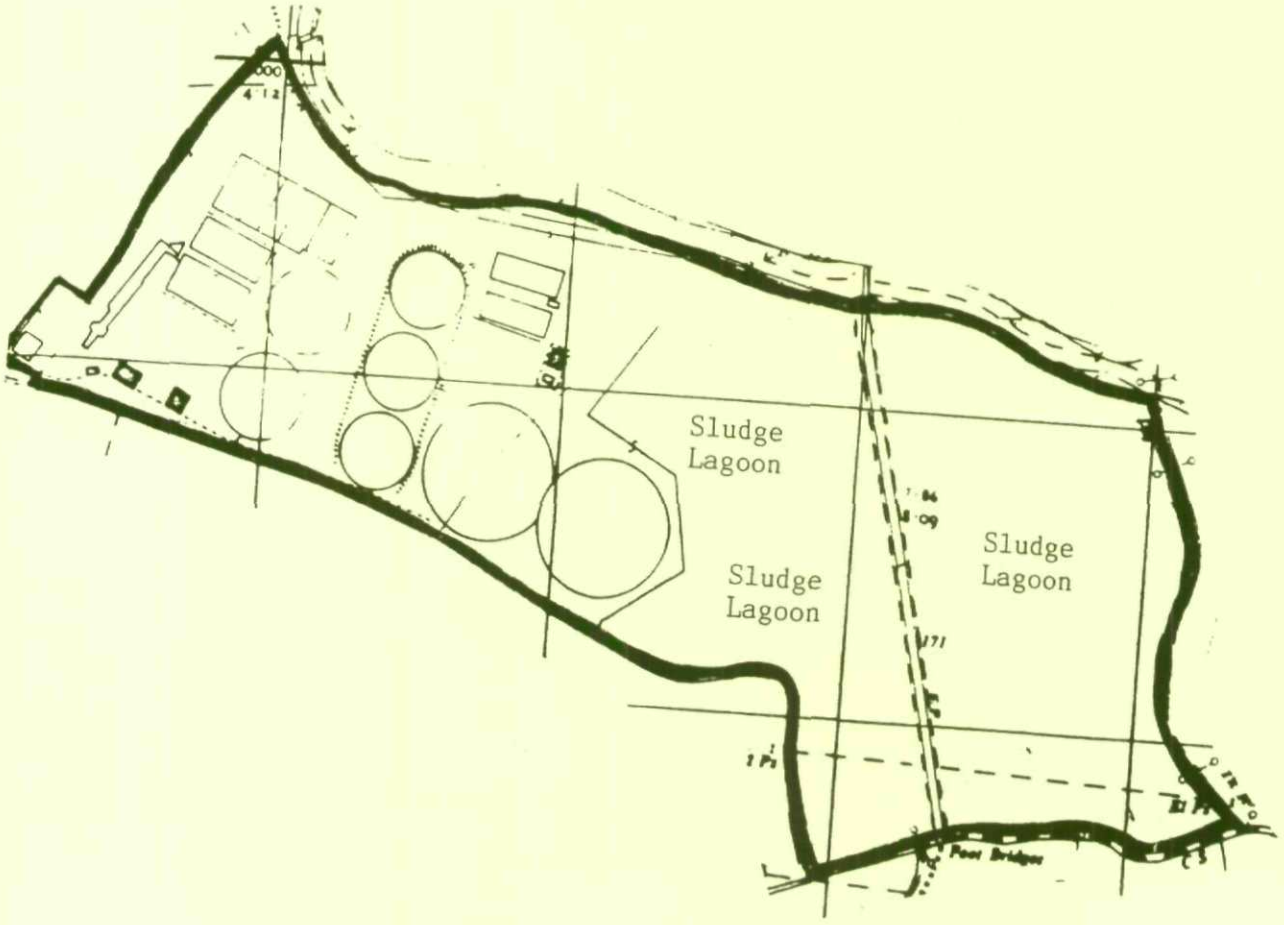
Because of the lack of precise limits, details of contraventions are difficult to establish.

6. OTHERS

6.1 Swallow Hill Sewage Works (Grid ref: 327 089)

The sewage works has been operational since 1898 with some alteration to the layout over the years (1931 edition, appendix 2). The plan below shows the current, approximate boundary, intersected by a footpath.

Treatment of raw sewage is by aeration and filtration resulting in separation of solid and liquid waste. Liquid effluents are discharged to the River Dearne, whilst the sludge is put to beds to dry. Dried sewage sludge can be sold as fertiliser. On a visit to the site in November, it appeared that there had been a fire across the area east of the footpath.



6.1.1 Contamination

Persistent tipping of sludge to a particular area over a number of years will result in biological contamination of that area as well as contamination by heavy metals, arsenic etc.

6.1.2 Effluents

The NRA monitor the river at a point upstream of the sewage works but have not provided details of downstream monitoring. The River Dearne Survey (Scientific Services) monitors water quality at several points around the works. Further information concerning discharges are being pursued with the NRA.

6.2 Barnsley Canister Co Ltd

Barnsley Canisters is sited to the north of Specialised Aerosols and produces embossed and lithographed metal containers.

Typical wastes from this site would be from metals, oils and dyes.

7. USES AND RESTRICTIONS

7.1 This research has uncovered no evidence of ancient monuments. Barugh Bridge (Grid ref: 321 901) is listed and as such will be subject to consent. In addition, there are several buildings designated as 'of interest' although not listed. These are Swallow Hill Farm, Hill End Farm and several houses in Carr Green Lane.

7.2 The area around Willow Bank has been designated a Site of Scientific Interest. This means that there is no statutory requirement to protect the site but that the local Council will oppose any development/activity which may damage the site.

8. MISCELLANEOUS

A single building identified as Redbrook Steelworks was mapped on Regional Drawing OS/11996 (Opencast Executive). British Steel Records Office has no record of this site. It is assumed that the building has been a storage facility for steelworks within the locality.

9. REFERENCES

History of Darton - Dearnley

History of Gawber - Bretton

Studies in the Yorkshire Coal Industry - Benson & Neville

South Yorkshire Coalfields, Vol 1

Barnsley : A Changing Industrial Geography - Ellison

Colliery Guardian, 1897 - 1899

Yearbook of the Coke Oven Managers Association, 1919 - 1953

Kellys, 1889/1912/1922/1938

Darton Local Plan - Barnsley Metropolitan Borough Council, 1984

Barnsley Local Plan - Barnsley Metropolitan Borough Council, 1983

The Barnsley Canal - a forgotten waterway? - The Barnsley Canal Group

Study of Licensed waste tips (CNSW/PL2007) Opencast Executive

APPENDIX 1

1906 Edition

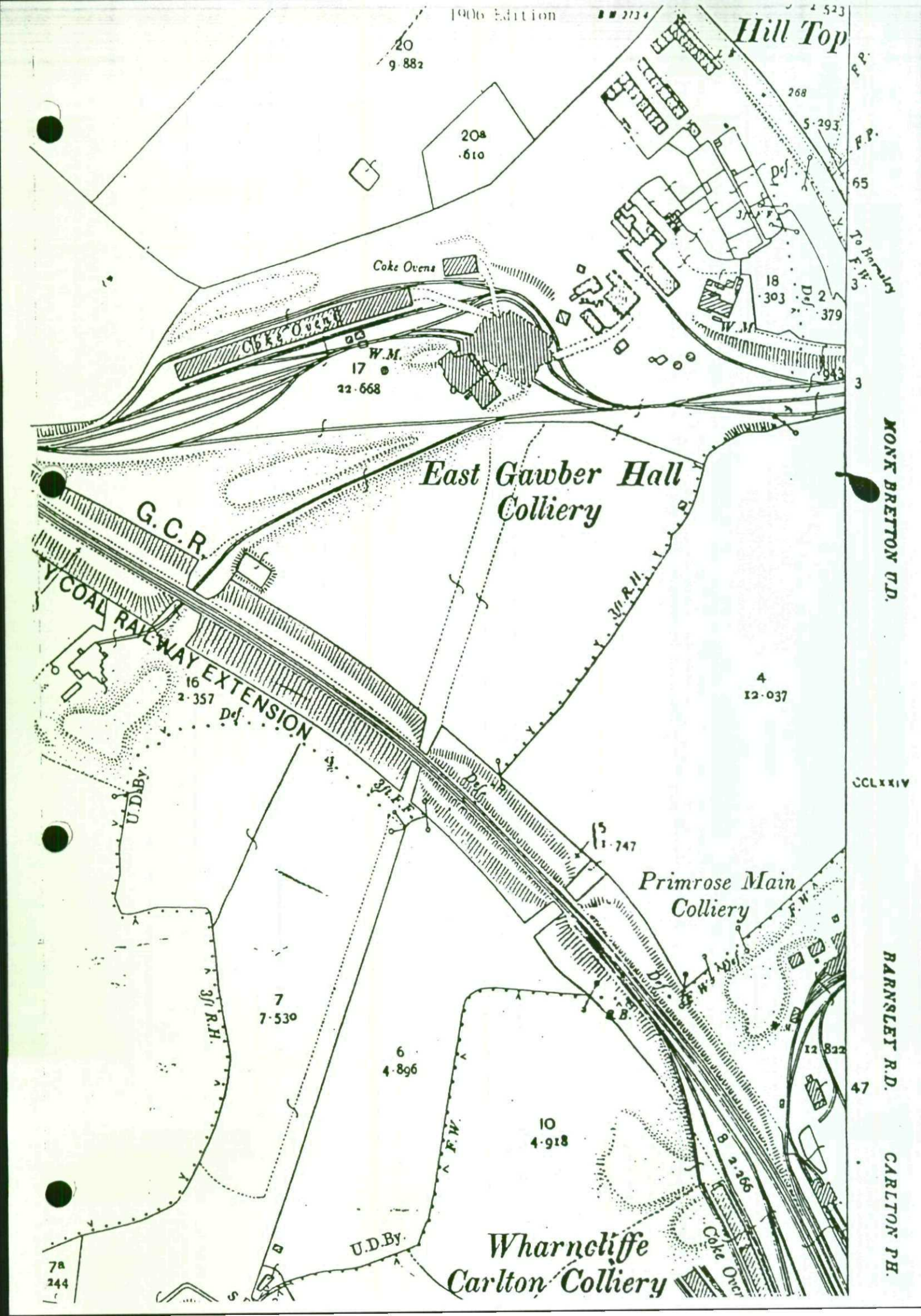
i) East Gawber Hall Colliery

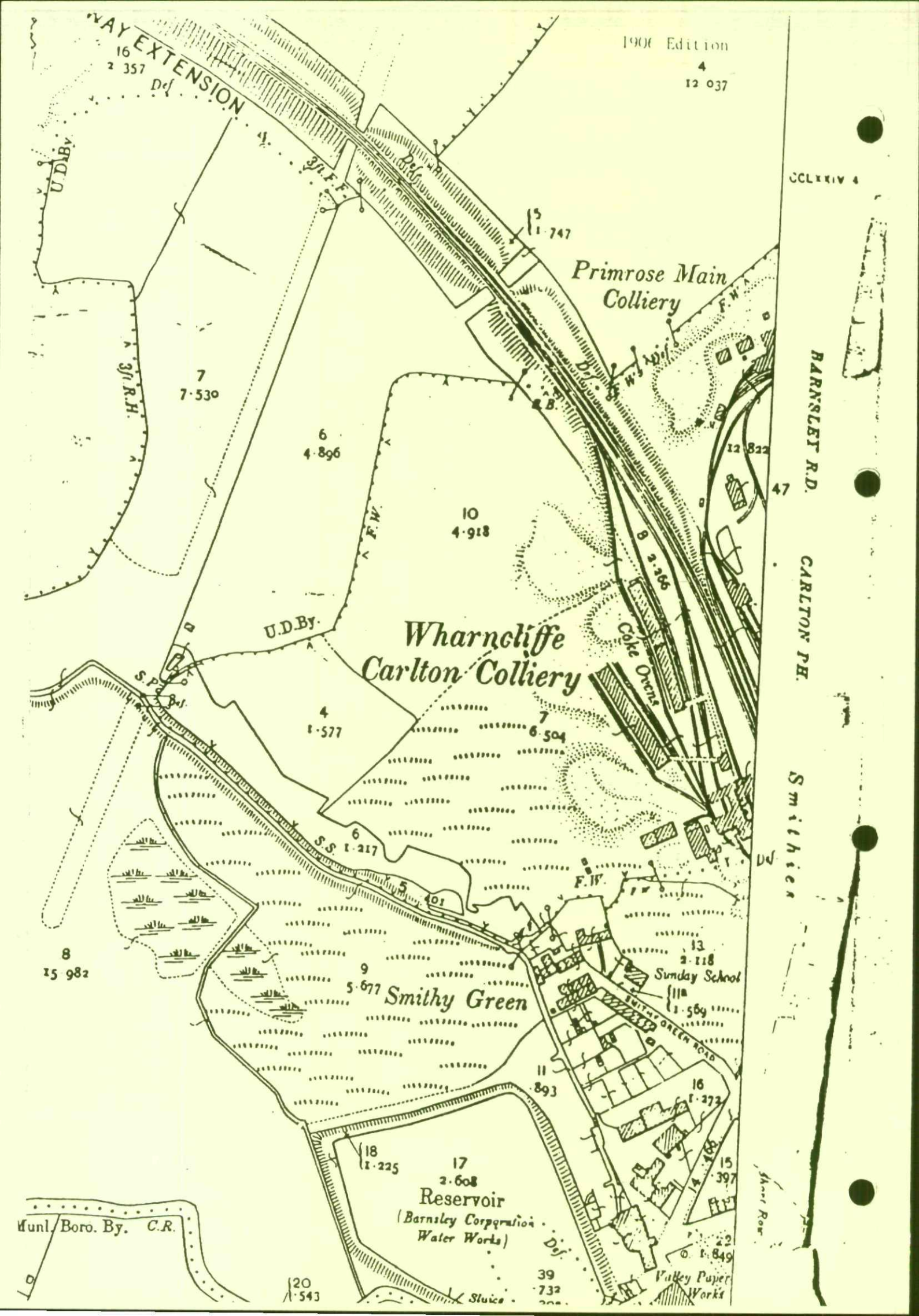
ii) Primrose Main Colliery
Wharncliffe Carlton Colliery

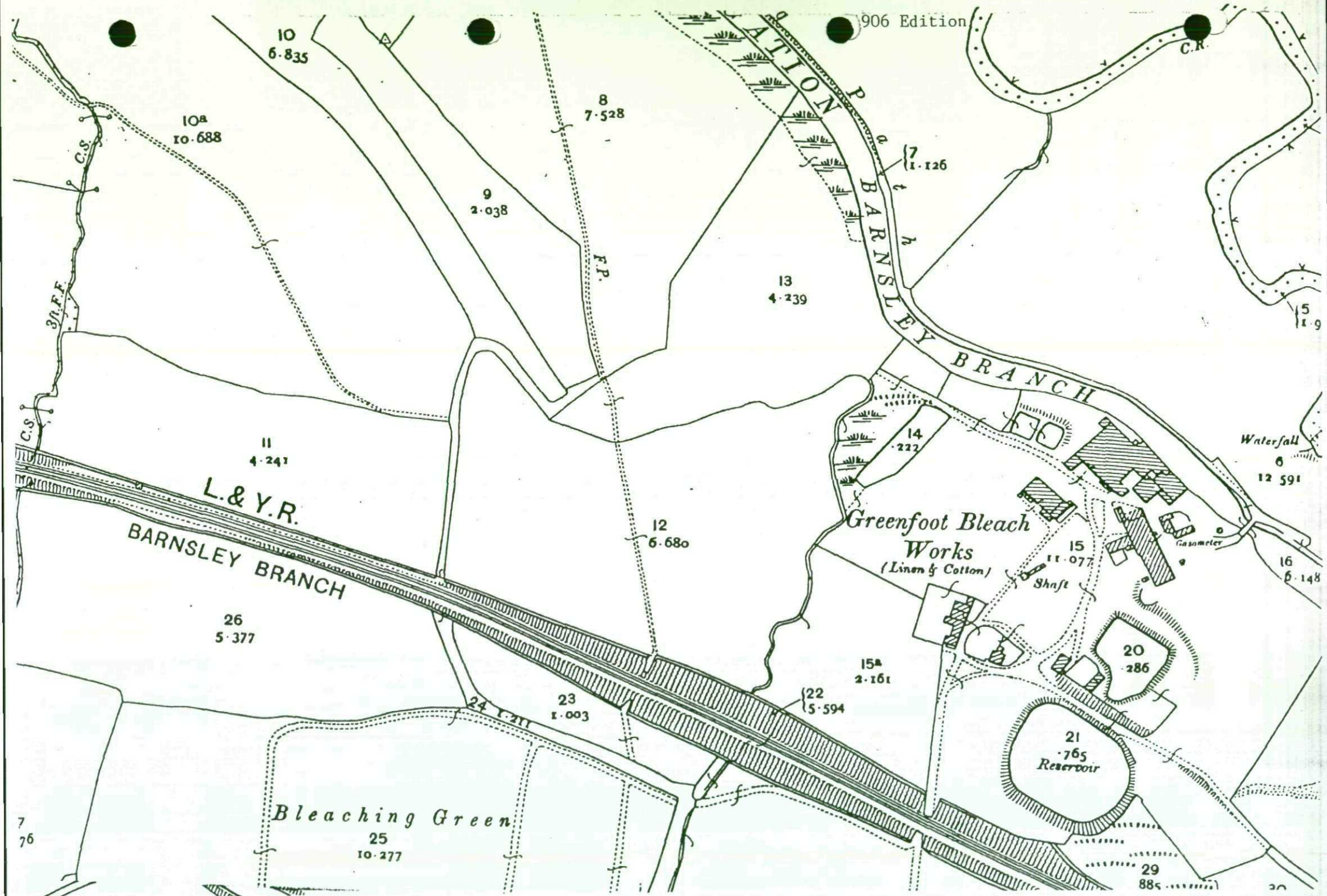
iii) Greenfoot Bleach Works

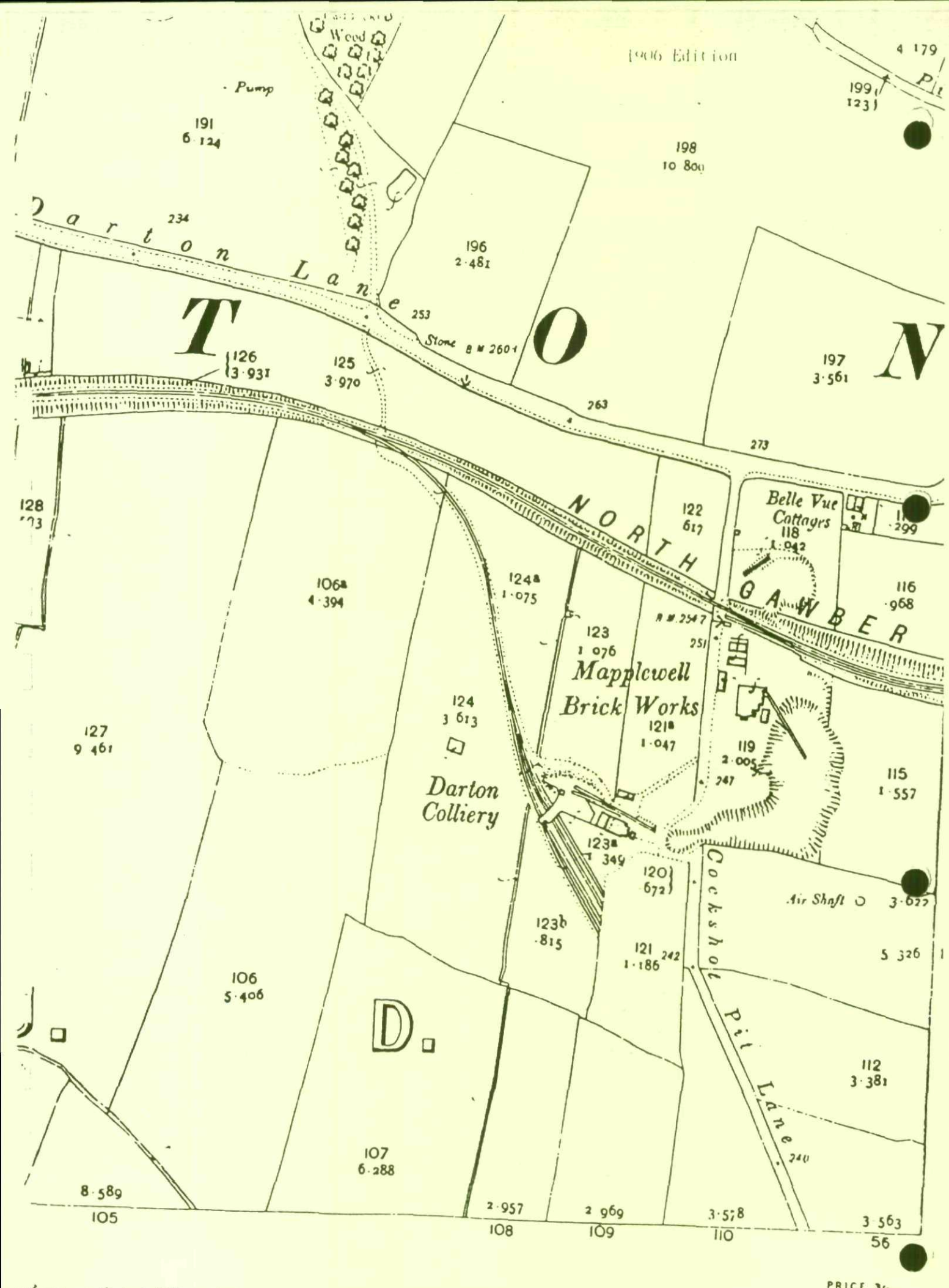
iv) Darton Colliery & Mapplewell Brickworks

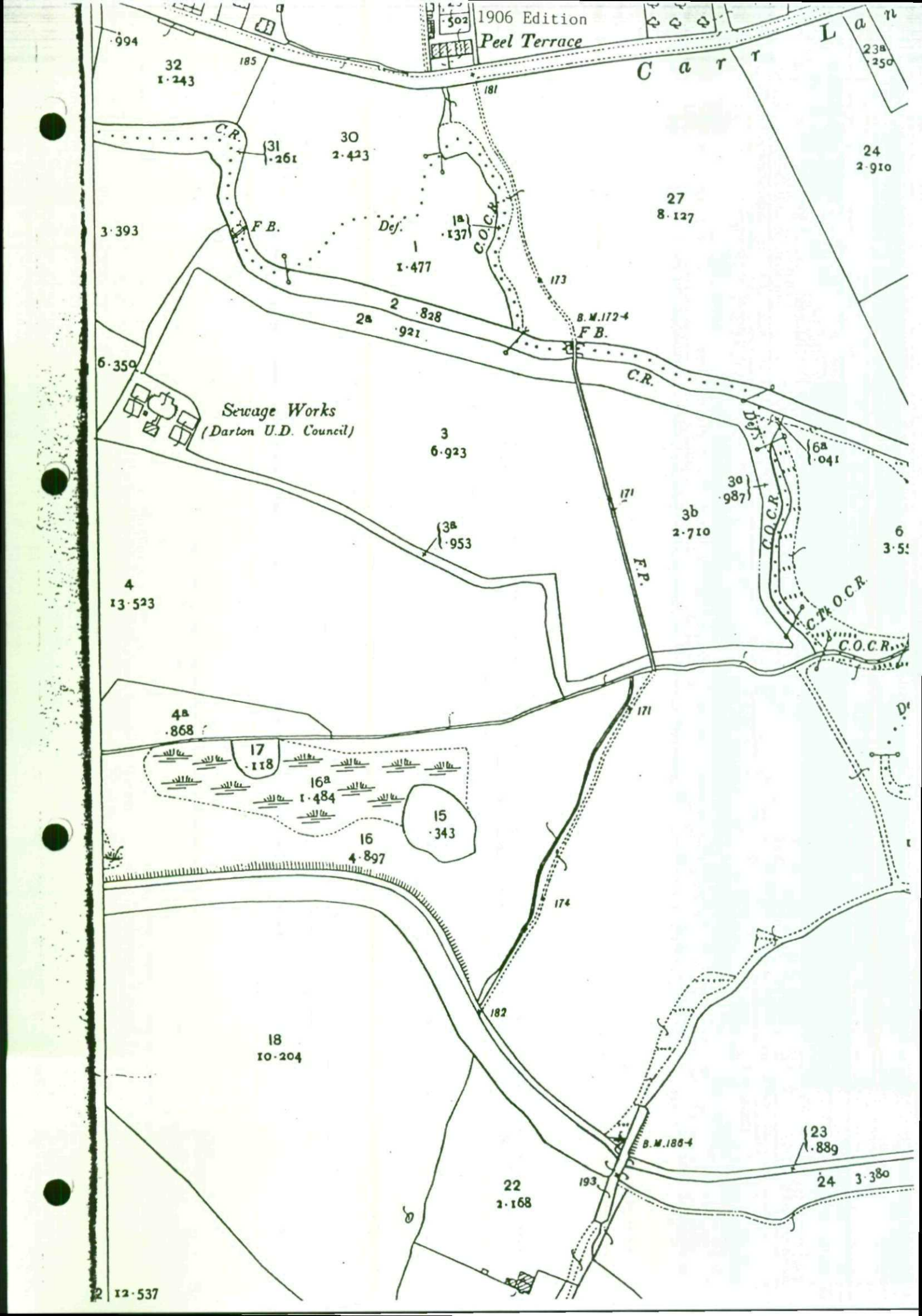
v) Swallow Hill Sewage Works


1906 Edition
Hill Top
20
9·882
20a
·610
268
5·293
F.P.
65
To Harlington
F.W.
3
18
·303
Dcf
2
379
W.M.
943
Coke Ovens
W.M.
17
22·668
East Gawber Hall
Colliery
G.C.R.
Y COAL RAILWAY EXTENSION
W.R.H.
16
2·357
Dcf
4
12·037
MONK BRETTON U.D.
CCLXXIV
U.D.By.
3ft. F.E.
15
1·747
Primrose Main
Colliery
F.W.
Dcf
B.
12·822
47
BARNSLEY R.D.
CARLTON PH.
7
7·530
3ft. R.H.
6
4·896
10
4·918
W.F.W.
B 2·266
Coke Ovens
U.D.By.
Wharncliffe
Carlton Colliery
7a
244


1906 Edition
WAY EXTENSION
Primrose Main Colliery
Wharncliffe Carlton Colliery
Coke Ovens
Smithies
BARNSLET R.D.
CARLTON PH.
Smithy Green
Sunday School
SMITHY GREEN ROAD
Reservoir
(Barnsley Corporation Water Works)
Valley Paper Works
Sluice
Munl. Boro. By. C.R.
U.D.By.
S.P.
F.W.
S.S.
Def.
B.
16
2 357
12 037
CCLXXIV 4
5
1·747
7
7·530
6
4·896
10
4·918
B 2·266
12 822
47
4
1·577
7
6·504
6
S.S. 1·217
5
1·401
8
15 982
9
5·677
13
2·118
11a
1·589
11
·893
16
1·273
18
1·225
17
2·608
15
·397
14
22
1·849
39
·732
20
1·543


10
6·835
10a
10·688
C.S.
3 R.F.F.
C.S.
8
7·528
9
2·038
F.P.
13
4·239
7
1·126
STATION
Path
BARNSLEY BRANCH
C.R.
5
1·9
11
4·241
L.& Y.R.
BARNSLEY BRANCH
14
·222
Waterfall
6
12 591
12
6·680
Greenfoot Bleach
Works
(Linen & Cotton)
15
11·077
Shaft
Gasometer
16
6·148
26
5·377
15a
2·161
20
·286
22
5·594
24 1·210
23
1·003
21
·765
Reservoir
Bleaching Green
25
10·277
29
885


1906 Edition
Wood
Pump
191
6·124
198
10 800
Darton Lane
234
253
Stone B M 260·1
196
2·481
T
O
N
126
3·931
125
3·970
263
273
197
3·561
128
NORTH GAWBER
122
617
Belle Vue Cottages
118
1·942
106a
4·394
124a
1·075
123
1 076
Mapplewell Brick Works
121a
1·047
119
2·005
247
251
116
·968
124
3 613
127
9 461
Darton Colliery
115
1·557
123a
349
120
672
Air Shaft
123b
·815
121
1·186
242
106
5·406
D.
112
3·381
Cockshot Pit Lane
240
107
6·288
8·589
105
2·957
108
2 969
109
3·578
110
3 563
56
PRICE


1906 Edition
Peel Terrace
C a r r L a n
994
32
1·243
185
502
181
23a
250
C.R.
31
·261
30
2·423
24
2·910
27
8·127
3·393
F B.
Def.
1a
·137
C.O.C.R.
1
1·477
173
2
·828
2a
·921
B.M.172·4
F B.
6·350
C.R.
Sewage Works
(Darton U.D. Council)
3
6·923
Def.
6a
·041
30
·987
171
3b
2·710
C.O.C.R.
3a
·953
F.P.
C.O.C.R.
C.O.C.R.
4
13·523
4a
·868
17
·118
16a
1·484
15
·343
16
4·897
171
174
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B.M.186·4
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·889
193
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3·380
22
2·168
12·537

APPENDIX 2

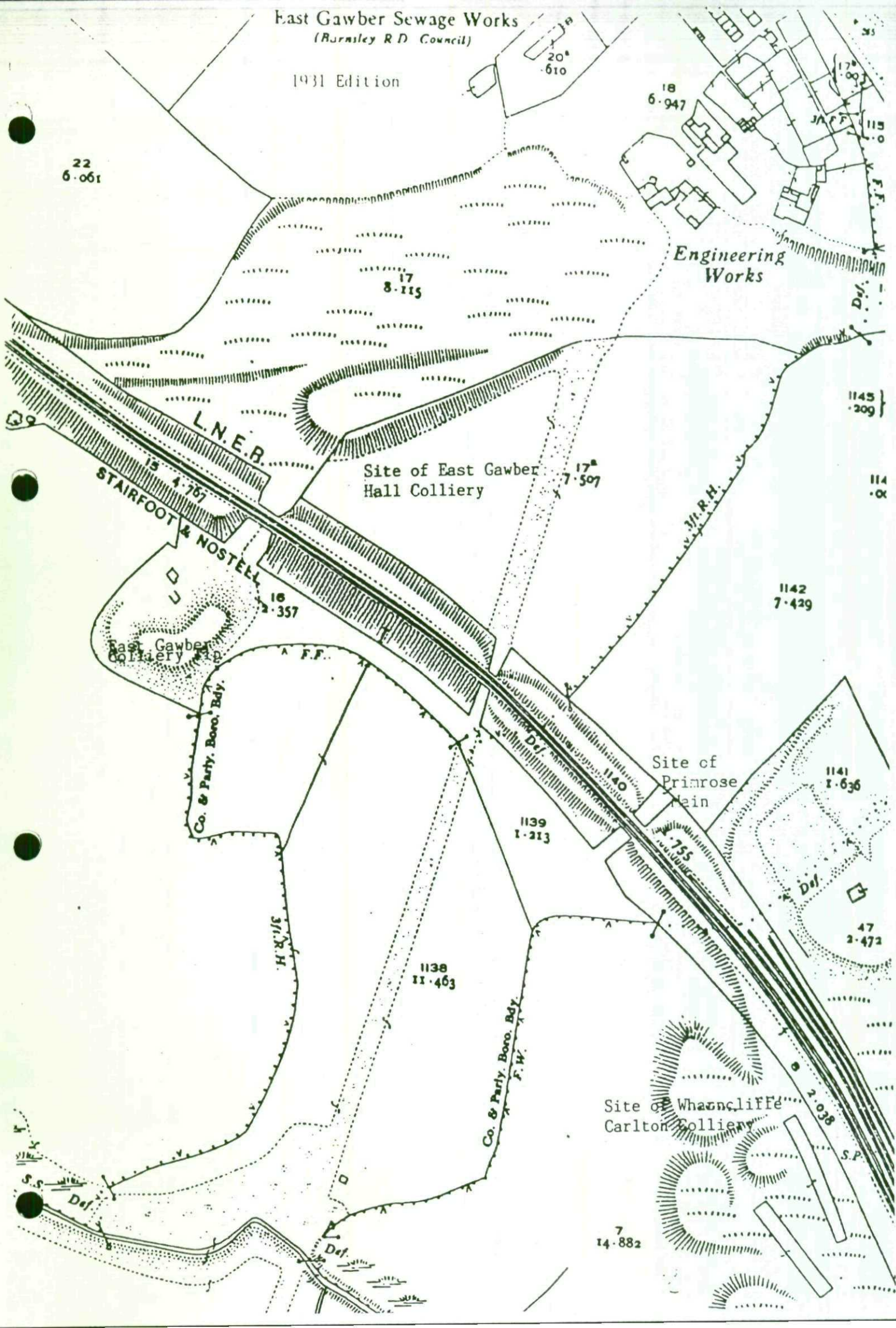
1931/2 Editions

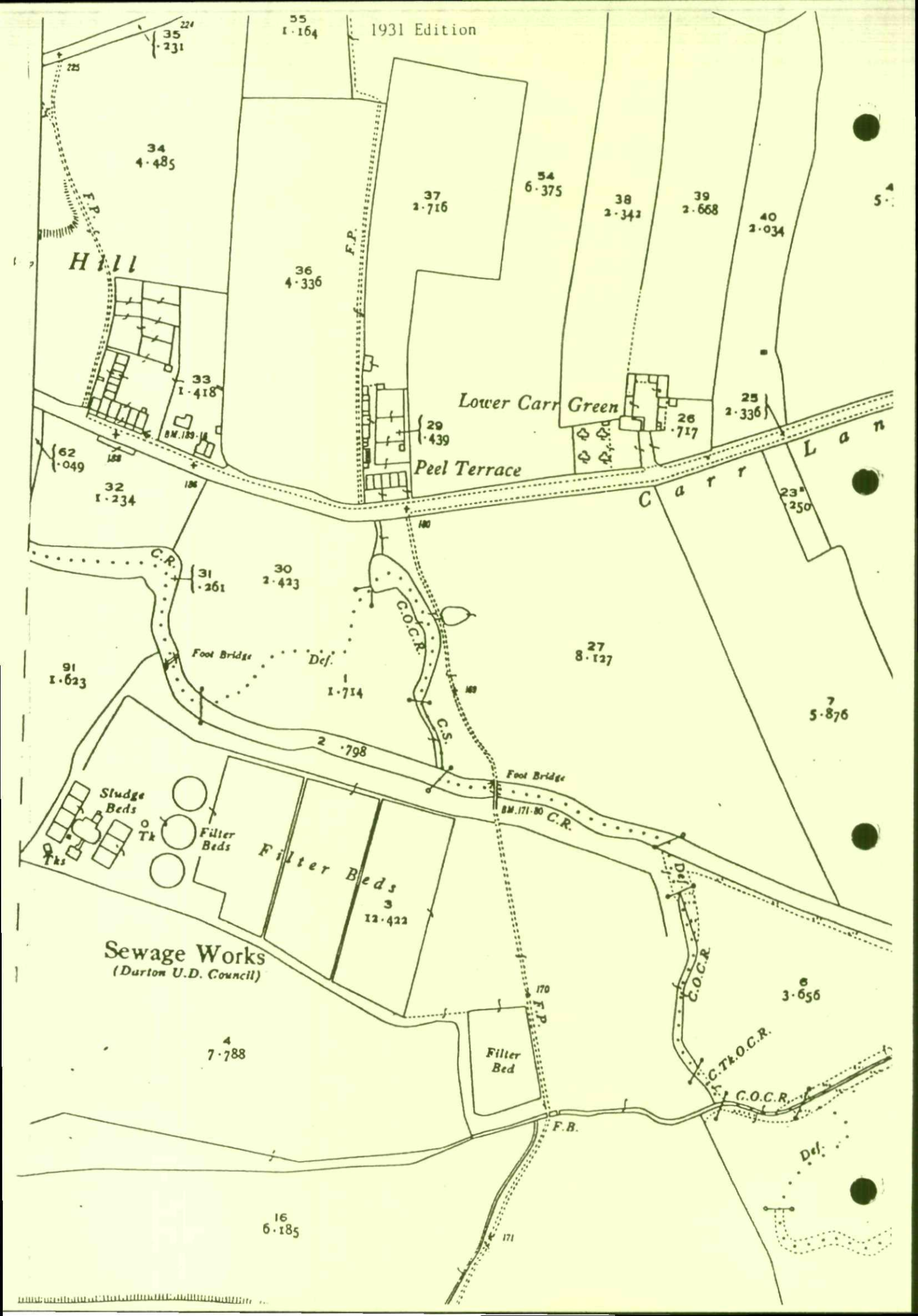
i) East Gawber Sewage Works
East Gawber Hall Colliery (remains)
Primrose Main Colliery (remains)
Wharncliffe Carlton Colliery (remains)

ii) Swallow Hill Sewage Works

iii) Darton Colliery & Brickworks

iv) Barugh Green Coking & Chemical Works


East Gawber Sewage Works
(Barnsley R D Council)
1931 Edition
Engineering Works
L.N.E.R.
STAIRFOOT & NOSTELL
Site of East Gawber Hall Colliery
East Gawber Colliery (Tip)
Co. & Party. Boro. Bdy.
Site of Primrose Plain
Site of Whamcliffe Carlton Colliery
F.F.
Def.
S.S.
S.P.
F.W.
J/R.H.
22 6·061
18 6·947
17 8·115
17a 7·507
16 2·357
15 4·767
1145 ·209
1142 7·429
1141 1·636
1140 ·755
1139 1·213
1138 11·463
47 2·472
2·038
7 14·882


1931 Edition
Hill
Lower Carr Green
Peel Terrace
Carr Lane
Foot Bridge
Def.
Foot Bridge
Sludge Beds
Filter Beds
Filter Beds
Sewage Works
(Durton U.D. Council)
Filter Bed
C.O.C.R.
C.R.
C.S.
C.Tk.O.C.R.
F.P.
F.B.
Tk
Tks
BM.171·80
BM.189·18

1931 Edition

M. S. R. BRANCH

Coalite Works

Barugh
Coke & By-Product Works

Chemical Works

Day House

Filter Bed

Coke Ovens

Pitch Beds

Tanks

Cooling Pond

Aerial Cable

Sluice

Stone

Chy

Tk

S.P

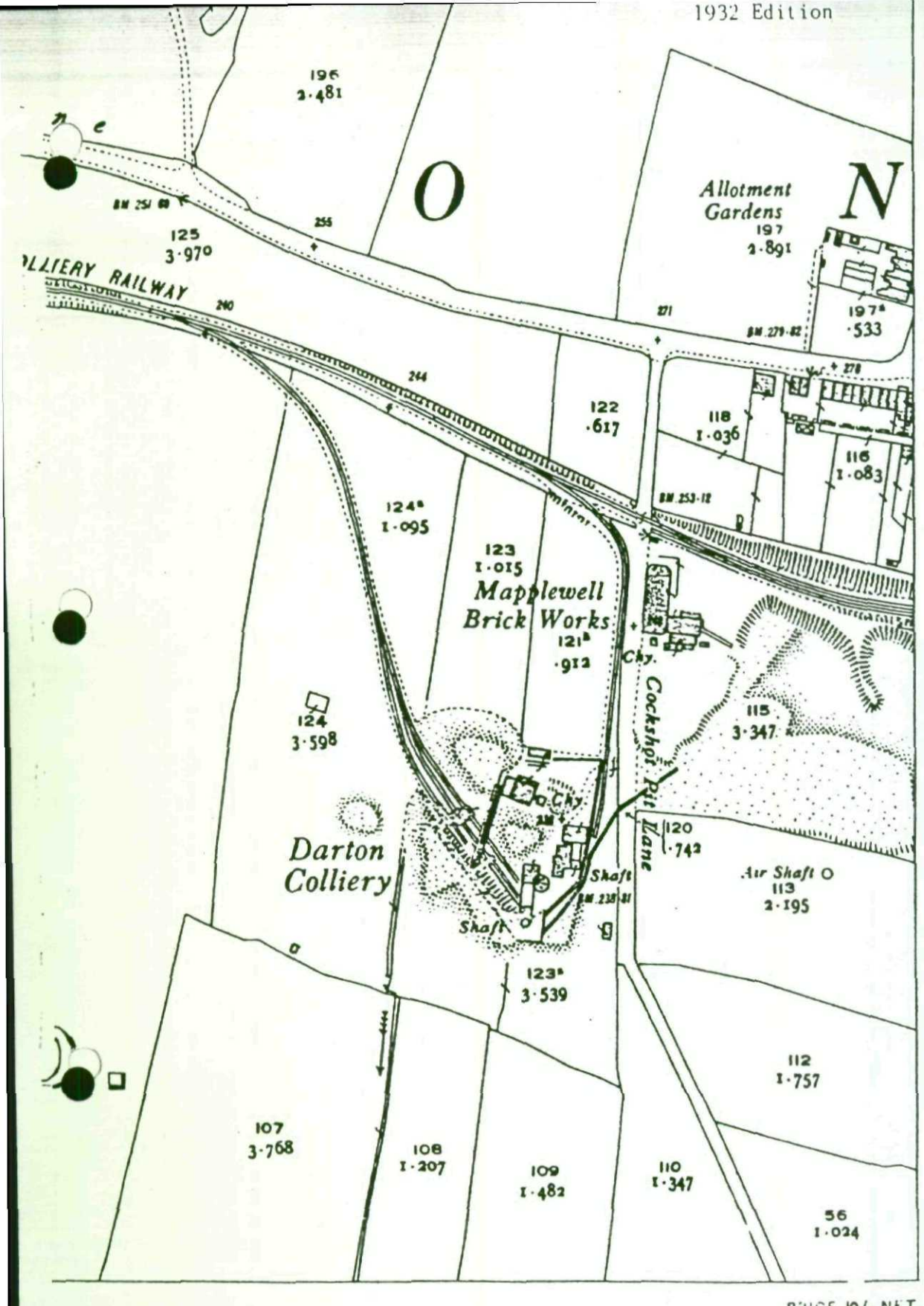
F.P

F.B.

G

H

1932 Edition



PRICE 10/- NET.

YORKS. CCLXII. 14.

08·33 Feet to One Inch.

25 30 35 40 Chains
or ½ Mile
1500 2000 2500 2600 Feet

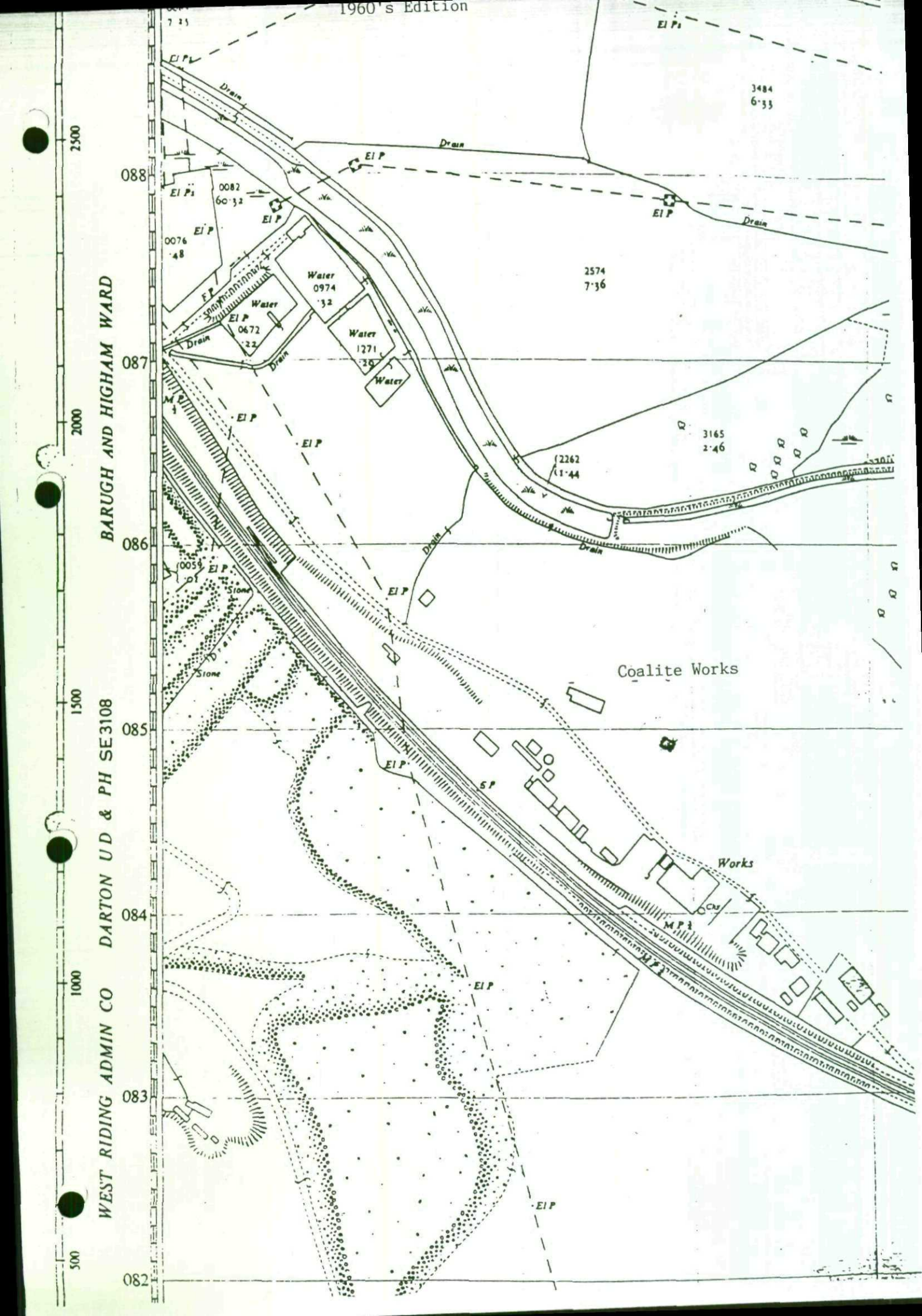
...e Director General at the Ordnance Survey Office, Southampton, 1932.

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APPENDIX 3

1960's Editions

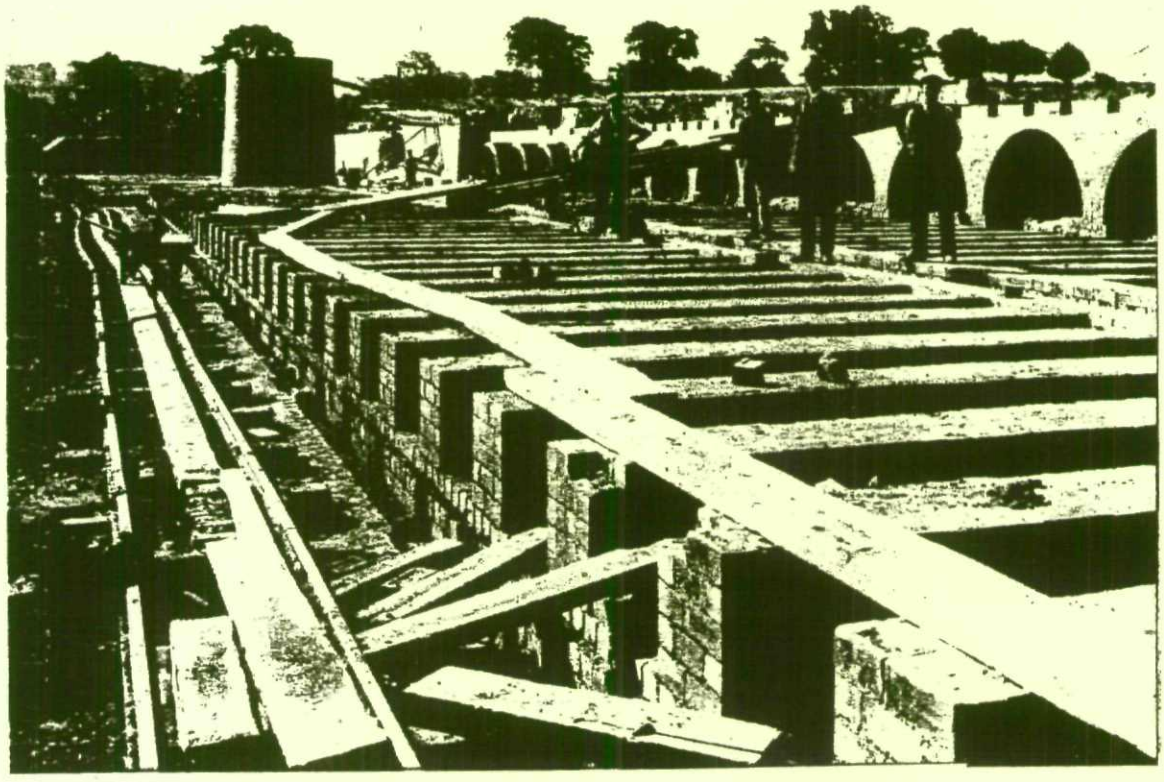
i) North Gawber Colliery
ii) Coalite Works


WEST RIDING ADMIN CO DARTON U D & PH SE3108
BARUGH AND HIGHAM WARD
2500
2000
1500
1000
500
088
087
086
085
084
083
082
Drain
El P
El Pi
Water
Stone
Coalite Works
Works
MP
SP
CNS
3484
6·33
2574
7·36
3165
2·46
2262
1·44
0082
60·32
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0672
·22
1271
·30
0059

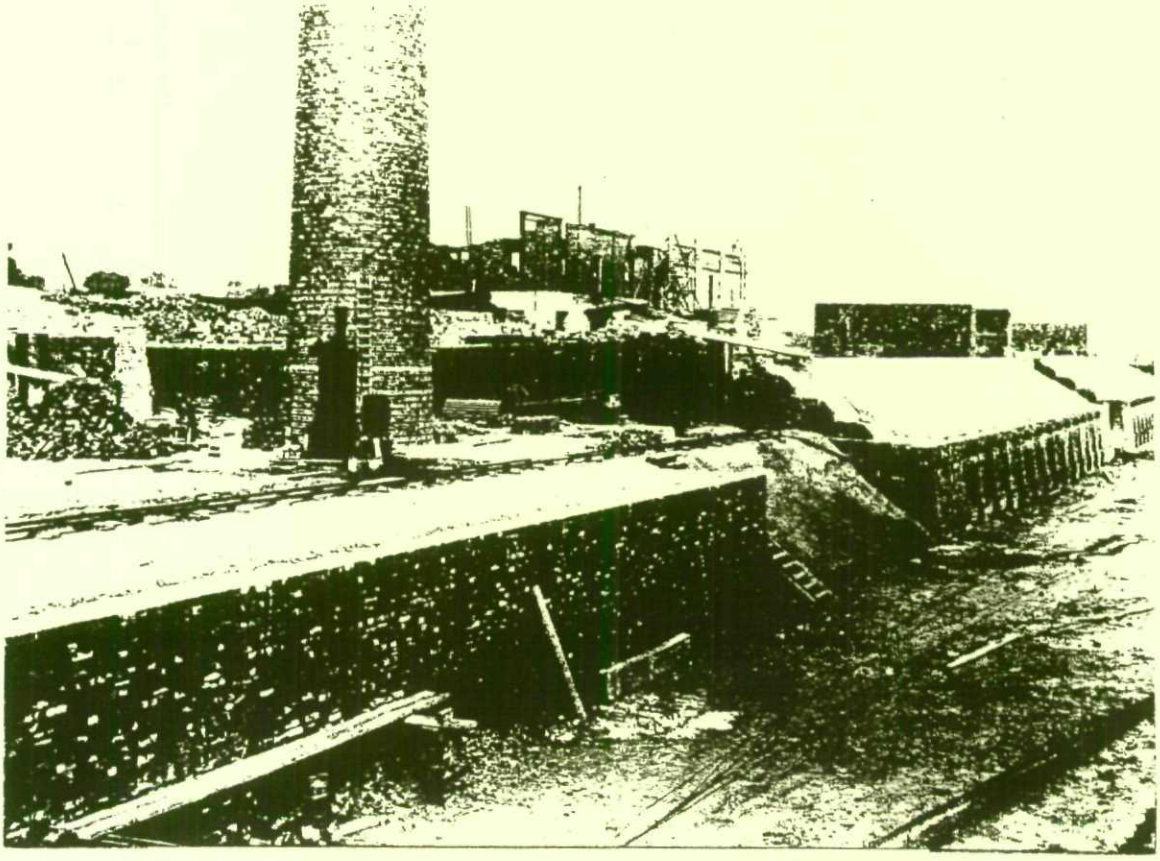

Hill End Farm
Blacker Hill
Blacker Fm
Cricketers Arms (PH)
EDWARD STREET
MINERAL RAILWAY
North Gawber
Mine
Level Crossing
Chimney
Pond
Drain
Standard
Works
ROAD
1960's Edition

APPENDIX 5

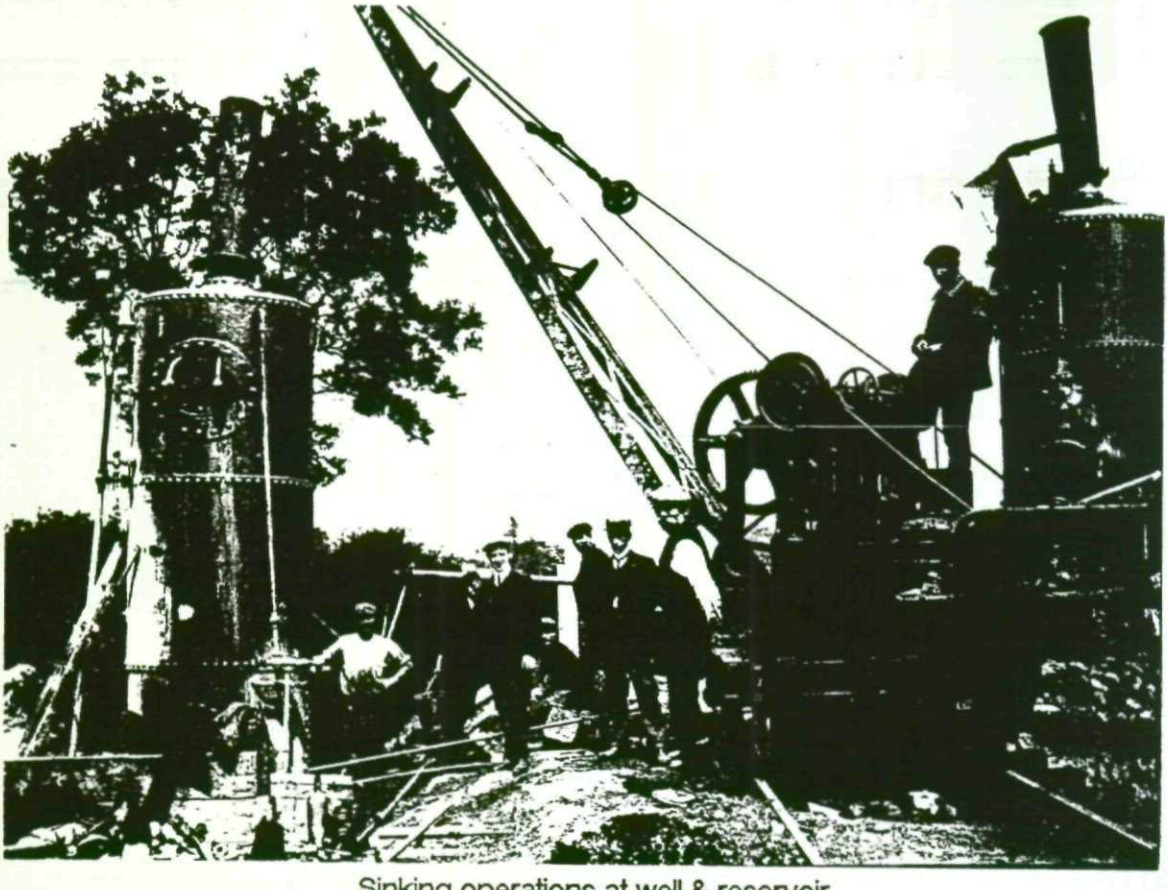
Photographs of Chemical Works under Construction



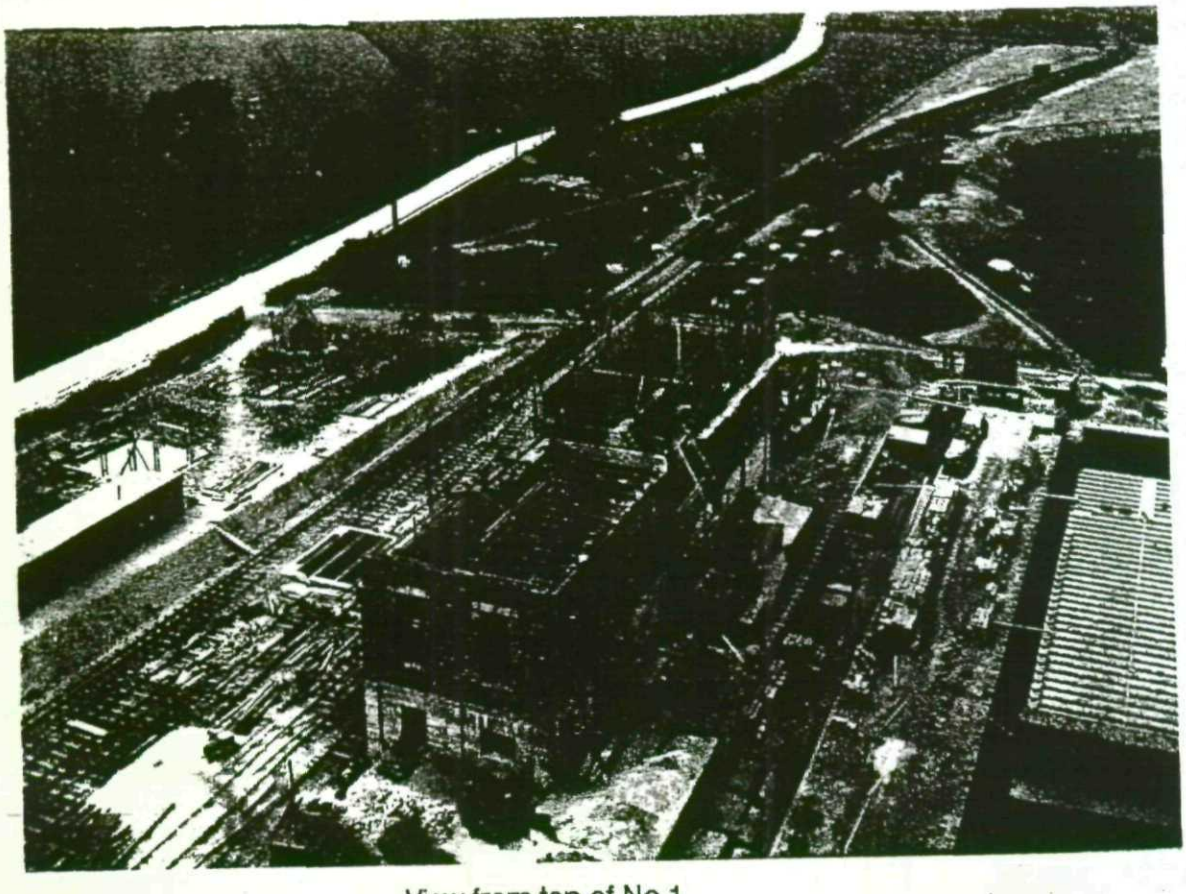
No 1 Battery - red brickwork foundation
ready for firebrick 20 06 1911



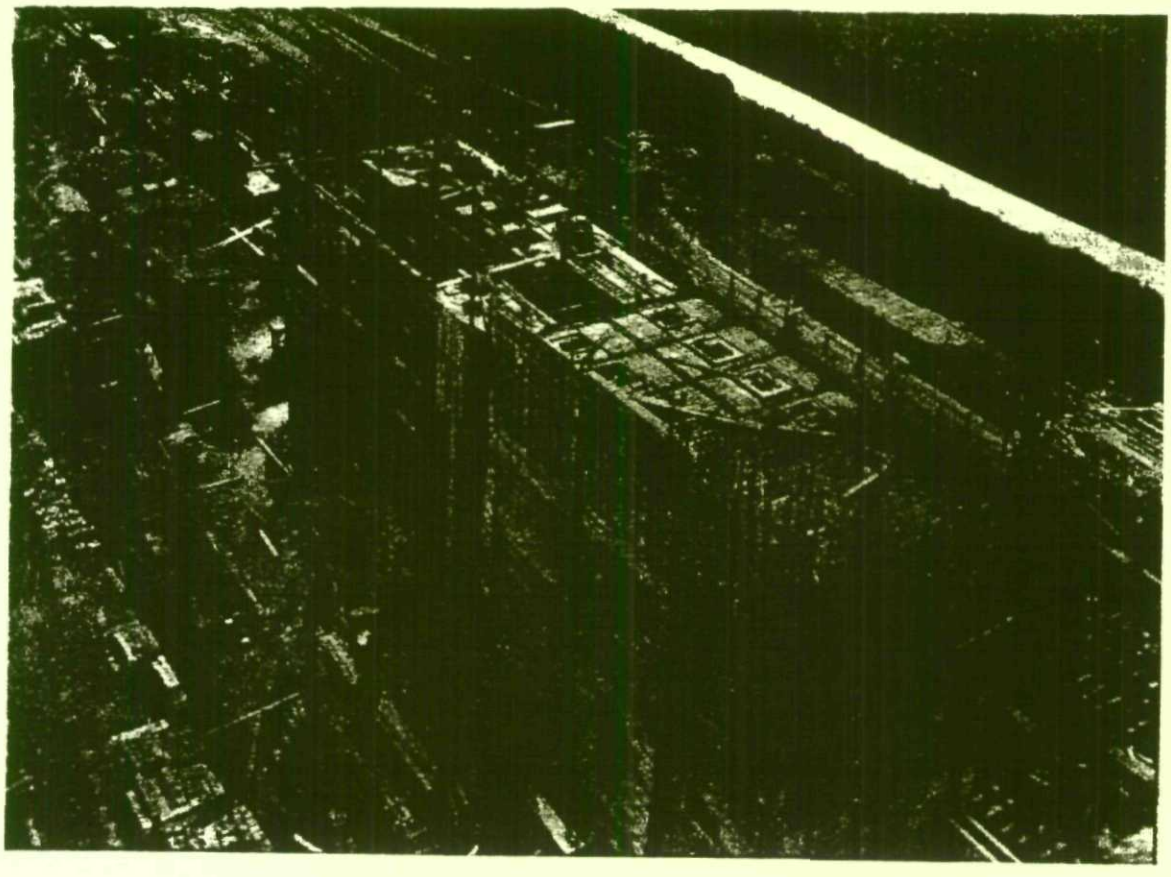
General view of works from SE corner



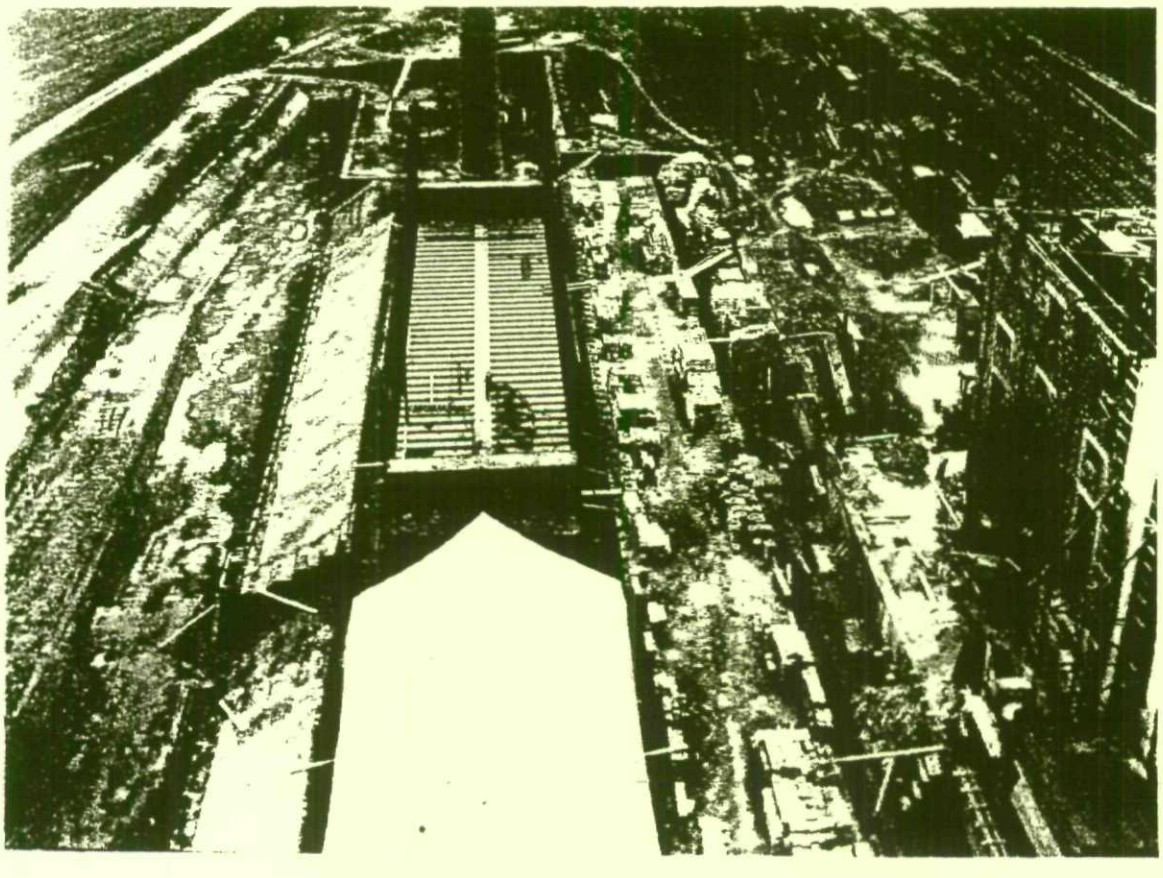
Sinking operations at well & reservoir
Crane and pump boiler 05 08 1911

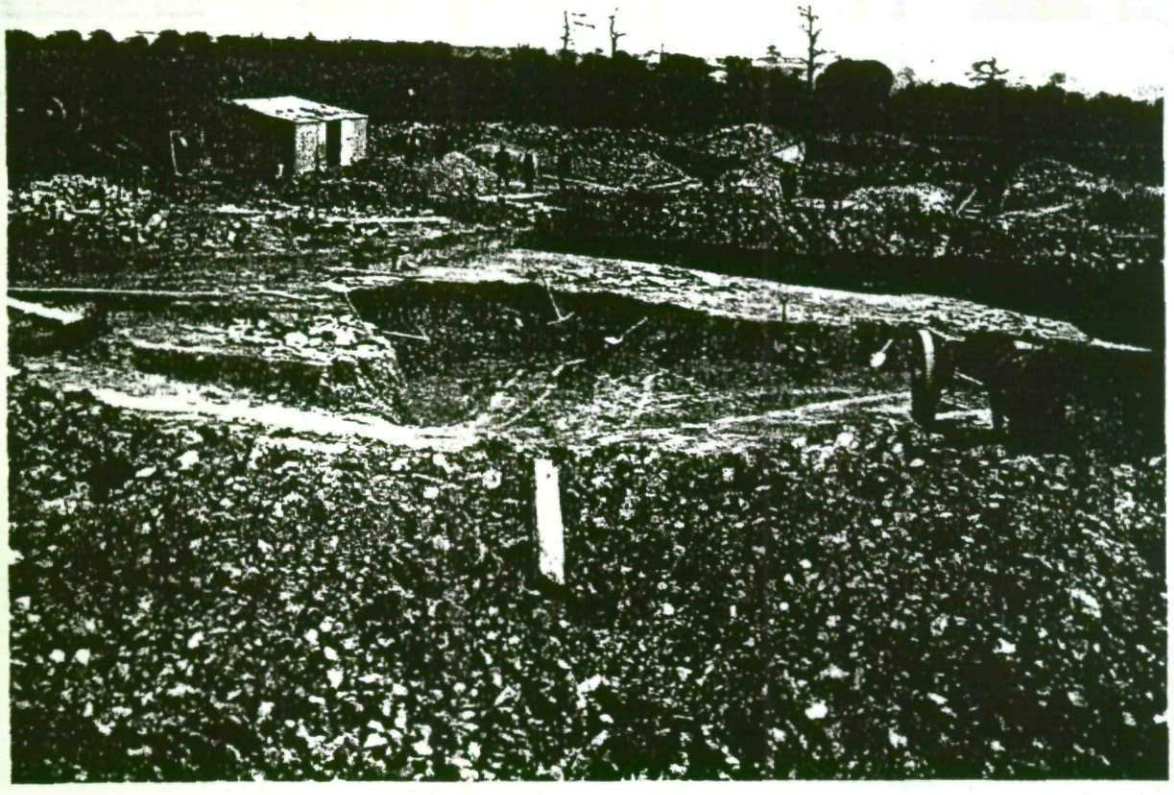


View from top of No 1
Battery chimney 05 08 1911

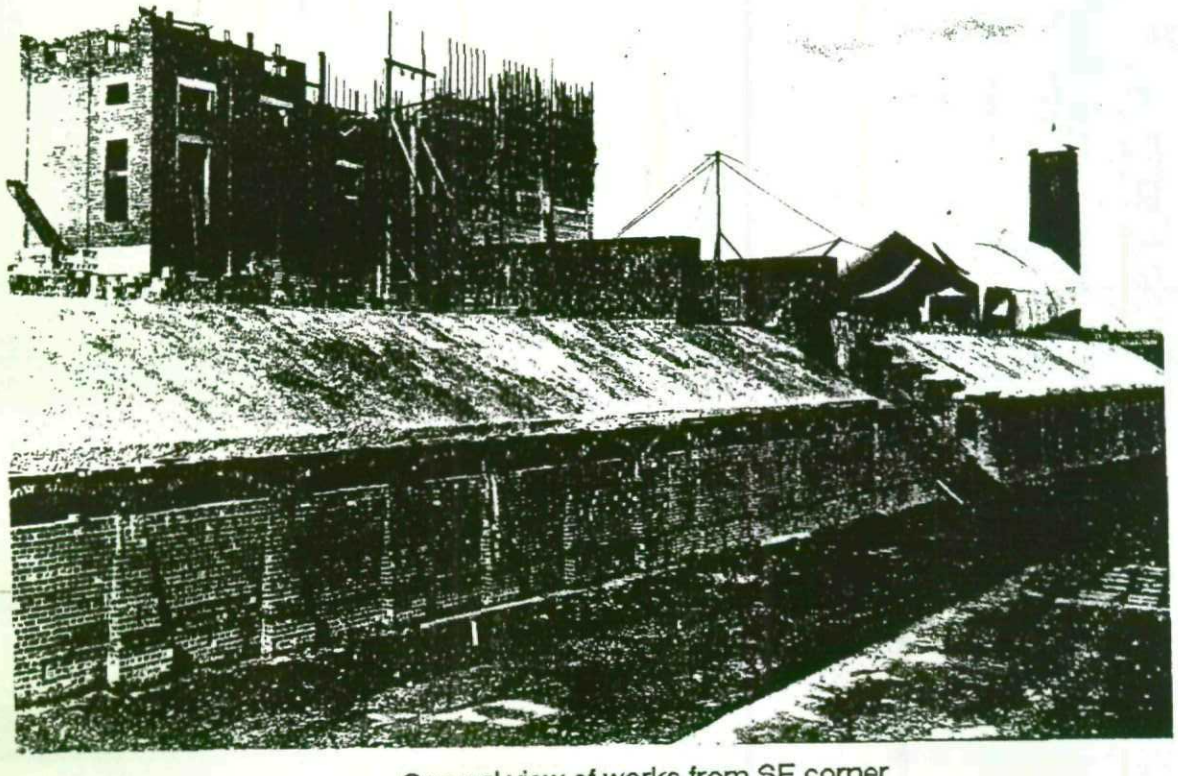


View from top of No 1
Battery chimney 22 08 1911





Excavations for Tar Plant 26 04 1912



General view of works from SE corner