South Shields Outline Masterplan Application

Phase I Geo-Environmental Assessment

For

Muse Developments and South Tyneside Council

Report Ref	Issue	Prepared by	Date	Reviewed by	Date
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EXECUTIVE SUMMARY

Area 1 – Barrington Street/St. Hilda's Square/King Street	
Land Use	This area includes a number of buildings, roadways, parking and landscaped areas, situated adjacent to and around Barrington Street, St. Hilda's Square, Chapter Row, Cornwallis Street and East Street, before connecting to the pedestrianised shopping parade of King Street to the north. An additional extent of land located to the east of Garden Lane is also included within this area.
Site History	From Richardsons Plan dated 1768, the site is located within the vicinity of South Shields town centre, with a former 'Mill Dam Valley' potentially extending below the southern site area. From 1858, the 'Mill Dam Valley' is no longer recorded, with this area comprising residential housing, a series of chapels, public houses and various commercial properties. By 1952, warehousing, a printing works and sub-station are recorded across the central and southern site areas.
Environmental Setting	• Geological plans record made ground below the southern site area, with these materials recorded as comprising Ships Ballast. Made ground is also anticipated below this area associated with various stages of redevelopment. • Glacial Till (Boulder Clay) deposits are recorded below the majority of the site, with the exception of the southern site area (i.e. area of made ground). • Bedrock deposits of the Middle Coal Measures are recorded below the site. • The site is not considered to be at risk from flooding. • There are no landfill sites recorded within 250m. However, made ground/fill is anticipated associated with infilling of the former 'Mill Dam Valley' and clay pits, along with made ground associated with nearby historical site usages. • The nearest watercourse is the River Tyne located around 106m west. • The underlying bedrock deposits are classed as a Secondary A Aquifer with the superficial soils classified as Unproductive Strata. • There are no licensed groundwater abstractions within 1km. • Radon protection measures are not required for future developments.
Contamination	Following a review of available data, there is a potential for unidentified contamination being present below the site associated previous site history and potential infilling of the former 'Mill Dam Valley'. At this stage, a low to moderate environmental risk is anticipated with respect to contamination.
Mining	The Coal Authority record workings beneath the site in 2 seams of coal from 120m to 180m depth. Any ground movement from these coal workings should have ceased by now. Following a review of available data, the High Main seam is shown to sub-crop 150m north-east and dip below the general site area to the south-west. Therefore, areas of this site could potentially be at risk from shallow coal mining activities (i.e. eastern extent of Chapter Row) with the level of potential risk generally decreasing to the south-west.
Ground Gas	Ground gas risk from on and off-site sources is considered low to moderate, primarily due to the potential presence of extensive made ground / fill materials below and within close proximity to the site (i.e. infilled 'Mill Dam Valley').
Foundations	For works situated wholly outwith the location of the former 'Mill Dam Valley', the use of conventional strip or trench fill foundations could represent a potentially viable solution, with foundations extended (utilising mass trench fill, or the like) where increased thicknesses of made ground are encountered. Should extensive made ground/fill be identified below the southern site area, ground improvement techniques or a piled foundation solution will likely represent the most viable option, with the use of ground improvement generally dependent upon the nature of the fill. Detailed foundation requirements should be assessed following the completion of an appropriate ground investigation.

Area 2 – Oyston Street Car Park	
Land Use	This area encompasses an existing car park, with associated hard-standing (tarmac and paving) and surrounding areas of informal soft landscaping.
Site History	From Richardsons Plan dated 1768, the site is shown to likely extend across the area of a recorded 'Mill Dam Valley'. From 1858, the 'Mill Dam Valley' is no longer recorded with the site comprising mixed commercial and residential properties with various roadways. By 1897, the site is again shown as being located within the extents of a former 'Mill Dam Valley'. By 1963, the former buildings have been demolished, with the western site recorded as car park and the northern area shown is a garage and possible petrol filling station. From 2006, the whole of the site is recorded as a car park.
Environmental Setting	• Geological plans record made ground below the northern site area with these materials recorded as comprising Ships Ballast. Made ground is also anticipated below this area associated with various stages of redevelopment. • Geological plans record the majority of the site as being underlain by Alluvium drift deposits, with the made ground below the northern site area likely underlain by Glacial Till and/or Alluvium. • Bedrock deposits of the Middle Coal Measures are recorded below the site. • The site is not considered to be at risk from flooding. • There are no landfill sites recorded within 250m. However, made ground/fill is anticipated below and within close proximity to the site primarily associated with infilling of the former 'Mill Dam Valley' and nearby clay pits. • There are no surface water features recorded within 250m. • The underlying bedrock deposits are classed as a Secondary A Aquifer with the superficial soils classified as both a Secondary A Aquifer (Alluvium) and Unproductive Strata (Glacial Till). • There are no licensed groundwater abstractions within 1km. • Radon protection measures are not required for future developments.
Contamination	There is a potential for unidentified contamination being present below the site associated previous site history as a garage and possible petrol filling station, along with likely infilling of the former 'Mill Dam Valley'. At this stage, a low to moderate environmental risk is anticipated with respect to contamination.
Mining	The Coal Authority record workings beneath the site in 2 seams of coal from 120m to 180m depth. Any ground movement from these coal workings should have ceased by now. Following a review of available data, this area is not considered to be at significant risk from shallow coal mining activities.
Ground Gas	Ground gas risk from on and off-site sources is considered moderate, primarily due to the potential presence of extensive made ground / fill materials below and within close proximity to the site (i.e. infilled 'Mill Dam Valley') and previous site usage as a garage and petrol filling station.
Foundations	Potentially extensive made ground/fill materials are likely present below the site associated with infilling of the former 'Mill Dam Valley'. In addition, variable thicknesses of made ground are anticipated associated with previous site history (i.e. former garage), with these materials generally overlying natural potentially variable strength Alluvium deposits. At this stage, it is considered likely that ground improvement techniques or a piled foundation solution will be required for any future redevelopment works across this area, with the use of ground improvement generally dependent upon the nature of the fill materials. Detailed foundation requirements should be assessed following the completion of an appropriate ground investigation.

Area 3 – Fowler Street West	
Land Use	This area comprises a number of car parking areas, various commercial properties and a petrol filling station, situated adjacent to and around Charlotte Street, Franklin Street, Thomas Street, Mount Terrace and St. Hilda Street, including a railway underpass linking the site to the adjacent Garden Lane.
Site History	From 1858, large areas of the site are recorded as residential housing, whilst the northern site area is recorded as part of Oysten's Brick Field, with an associated clay pit. A second clay pit also extends onto site from the south-west. By 1897, the site is predominantly residential with the former clay pits likely infilled. From 1952, various commercial properties are also recorded on site, including a rope works, garages, builder's yard and depot, whilst a petrol filling station is recorded adjacent to the southern boundary by 1977. Ongoing redevelopment has also resulted in large areas of the former residential housing being converted into public car parking.
Environmental Setting	• Geological plans record an area of made ground below the north-eastern site area associated with the infilling of a former clay pit. Made ground is also anticipated associated with various stages of redevelopment. • Geological plans record the majority of the site as being underlain by Glacial Sand and Gravel drift deposits, with Laminated Clay shown to extend below the northern site area and Alluvium below the north-western corner. • Bedrock deposits of the Middle Coal Measures are recorded below the site. A fault within the bedrock crosses the northern site area (St. Hilda Fault). • The site is not considered to be at risk from flooding. • There are no landfill sites recorded within 250m. However, made ground/fill is anticipated below the general site area associated with infilling of the former clay pits along with nearby historical site usages. • There are no surface water features recorded within 250m. • The bedrock deposits are classed as a Secondary A Aquifer with the superficial soils classified as a Secondary A Aquifer (Sand and Gravel) and Unproductive Strata (Laminated Clay). • There are no licensed groundwater abstractions within 1km. • Radon protection measures are not required for future developments.
Contamination	There is a potential for unidentified contamination being present below the site associated current and previous site usage. At this stage, a low to moderate environmental risk is anticipated with respect to contamination.
Mining	The Coal Authority record workings beneath the site in 2 seams of coal from 120m to 290m depth. Any ground movement from these coal workings should have ceased by now. Following a review of available data, this area is not considered to be at significant risk from shallow coal mining activities.
Ground Gas	Ground gas risk from on and off-site sources is considered low to moderate, primarily due to infilling of the former clay pits and the nearby 'Mill Dam Valley'.
Foundations	For the majority of the site, the use of conventional strip or trench fill foundations could represent a potentially viable solution, with foundations extended (utilising mass trench fill, or the like) where increased thicknesses of made ground are encountered. Alternatively, a rafted foundation solution and/or ground improvement techniques could also be utilised When considering the potential for variable Alluvium deposits below the north-western site area and extensive made ground below northern and south-western site areas (infilled clay pits), ground improvement or a piled foundation solution will likely be required for any future redevelopment works extending across this areas, with the use of ground improvement generally dependent upon the nature of the fill materials. Detailed foundation requirements should be assessed following the completion of an appropriate ground investigation.

1 INTRODUCTION

1.1 3e Consulting Engineers Ltd (3e) were commissioned by Muse Developments and South Tyneside Council to carry out a Phase I Geo-Environmental Assessment for the proposed regeneration of three distinct areas within South Shields town centre, which together form the outline masterplan application boundary. This report highlights ground related environmental and geotechnical considerations in relation to each regeneration area, the location and extents of which are indicated on **Figure 1** and **Figure 2**.

1.2 Due to the size and location of the three regeneration areas it has been deemed prudent for reporting purposes to deal with each individual area separately.

1.3 The objectives of this assessment were:

- To establish the historical development of each site and the surrounding area.
- To establish the environmental setting of each proposed regeneration area.
- To assess the potential impact of subsurface mining for each regeneration area.
- To determine if historical or current activities could give rise to significant ground or groundwater contamination.
- To assess the potential for hazardous ground gas.
- To determine the potential risks posed by contamination arising from historical or current activities on or in the vicinity of each proposed regeneration area.

1.4 This study has included a site visit, an inspection of historical maps, a review of environmental data held on publicly available registers and other sources as indicated within the report. This report presents the factual information available during this appraisal, interpretation of the data obtained and recommendations relevant to the scope of works outlined above. It has been assumed in the production of this report that the site is to be redeveloped for a commercial end use.

1.5 The comments and opinions presented in this report are based on the findings of the available desk study investigation carried out by 3e. Responsibility cannot be accepted for any conditions not revealed by this desk study and which have not been taken into account by this report.

1.6 This report has been prepared for the sole use of Muse Developments. No other third party may rely upon or reproduce the contents of this report without the written approval of 3e. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and 3e do not owe them any Duty of Care or Skill.

2 REGENERATION AREAS

Location and Description

2.1 All three proposed regeneration areas are located within South Shields town centre, the extents of which are indicated on the Area Outline Plan included as **Figure 2**. These areas currently comprise numerous buildings, hard-standing and soft landscaped grounds; both formal and informal. A site location plan encompassing all three proposed regeneration areas is included as **Figure 1.**

2.2 For the purpose of this report each application area is referenced as the following:

- Area 1 – Barrington Street, St. Hilda's Square and King Street.
- Area 2 – Oyston Street Car Park.
- Area 3 – Fowler Street West.

2.3 This assessment has been designed to ensure that potential issues associated with each regeneration area have been individually considered, including but not limited to obtaining area specific environmental data and Coal Authority mining reports.

Area 1 – Barrington Street / St. Hilda's Square / King Street

2.4 Area 1 is located within the northern extent of South Shields town centre, and is centred on a National Grid Reference (NGR) of 436170, 567100. This area includes a number of buildings, roadways, parking and landscaped areas, situated adjacent to and around Barrington Street, St. Hilda's Square, Chapter Row, Cornwallis Street and East Street, before connecting to the pedestrianised shopping parade of King Street to the north. An additional extent of land located to the east of Garden Lane is also included within this area.

2.5 During the walkover survey, buildings occupying the site were noted to comprise predominantly mixed commercial properties, including a Job Centre, public housing and a number of shops along King Street to the north. Various roadways also bisect the site, with car parking and a bus stop present across the central site area, including the location of the former General Havestock public house. The area to the north-east of the Job Centre was noted as being undeveloped, whilst the area to the east of Garden Lane was noted as a pedestrianized zone. An Electricity Sub-Station is also situated to the east of St. Hilda's Square.

2.6 Photographs taken during the walkover survey are included as **Figure 3.**

Area 2 – Oyston Street Car Park

2.7 Area 2 is located within the centre of South Shields town centre, and is centred on a NGR 436260, 567020. This area encompasses an existing car park, with associated hard-standing (tarmac and paving) and surrounding areas of informal soft landscaping.

2.8 During the walkover survey, the site was noted to be generally level with a slight fall in gradient noted to the north-east. A drop in gradient was also noted along the northern boundary between the existing car park and adjacent Coronation Street. A Gas Holder was also noted adjacently south-east of the site which remains in use.

2.9 Photographs taken during the walkover survey included as **Figure 4.**

Area 3 – Fowler Street West

2.10 Area 3 is located within the eastern extent of South Shields town centre, and is centred on a NGR 436460, 566900. This area comprises a number of car parking areas, various commercial properties and a petrol filling station, situated adjacent to and around Charlotte Street, Franklin Street, Thomas Street, Mount Terrace, Fowler Street and St. Hilda Street, including a railway underpass linking the site to the adjacent Garden Lane.

2.11 During the walkover survey, the north-eastern and eastern extents of the site comprised hard-standing (i.e. asphalt) associated with existing public car parking areas, with a large area of undeveloped land located on the corner of Charlotte Street and St. Hilda Street. The building/s on the corner of Thomas Street and William Street were no longer present with this area now utilised for the storage of building supplies.

2.12 Numerous commercial properties were located along the length of Fowler Street and Franklin Street, with properties along Franklin Street including a club, car body repair centre, vehicle maintenance garage and an MOT centre. A Petrol Filling Station is also located to the south of St. Hilda Street, whilst a Timber Merchant occupies the large commercial building situated to Garden Lane.

2.13 Photographs taken during the walkover survey included as **Figure 5.**

3 SITE HISTORY

3.1 In order to establish the history of each proposed regeneration area a series of historical maps, dating between 1858 and 2014, were obtained as part of the Envirocheck report. A summary of the information for each individual regeneration area is provided below and a copy of the maps is included as **Appendix B**.

3.2 A review of available data has also identified a potentially significant historical feature dating prior to 1858, below and within close proximity to the general location of Areas 1 and 2, with further enquiries having allowed 3e to obtain an extract of 'Richardson 1768 Plan of the Townships of South Shields and Westoe'. The extrapolated location of Area 2 in relation to this plan is included as **Figure 6**, however it should be noted that this plan is indicative only and shows the generalised location of Area 2 based upon available historical data.

Area 1 – Barrington Street / St. Hilda's Square / King Street

Map Dates	On-Site Features	Relevant Off-Site Features
Richardson Plan 1768	The site (Area 1) is located within the vicinity of South Shields town centre, with a former 'Mill Dam Valley' potentially extending below the southern site area.	The site is generally located within the vicinity of South Shields town centre. A 'Mill Dam' feature is located adjacent to the site which feeds into the River Tyne.
1858 - 1938	The site is shown as predominantly residential housing with associated roadways, along with a series of chapels, public houses and various commercial properties. An overhead railway line crosses the eastern extent of King Street. From 1897, a Tramway also runs along King Street.	The site is located within a residential and commercial setting. A Graveyard is located adjacently south-west. A series of Ballast Hills are shown 70m to 220m south-west and 160m north. St Hilda Colliery is recorded 180m south. Oyston's Brick Field is located 180m south-east with this feature no longer shown by 1897. The Ballast Hills to the north and south-west are no longer shown by 1915.
1952 - 2014	The majority of the site has been redeveloped with the buildings across the central and southern areas now including; warehousing, printing works and an electricity sub-station. From 1956, the area to the east of Garden Lane is shown as generally undeveloped. From 1963, the works across the central site area has been extended with a car park recorded to the north. By 1994, the works across the central area has reduced in size and is no longer present by 2014.	A series of railway lines and adjacent areas of fill are recorded to the east. St. Hilda Colliery is shown as "disused". A spoil heap is also recorded 70m north, which is no longer shown by 1963. By 1993, the land to the east and south-east has been redeveloped with no remaining fill materials shown.

3.3 In summary, it can be seen that Area 1 has undergone various stages of development prior to 1858, with historical site usages including residential housing, printing works, public houses, warehousing and car parking. An electricity sub-station is located across the central site area.

3.4 Although the historical plans show the site to be generally outside of the 'Mill Dam Valley'; geological plans indicate that an area of made ground extends below the southern site area potentially associated with this feature and therefore it may be possible that significant made ground / fill materials will be present below this area of the site.

3.5 Historically recorded and potentially contaminative site and off site usages have included mills, works, collieries, etc., along with made ground / fill materials associated with historical ballast hills, railway lines, infilling of former clay pits, the infilled 'Mill Dam Valley' and the nearby former St. Hilda Colliery site with all these features potentially representing a risk to the future redevelopment proposals.

Area 2 – Oyston Street Car Park

Map Dates	On-Site Features	Relevant Off-Site Features
Richardson Plan 1768	The site (Area 2) is shown to likely extend across the area of a recorded 'Mill Dam Valley'.	The site is located within a predominantly rural setting with South Shields town centre recorded to the north. A 'Mill Dam' feature is located adjacently west which feeds into the nearby River Tyne.
1858 - 1862	The Mill Dam is now unrecorded, likely to have been infilled with the site comprising predominantly mixed commercial and residential properties with various roadways.	The remainder of Mill Dam is unrecorded, infilled. St. Hilda Colliery is located 140m south-west. A series of spoil heaps and railway lines are shown 80m south-west. A Gas Works is located 50m south-west, whilst a railway line is located 45m east. A series of Brick Fields are shown to the south, south-east and east with associated clay pits recorded 85m south, 110m east, 110m south, 190m south-east and 230m south-east. A Ballast Hill is also recorded 220m south-west.
1897 - 1938	Generally as 1858 – 1862. The site is recorded as being located within Mill Dam Valley. From 1915, a school extends across the south-western area.	The nearby clay pits are no longer recorded and have been likely infilled. A Gasometer is located to the south-east, whilst numerous railway lines are shown 60m south and south-west. A Mill is located 90m south-west, whilst the nearby Ballast Hill is no longer recorded.

Map Dates	On-Site Features	Relevant Off-Site Features
1952 - 1956	The majority of the buildings have been demolished. A platform is recorded across the central site area.	St. Hilda Colliery is shown as disused, whilst the nearby Mill is recorded as a Battery Factory. The Gas Works to the south-west is no longer recorded. Ongoing redevelopment of the town centre is recorded within close proximity.
1963 - 1994	The western area is recorded as a car park, whilst a garage (possible petrol filling station) is shown across the eastern area.	A Refuse Tip is shown 120m south-east which is no longer recorded by 1974.
2006 - 2014	The site is recorded as a car park.	Generally as 1963 – 1994. From 2014 a superstore is recorded adjacently west.

3.6 In summary, it can be seen that Area 2 has also undergone various stages of development prior to 1858, with site usages including; commercial and residential buildings, a school, a car park and a garage. From Richardson's plan dated 1768, the site is also shown to potentially extend across the location of the former 'Mill Dam Valley'.

3.7 Following a review of available data, the former garage on site is potentially shown as a petrol filling station with associated infrastructure (i.e. forecourt and possible pump island) indicated on historical aerial photography. Therefore, there may be a potential for decommissioned underground storage tanks (UST's) to be present below the eastern site area, although these features could potentially have been removed as part of construction works undertaken for the existing car park.

3.8 When considering nearby and potentially contaminative historical site usages, these include the infilling of the former 'Mill Dam Valley' with potentially extensive made ground / fill materials likely present below these areas. Adjacent industrial activities (i.e. mill, battery factory, gas works, etc.,), along with made ground / fill materials associated with nearby historical railway lines, Ballast Hill, refuse tip, infilling of former clay pits and the nearby former St. Hilda Colliery site.

Area 3 – Fowler Street West

Map Dates	On-Site Features	Relevant Off-Site Features
1858 - 1862	The northern site area is recorded as part of Oyston's Brick Field with an associated clay pit. A second clay pit (Alderson's Brick Field) is shown to extend below the southern tip of the site. Residential housing is shown across the central and south-eastern site areas.	The site is located within a predominantly residential setting, with a railway line bounding the site to the north-west. A clay pit is recorded adjacently south-west, whilst clay pits are recorded 90m south-west, 120m west and 140m west. St Hilda Colliery, with associated railway lines and spoil heaps, is located 200m south-west.
1897 - 1938	The majority of the site is recorded as residential housing with associated roadways, whilst a number of commercial properties run along the area situated adjacent to Fowler Street. The former clay pits have been infilled.	The nearby clay pits are no longer recorded and have been likely infilled. A Gasometer is shown 30m west. Ongoing residential development is recorded within close proximity.
1952 - 1967	A wire rope works is recorded across the south-western area. The buildings along the southern boundary have been demolished. From 1967, a garage is located within the south-western corner.	St. Hilda Colliery is shown as disused, whilst an industrial works and garage are recorded to the south-west.
1968 - 2014	A builder's yard, depot and garage are recorded along the western boundary. From 1975, the rope works is recorded as a garage and warehouse, whilst a car park is shown across the northern area. A petrol filling station is recorded adjacent to the southern boundary. From 1977, the remaining residential housing has been demolished with these areas recorded as car parking.	A Refuse Tip is shown 40m west which is no longer recorded by 1974. A garage is recorded adjacently north, whilst the garage to the south-west is no longer recorded.

3.9 In summary, it can be seen that the site (Area 3) has undergone various stages of development prior to 1858, with historical site usage including; residential and commercial buildings, roadways, garages, a petrol filling station, car parking, a wire rope works, a builder's yard and a depot. A series of clay pits were also recorded across the northern site area and extending onto the site from the south-west, with potentially extensive made ground / fill materials likely present below these areas.

3.10 From the site walkover survey, additional site usage included a club, car body repair centre and MOT centre. In addition, underground storage tanks (UST's) associated with the petrol filling station are anticipated below the southern site area.

3.11 When considering nearby potentially contaminative site usages, these include adjacent industrial activities (i.e. railway land, gasometer and garages, etc.,). In addition, made ground / fill materials are likely present within close proximity to the site, associated with historical railway lines, refuse tip and the nearby former St. Hilda Colliery site. Potentially extensive made ground/fill materials are likely present within close proximity to the site associated with infilling of former clay pits and the former 'Mill Dam Valley'.

4 ENVIRONMENTAL SETTING

4.1 This section is based principally upon a search of information available on public registers together with other sources as indicated. This assessment has been designed to ensure that potential issues associated with each regeneration area are individually considered, including but not limited to obtaining area specific Envirocheck and Coal Authority Mining Reports.

4.2 A summary of the geology and mining risk assessment for each proposed regeneration area is based on available published information, utilising the following data sources:

- British Geological Survey (BGS) Sheets 15 Tynemouth and 21 Sunderland, 1:50,000 scale, Solid and Drift Editions.
- BGS Geological Map NZ36NE, 1:10,560 scale.
- Coal Authority Mining Reports, included in **Appendix C.**
- BGS Borehole Records and Shaft Details for St. Hilda Colliery, included in **Appendix D.**

4.3 The following sections have been completed for each individual area and are discussed below.

Area 1 – Barrington Street / St. Hilda's Square / King Street

Geology and Mining

Made Ground	Geological plans record made ground / fill below the southern edge of the site with these materials recorded as Ships Ballast. Made ground / fill is also anticipated below the site associated with previous site history (i.e. various stages of redevelopment), whilst an increased thickness of made ground / fill should be anticipated below the locations of former public houses. From historical borehole records, made ground comprising ash, brick and clay fill was recorded to the north of the site to a depth of 3.80m. An increased thickness of loose black ash, soft black silty clay and soft to firm gravelly clay, with ash, brick and concrete, was also recorded to depths of between 5.30m and 8.80m to the east and south-east of the site.

Superficial Deposits (Drift)	Geological plans record the majority of the site as being underlain by Glacial Till (Boulder Clay) with the exception of the southern site area (i.e. area of recorded made ground). From BGS borehole records, drift deposits comprising firm to stiff sandy gravelly clay were recorded to the north of the site up to in excess of 10.00m, whilst variable drift deposits including soft to firm laminated clay, firm to stiff sandy gravelly clay and medium dense sand were recorded to the east and south-east of the site to a maximum recorded depth of 19.30m. From contour lines shown on plan NZ36NE, rock-head level is recorded at depths of between 23m to 28m below the site, with depth to rock-head becoming shallower to the south.
Solid Geology (Bedrock)	Carboniferous Middle Coal Measures. Sandstone deposits are recorded at 'rock-head' level below the majority of the site, whilst mudstone is recorded at 'rock-head' level below the south-western area.
Mining	The Coal Authority record workings beneath this area in 2 seams of coal from 120m to 180m depth. Any ground movement from these coal workings should have stopped by now. A Coal Authority mining report is included as **Appendix C**. From geological plans, the shallowest potentially worked seam below this site is considered to be the High Main (HM), which is shown to sub-crop 150m north-east and dip below the general site area to the south-west. The extrapolated position of the High Main seam is indicated at depths of between 47m to 58m below current site levels (i.e. around 14m to 35m below 'rock-head' level), with the depth of potential workings generally increasing to the south-west. The High Main seam is locally recorded between 0.66m to 1.95m in thickness. When considering the locally recorded thickness of the High Main seam, a minimum rock cover thickness of 20m would generally be required to mitigate the risk of future void migration. This suggests that areas of the site (i.e. eastern extent of Chapter Row) could potentially be at risk from shallow coal mining activities with the level of potential risk generally increasing to the north-east and decreasing to the south-west.
Quarrying	None recorded on site. However, a clay pit was located 180m south-east.

Hydrology and Hydrogeology

4.4 A summary of available information pertaining to hydrology, hydrogeology, flood risk potential, water abstractions, discharge consents and pollution incidents to controlled waters for each proposed regeneration area is provided below.

Watercourses	The River Tyne is located 106m west of the site.
Flood Risk	The site does not lie within a Zone 2 or Zone 3 flood risk area i.e. at risk from flooding from rivers or sea.
Groundwater Classification	Solid Geology: Secondary A Aquifer. Superficial Geology: Unproductive Strata. No aquifer designation is given for the made ground materials below the southern site area (i.e. former 'Mill Dam Valley').
Source Protection Zones	NR within 1km.
Springs and Wells	NR within 250m.

NR – None Recorded

Landfill Sites and Waste Management

4.5 A summary of information regarding landfill sites (historical or current) and waste management facilities for each proposed regeneration area is provided below.

Registered Landfill Sites	NR within 250m.
Historical Landfill Sites	NR within 250m.
Other Waste Management Facilities	2 no. recorded 94m south and 47m south-west associated with an existing scrapyard and former metal recycling facility (now surrendered).

NR – None Recorded

Pollution Controls and Industrial Land Use

4.6 A summary of Pollution Control records and potentially polluting activities (fuel stations) for each proposed regeneration area is provided below.

Integrated Pollution Controls (IPC)	NR within 250m.

Integrated Pollution Prevention and Control	NR within 250m.
LA Pollution Prevention and Controls (PPC)	2 no. recorded 7m south and 187m south-east, neither of which are considered to represent a significant risk to this site.
Petrol Filling Stations	1 no. recorded 58m south-east associated with the former Garden Lane Service Station (now obsolete/demolished).

NR – None Recorded

Radon

4.7 Inspection of the BRE publication BR211 (2007), "Radon: Guidance on protective measures for new buildings" indicates that Area 1 does not lie in an area where radon protection measures are required.

Other

4.8 There are 4 no. BGS Recorded Mineral Sites recorded 166m south-east, 204m south and 246m north-east of the site associated with former clay pits and St. Hilda's Colliery.

4.9 There is 1 no. COMAH and NIHHS site recorded 94m to 98m south-east associated with an existing Gasholder (record no longer supplied under COMAH regulations). A Planning Hazardous Substance Consent is also recorded 87m south-east associated with this feature.

Area 2 – Oyston Street Car Park

Geology and Mining

Made Ground	Geological plans record made ground / fill below the northern site area with these materials recorded as Ships Ballast. Made ground is also anticipated below the site associated with previous site history (i.e. commercial/residential properties, roadways and former garage). An increased thickness of made ground / fill may also be present below the site associated infilling of the historical 'Mill Dam'. From historical borehole records, made ground comprising loose black ash, soft black silty clay and soft to firm gravelly clay, with ash, brick and concrete, was recorded to depths of between 5.30m and 8.80m to the north-east of the site.
Superficial Deposits (Drift)	Geological plans record the majority of the site as being underlain by Alluvium drift deposits, with the made ground below the northern site area likely underlain by Glacial Till and/or Alluvium. Drift deposits generally comprising soft to firm laminated clay, firm to stiff sandy gravelly clay and medium dense sand deposits were recorded to the east and south-east of the site, to a maximum recorded depth of 19.30m. From contour lines shown on plan NZ36NE, rock-head level is recorded at depths of between 12m to 21m below the site, with depth to rock-head becoming shallower to the south.
Solid Geology (Bedrock)	Carboniferous Middle Coal Measures. A fault within the solid deposits is recorded adjacently south of the site (St. Hilda Fault), which downthrows to the south.
Mining	The Coal Authority record workings beneath this area in 2 seams of coal from 120m to 170m depth. Any ground movement from these coal workings should have stopped by now. A Coal Authority mining report is included as **Appendix C**. From geological plans, the shallowest potentially worked seam below this site is considered to be the High Main, which sub-crops 230m north-east and dips below the site to the south-west. The extrapolated position of the High Main seam is indicated at depths of between 37m to 53m below current site levels (i.e. around 25m to 32m below 'rock-head' level), which generally concurs with the depth of the shallowest potentially viable seam indicated within shaft details for St. Hilda Colliery (i.e. 47m). When considering the above, there is considered to be sufficient overlying rock cover to arrest potential collapse processes (i.e. void migration) associated with potential workings within the High Main seam. Therefore, this area (Area 2) is not considered to be at risk from shallow coal mining activities.

Quarrying	None recorded on site. However, a series of clay pits were recorded 85m south, 110m east, 110m south, 190m south-east and 230m south-east of the site.

Hydrology and Hydrogeology

4.10 A summary of available information pertaining to hydrology, hydrogeology, flood risk potential, water abstractions, discharge consents and pollution incidents to controlled waters for each proposed regeneration area is provided below.

Watercourses	NR within 250m.
Flood Risk	The site does not lie within a Zone 2 or Zone 3 flood risk area i.e. at risk from flooding from rivers or sea.
Groundwater Classification	Solid Geology: Secondary A Aquifer. Superficial Geology: Alluvium – Secondary A Aquifer and Glacial Till - Unproductive Strata. No aquifer designation is given for the made ground materials below the northern site area.
Source Protection Zones	NR within 1km.
Springs and Wells	NR within 250m.
Licensed Surface Water Abstractions	NR within 1km.
Licensed Groundwater Abstractions	NR within 1km.
Discharge Consents	NR within 250m.
Pollution Incidents	NR within 250m.

NR – None Recorded

Landfill Sites and Waste Management

4.11 A summary of information regarding landfill sites (historical or current) and waste management facilities for each proposed regeneration area is provided below.

Registered Landfill Sites	NR within 250m.
Historical Landfill Sites	NR within 250m.
Other Waste Management Facilities	2 no. recorded 29m south-west and 125m west associated with an existing scrapyard and former metal recycling facility (now surrendered).

NR – None Recorded

Pollution Controls and Industrial Land Use

4.12 A summary of Pollution Control records and potentially polluting activities (fuel stations) for each proposed regeneration area is provided below.

Integrated Pollution Controls (IPC)	NR within 250m.
Integrated Pollution Prevention and Control	NR within 250m.
LA Pollution Prevention and Controls (PPC)	2 no. recorded 61m west and 115m east, neither of which are considered to represent a significant risk to this site.
Petrol Filling Stations	1 no. recorded onsite associated with the former Garden Lane Service Station (now obsolete/demolished).

NR – None Recorded

Radon

4.13 Inspection of the BRE publication BR211 (2007), "Radon: Guidance on protective measures for new buildings" indicates that Area 2 does not lie in an area where radon protection measures are required.

Other

4.14 There are 3 no. BGS Recorded Mineral Sites recorded 95m east, 128m south and 175m south-west of the site associated with former clay pits and St. Hilda's Colliery.

4.15 There is 1 no. COMAH and NIHHS site recorded 30m to 34m south-east associated with an adjacent Gasholder (record no longer supplied under COMAH regulations). A Planning Hazardous Substance Consent is also recorded 22m south-east associated with this feature.

Area 3 – Fowler Street West

Geology and Mining

Made Ground	Geological plans record an area of made ground below the north-eastern site area associated with the infilling of a former clay pit (Oyston's Brick Field). Made ground is also shown to extend below the south-western corner of the site associated with the infilling of an additional clay pit (Alderson's Brick Field). Made ground is also anticipated below the site associated with previous site history (i.e. various stages of redevelopment). From historical borehole records, made ground comprising loose black ash, soft black silty clay and soft to firm gravelly clay, with ash, brick and concrete, was recorded to depths of between 5.30m and 8.80m to the north-west of the site.
Superficial Deposits (Drift)	Geological plans record the majority of the site as being underlain by Glacial Sand and Gravel drift deposits, with Laminated Clay shown to extend below the northern site area and Alluvium below the north-western corner. Drift deposits generally comprising soft to firm laminated clay, firm to stiff sandy gravelly clay and medium dense sand deposits were recorded to the north-west of the site, to a maximum recorded depth of 19.30m. From contour lines shown on plan NZ36NE, rock-head level is recorded at depths of between 15m to 25m below the site, with depth to rock-head becoming shallower to the south.
Solid Geology (Bedrock)	Carboniferous Middle Coal Measures. A fault within the solid deposits crosses the northern site area (St. Hilda Fault), trending NE-SW and down-throwing to the south, whilst a second fault crosses the southern site area, trending NW-SE.

Mining	The Coal Authority record workings beneath this area in 2 seams of coal from 120m to 290m depth. Any ground movement from these coal workings should have stopped by now. A Coal Authority mining report is included as **Appendix C**. From geological plans, St. Hilda Fault crosses the northern site area down-throwing to the south, which results in a displacement of the solid deposits below the southern site area by around 91m. Northern Site Area - The shallowest potentially worked seam below the northern site area (i.e. to the north of the St. Hilda Fault) is considered to be the High Main, which is shown to sub-crop 145m north-east and dip below the site to the south-west. The extrapolated position of the High Main seam is indicated at a depth in excess of 40m below current site levels (i.e. in excess of around 15m below 'rock-head' level). The High Main seam is locally recorded between 0.66m to 1.95m in thickness. When considering the maximum locally recorded thickness of the High Main seam, a minimum rock cover thickness of 20m would generally be required to mitigate the risk of future void migration. This suggests that the northern site area could potentially be at risk from shallow coal mining activities, although the level of potential risk is considered to be low. Southern Site Area - Below the southern site area, the Hylton Marine Band is shown to sub-crop below and immediately adjacent to the site, with the shallowest potentially worked seam considered being the Top Ryhope Five Quarter at a depth of around 49m to 59m below ground level (i.e. 34m below rock-head level). The Top Ryhope Five Quarter seam is locally recorded between 0.28m to 0.96m in thickness. When considering the above, there is considered to be sufficient overlying rock cover to arrest potential collapse processes (i.e. void migration) associated with potential workings within the Top Ryhope Five Quarter seam. Therefore, the southern site area (i.e. area to the south of the St. Hilda Fault) is not considered to be at risk from shallow coal mining activities.
Quarrying	A clay pit was recorded below the northern site area (Oyston's Brick Field), whilst a second clay pit historically extended below the south-western corner of the site (Alderson's Brick Field).

Hydrology and Hydrogeology

4.16 A summary of available information pertaining to hydrology, hydrogeology, flood risk potential, water abstractions, discharge consents and pollution incidents to controlled waters for each proposed regeneration area is provided on the following page.

Watercourses	NR within 250m
Flood Risk	The site does not lie within a Zone 2 or Zone 3 flood risk area i.e. at risk from flooding from rivers or sea.
Groundwater Classification	Solid Geology: Secondary A Aquifer. Superficial Geology: Glacial Sand and Gravel - Secondary A Aquifer and Laminated Clay – Unproductive Strata. No aquifer designation is given for the made ground materials below the north-eastern site area (i.e. former clay pit).
Source Protection Zones	NR within 1km.
Springs and Wells	NR within 250m.
Licensed Surface Water Abstractions	NR within 1km.
Licensed Groundwater Abstractions	NR within 1km.
Discharge Consents	NR within 250m.
Pollution Incidents	NR within 250m.

NR – None Recorded

Landfill Sites and Waste Management

4.17 A summary of information regarding landfill sites (historical or current) and waste management facilities for each proposed regeneration area is provided below.

Registered Landfill Sites	NR within 250m.
Historical Landfill Sites	NR within 250m.
Other Waste Management Facilities	1 no. recorded 136m west associated with a former metal recycling facility (licence now surrendered).

NR – None Recorded

Pollution Controls and Industrial Land Use

4.18 A summary of Pollution Control records and potentially polluting activities (fuel stations) for each proposed regeneration area is provided below.

Integrated Pollution Controls (IPC)	NR within 250m.
Integrated Pollution Prevention and Control	NR within 250m.

LA Pollution Prevention and Controls (PPC)	2 no. recorded on site associated with the existing Town Hall Service Station and Streamline Garages Ltd.
Petrol Filling Stations	1 no. recorded on site. 1 no. former filling station is also recorded 73m north-west (now obsolete/ demolished).

NR – None Recorded

Radon

4.19 Inspection of the BRE publication BR211 (2007), "Radon: Guidance on protective measures for new buildings" indicates that Area 3 does not lie in an area where radon protection measures are required.

Other

4.20 There is 1 no. BGS Recorded Mineral Site recorded on site associated with the former Oysten's Brick Field (clay pit) situated across the north-eastern area. Three additional Mineral Sites are also recorded 46m south, 120m south-west and 244m south-west of the site associated with former clay pits.

4.21 There is 1 no. COMAH and NIHHS site recorded 45m to 52m west associated with a nearby Gasholder (record no longer supplied under COMAH regulations). A Planning Hazardous Substance Consent is also recorded 52m west associated with this feature.

5 CONCEPTUAL SITE MODEL

5.1 Based on the available desk study information, a site specific conceptual site model (CSM) has been developed for each proposed regeneration area, with future land use considered to be commercial. This summarises the understanding of each individual area, including historical development, site geology, potential contaminant sources, transport pathways and receptors in order to assess potential pollutant linkages.

5.2 To aid in assessing the potential contaminants for each proposed regeneration area, reference has also been made to the relevant sections of CLR 8, the Department of the Environment (DoE) Industry Profile reports and any other relevant supporting documentation.

Area 1 – Barrington Street / St. Hilda's Square / King Street

5.3 Based on the available information, a summary of the potential contamination sources, pathways and receptors for Area 1 is provided in the following sub-sections.

Sources of Contamination

- Contamination associated with current and historic activities, including demolition and construction of residential/commercial properties, printing works and warehousing. In addition, potentially significant made ground/fill may also extend below the southern area associated with infilling of the former 'Mill Dam Valley'.
- Potential for contamination associated with former printing works and Electricity Sub-Station, with the potential key contaminant of concern including Metals and Solvents (VOC's and SVOC's) (DoE Industry Profile for Miscellaneous Industries – Printing Works) and Poly-Chlorinated Bi-Phenyls (PCB's) (Electricity Sub-Station).
- Off-site sources of potential contamination include St. Hilda's Colliery, Oysten's Brick Field, infilled 'Mill Dam Valley', Railway Lines, Petrol Filling Station and areas of associated fill / spoil heaps.
- Potential for hazardous ground gas migration and/or production, with potential sources identified for this site including; made ground/fill below the site (including potential infilling of the former 'Mill Dam Valley'), nearby infilled clay pits and areas of infilling associated with St. Hilda's Colliery, railway lines and ballast hills. In addition, this area could also be at potential risk from mine gases (i.e. stythe gas) associated with shallow and deep coal workings below the site (if present).

Potential Pollution Pathways

- Humans – direct contact, soil ingestion and dust inhalation.
- Secondary A Aquifer – leaching and vertical migration of contamination.
- Lateral migration into nearby surface water features (i.e. the River Tyne).
- Vertical and lateral migration, ingress and accumulation of ground gases into buildings and service entries (manholes).
- Direct contact of aggressive soils with building foundations and floor slabs.

Receptors

- Human Health (site end users).
- Human Health (construction workers).
- Controlled Waters (Secondary A Aquifer).
- Buildings, foundations and floor slabs.

Pollutant Linkage Assessment

5.4 A qualitative risk assessment has been made of the likelihood of any pollutant linkage operating and its potential significance, as summarised in the following table:

Contamination Source	Pathway	Hazard	Potential Receptors	Linkage Complete
Contaminants associated with made ground below the site	Direct contact, ingestion, dust inhalation	Human health risk	Site construction workers	Yes, can be mitigated by the use of appropriate PPE and limited exposure
	Direct contact, ingestion, dust inhalation	Human health risk	Site end users	Yes, although exposure pathways will not be available in areas of proposed hard cover
	Lateral and vertical migration	Pollution of controlled waters	Nearby watercourse (River Tyne) & Secondary A Aquifer	Yes, although limited risk is anticipated due to low permeability clay inhibiting groundwater movement below this area.
Contaminants associated with off-site sources	Lateral migration	Human health risk	Site end users	Yes, although migration will be inhibited where low permeability deposits are present.
Ground Gas	Vertical migration into buildings or confined spaces	Human health risk Fire risk	Site end users, construction workers and property	Yes, associated with on and off-site sources (see Section 5.3).

5.5 In summary, it can be seen that the site has undergone a long development history which has included a number of potentially contaminative processes including tramways, printing works, warehousing and an electricity sub-station.

5.6 Due to the historical development of the site, the nature and extent of the made ground / fill materials below the site is generally unknown, and as such there is a potential for unidentified contamination being present. In addition, there is a potential for extensive made ground/fill materials to extend below the southern site area associated with the former 'Mill Dam Valley.

5.7 The proposed development could also potentially be at risk from ground gas migration and/or production with identified on and off-site sources outlined in Section 5.3.

Area 2 – Oyston Street Car Park

5.8 A summary of the potential contamination sources, pathways and receptors for Area 2 is provided in the following sub-sections.

Sources of Contamination

- Contamination associated with current and historic activities, including demolition of residential/commercial properties and construction of the existing car park. A significant thickness of made ground/fill may also extend below the site associated with infilling of the former 'Mill Dam Valley'.
- Potential for contamination associated with historical site usage as a garage and possible petrol filling station (PFS), with potential key contaminants of concern including Metals, Polycyclic Aromatic Hydrocarbons (PAH's), Total Petroleum Hydrocarbons (TPH's, including BTEX and MTBE) and Asbestos (DoE Industry Profile for Road Vehicle Fuelling, Service and Repair).
- Off-site sources of potential contamination include St. Hilda's Colliery, a Gas Works and Gasometer, Brick Fields and associated clay pits, a Mill and a Refuse Tip.
- Hazardous ground gas migration and/or production with potential sources including; made ground/fill below the site (including the former 'Mill Dam Valley'), nearby railway lines, Ballast Hill, refuse tip, the former St. Hilda Colliery site and infilling of nearby former clay pits. In addition, this area could also be at potential risk from mine gases (i.e. stythe gas) associated with deep coal workings.

Potential Pollution Pathways

- Humans – direct contact, soil ingestion and dust inhalation.
- Secondary A Aquifer – leaching and vertical migration of contamination.
- Lateral migration into nearby surface water features (watercourses) – not considered to be at risk due to absence of potentially sensitive receptors within plausible migration distance to this site.
- Vertical and lateral migration, ingress and accumulation of ground gases into buildings and service entries (manholes).
- Direct contact of aggressive soils with building foundations and floor slabs.

Receptors

- Human Health (site end users).
- Human Health (construction workers).
- Controlled Waters (Secondary A Aquifer & Unproductive Strata).
- Buildings, foundations and floor slabs.

Pollutant Linkage Assessment

5.9 A qualitative risk assessment has been made of the likelihood of any pollutant linkage operating and its potential significance, as summarised in the following table:

Contamination Source	Pathway	Hazard	Potential Receptors	Linkage Complete
Contaminants associated with made ground below the site	Direct contact, ingestion, dust inhalation	Human health risk	Site construction workers	Yes, can be mitigated by the use of appropriate PPE and limited exposure
	Direct contact, ingestion, dust inhalation	Human health risk	Site end users	Yes, although exposure pathways will not be available in areas of proposed hard cover
	Lateral and vertical migration	Pollution of controlled waters	Secondary A Aquifer & Unproductive Strata	Yes, although migration will be inhibited where low permeability deposits are present
Contaminants associated with off-site sources	Lateral migration	Human health risk	Site end users	Yes, although migration will be inhibited where low permeability deposits are present
Ground Gas	Vertical migration into buildings or confined spaces	Human health risk Fire risk	Site end users, construction workers and property	Yes, associated with on and off-site sources (see Section 5.8)

5.10 In summary, it can be seen that the site has undergone various stages of redevelopment, with primary potentially contaminative processes including previous site usage as a garage along with demolition of former commercial and residential properties. The former garage is also potentially shown as a petrol filling station and such there may be a potential for decommissioned underground storage tanks (UST's) to be present below the site, although these features could potentially have been removed as part of construction works undertaken for the existing car park.

5.11 In addition to the above, there is a potential for extensive made ground/fill to extend below the site associated with infilling of the former 'Mill Dam Valley', with the nature and extent of these materials generally unknown at this stage.

5.12 The proposed development could also potentially be at risk from ground gas migration and/or production with identified on and off-site sources outlined in Section 5.8.

Area 3 – Fowler Street West

5.13 A summary of the potential contamination sources, pathways and receptors for Area 3 is provided in the following sub-sections.

Sources of Contamination

- Contamination associated with current and historic activities, including demolition of residential/commercial properties, existing and former garages, builder's yard, rope works and construction of the existing car parks. A significant thickness of made ground/fill is also anticipated below the northern and south-western site area associated with infilling of former clay pits.
- Potential for contamination associated with historical site usage, including garages, petrol filling station (PFS) and timber merchant. Potential key contaminants of concern include Metals (specifically Copper, Chromium and Arsenic for timber works), Polycyclic Aromatic Hydrocarbons (PAH's), Total Petroleum Hydrocarbons (TPH's, including BTEX and MTBE) and Asbestos (DoE Industry Profiles for Road Vehicle Fuelling, Service and Repair and Timber Treatment Works).
- Off-site sources of contamination include an adjacent railway line, infilling of the former clay pit to the immediate south-west, a nearby gasometer and an adjacent former garage.

- Potential for hazardous ground gas migration and/or production, with potential sources identified for this site including; made ground / fill below the site, infilling of former clay pits, infilling of the nearby former 'Mill Dam Valley', along with remnant made ground / fill associated with the nearby former St. Hilda's Colliery site, railway lines and former refuse tip. In addition, the site could be at potential risk from mine gases (i.e. stythe gas) associated with deep coal mining activities.

Potential Pollution Pathways

- Humans – direct contact, soil ingestion and dust inhalation.
- Secondary A Aquifer – leaching and vertical migration of contamination.
- Lateral migration into nearby surface water features (watercourses) – not considered to be at risk due to absence of potentially sensitive receptors within plausible migration distance.
- Vertical and lateral migration, ingress and accumulation of ground gases into buildings and service entries (manholes).
- Direct contact of aggressive soils with building foundations and floor slabs.

Receptors

- Human Health (site end users).
- Human Health (construction workers).
- Controlled Waters (Secondary A Aquifer & Unproductive Strata).
- Buildings, foundations and floor slabs.

Pollutant Linkage Assessment

5.14 A qualitative risk assessment has been made of the likelihood of any pollutant linkage operating and its potential significance, as summarised in the following table:

Contamination Source	Pathway	Hazard	Potential Receptors	Linkage Complete
Contaminants associated with made ground below the site	Direct contact, ingestion, dust inhalation	Human health risk	Site construction workers	Yes, can be mitigated by the use of appropriate PPE and limited exposure
	Direct contact, ingestion, dust inhalation	Human health risk	Site end users	Yes, although exposure pathways will not be available in areas of proposed hard cover

	Lateral and vertical migration	Pollution of controlled waters	Secondary A Aquifer & Unproductive Strata	Yes, although groundwater movement will be inhibited where low permeability deposits are present
Contaminants associated with off-site sources	Lateral migration	Human health risk	Site end users	Yes, although migration will be inhibited where low permeability deposits are present
Ground Gas	Vertical migration into buildings or confined spaces	Human health risk Fire risk	Site end users, construction workers and property	Yes, associated with both on and off-site sources, summarised in Section 5.13.

5.15 In summary, it can be seen that the site has undergone a long development history which has included numerous and potentially contaminative processes including garages, a petrol filling station, builder's yard, rope works, timber merchant and demolition of previous buildings. In addition, potentially significant made ground/fill materials are also anticipated below the northern and south-western site areas, associated with infilling of former clay pits. Therefore, there is a potential for unidentified contamination being present below this site.

5.16 The proposed development could also potentially be at risk from ground gas migration and/or production associated with identified on and off-site sources, details of which are summarised in Section 5.13.

6 ENVIRONMENTAL RISK ASSESSMENT

6.1 The potential environmental risk for each regeneration area has been assessed based on the 'source-pathway-receptor' pollutant linkages identified as part of the Conceptual Site Model, which requires that for a liability to arise each stage of the pollutant linkage must be present. References to risk classifications are made according to the following definitions:

- **Low risk** – it is unlikely that an issue will arise with respect to causing significant harm to human health or controlled waters.

- **Moderate risk** – it is possible that an issue could arise with respect to causing significant harm to human health or controlled waters.

- **High risk** – it is likely that an issue will arise with respect to causing significant harm to human health or controlled waters.

6.2 Having evaluated the information gathered during this study the following environmental risk assessments have been produced for each of the regeneration areas.

Area 1 – Barrington Street / St. Hilda's Square / King Street

ENVIRONMENTAL RISK ASSESSMENT - AREA 1		
	Risk rating	**Reason**
Contamination potential for:		
On-site contamination	Low to Moderate	Following a review of available data and the historical development of the site, a number of potentially contaminative site usages have been identified for this area, including demolition and construction of numerous buildings, a printing works, electricity sub-station and warehousing, which could represent a potential risk to future end users (i.e. human health).
Contaminants migrating off site	Low	Low risk anticipated due to anticipated thickness of low permeability drift and absence of a shallow groundwater surface below the site.
Contaminants migrating onto site	Low	Due to the majority of the site being underlain by low permeability drift deposits the risk is considered to be low. However, it is possible that the infilled 'Mill Dam Valley' extends across the southern site area, which depending upon the nature of the infill could result in potential contaminants migrating on to site.
Other environmental issues	Low	None identified.
ENVIRONMENTAL RISK RATING		**Low to Moderate**

Area 2 – Oyston Street Car Park

ENVIRONMENTAL RISK ASSESSMENT - AREA 2		
	Risk rating	**Reason**
Contamination potential for:		
On-site contamination	Moderate	Potential contamination could be present below this site, primarily associated with previous usage as a garage and possible petrol filling station with infrastructure associated with this usage potentially remaining below the site. In addition, potentially made ground/fill may be present below the site associated with infilling of the former 'Mill Dam Valley'.
Contaminants migrating off site	Low to Moderate	Although low permeability drift deposits are anticipated below the majority of the site which will inhibit migration pathways, potentially significant thicknesses of made ground may be present which could facilitate off-site migration should significant contamination be identified.
Contaminants migrating onto site	Low	The potential for significant contamination migrating onto site is considered to be low due the presence of low permeability drift below and immediately adjacent to the majority of the site. However, infill deposits associated with the former 'Mill Dam Valley' are anticipated which depending upon the nature of the infill could result in contaminants migrating onto site.
Other environmental issues	Low	None identified.
ENVIRONMENTAL RISK RATING		**Low to Moderate**

Area 3 – Fowler Street West

ENVIRONMENTAL RISK ASSESSMENT - AREA 3		
	Risk rating	**Reason**
Contamination potential for:		
On-site contamination	Moderate	A number of potentially contaminative site usages have been identified for this area, including garages, timber merchant, a petrol filling station, builder's yard and rope works. In addition, made ground/fill is anticipated below the northern and south-western site areas associated with infilling of former clay pits.
Contaminants migrating off site	Low to Moderate	The majority of the site is underlain by glacial sand and gravel drift deposits, with groundwater movement through these deposits potentially facilitating off-site migration should contamination be identified.
Contaminants migrating onto site	Low	The potential for significant contamination migrating onto site is considered to be low due the general absence of significantly contaminative site usages immediately adjacent to the site. However, the site is bounded to the west by a railway line whilst infill deposits associated with a former clay pit are anticipated adjacently south-west, which could result in contaminants migrating onto site, if present.
Other environmental issues	Low	None identified.
ENVIRONMENTAL RISK RATING		**Low to Moderate**

7 GROUND GAS RISK ASSESSMENT

7.1 Based on the above information gained through the Envirocheck Report, the following summarises the preliminary gas risk for each proposed regeneration area.

7.2 In accordance with current guidance (CIRIA C665), the gas generation potential for each source has been individually assessed, with references to potential gassing risk made according to the following definitions: Negligible, Very Low, Low, Moderate, High and Very High.

Area 1 – Barrington Street / St. Hilda's Square / King Street

GROUND GAS RISK ASSESSMENT – AREA 1			
Potential Gas Source	**Hazard**	**Risk Rating**	**Justification**
Made ground (CH_4, CO_2)	Humans: health risk Buildings: explosion	Low to Moderate	Onsite: Made ground is anticipated below the site associated with previous developments with deeper areas possibly present in the south of the site associated with infilling of the former 'Mill Dam Valley', which could represent a potential source of gas production. Offsite: Made ground is anticipated within close proximity to the site, primarily associated with infilling of the former 'Mill Dam Valley', former clay pits, nearby infilling of a former dry dock and residual made ground/fill associated with former Ballast Hill and St. Hilda's Colliery site, which could represent a potential sources of ground gas migration.
Coal and historical mining	Humans: health risk Buildings: explosion	Low	There is the possibility of shallow workings below present below areas of the site, which could represent a potential source of mine gas rise (i.e. stythe gas). At this stage, the potential risk is considered to be low due to the anticipated thickness of overlying low permeability clay drift deposits likely inhibiting and/or providing a barrier to gas migration.
Radon	Humans: health risk	N/A	No precautions required.
PRELIMINARY GAS RISK RATING		**Low to Moderate**	

Area 2 – Oyston Street Car Park

GROUND GAS RISK ASSESSMENT – AREA 2			
Potential Gas Source	**Hazard**	**Risk Rating**	**Justification**
Made ground (CH_4, CO_2)	Humans: health risk Buildings: explosion	Moderate	Onsite: Made ground is anticipated below the site associated with previous developments (including a former garage) whilst deeper made ground is likely present below the site associated with infilling of the former 'Mill Dam Valley', which could represent a potential source of gas production. Offsite: Made ground is anticipated within close proximity to the site, associated with infilling of the former 'Mill Dam Valley' and clay pits, along residual made ground/fill associated with nearby railway lines, Ballast Hill and the former St. Hilda's Colliery site, which could represent a potential sources of ground gas migration.
Coal and historical mining	Humans: health risk Buildings: explosion	Low	The site could also be at potential risk from mine gases (i.e. stythe gas) associated with deep coal workings. At this stage, a low risk is anticipated due to the thickness of low permeability clay drift deposits inhibiting and/or providing a barrier to gas migration.
Radon	Humans: health risk	N/A	No precautions required.
PRELIMINARY GAS RISK RATING		**Moderate**	

Area 3 – Fowler Street West

GROUND GAS RISK ASSESSMENT – AREA 3			
Potential Gas Source	**Hazard**	**Risk Rating**	**Justification**
Made ground (CH_4, CO_2)	Humans: health risk Buildings: explosion	Moderate	Onsite: Made ground is anticipated below the site associated with previous developments with deeper areas anticipated below the northern and south-western areas associated with infilling of former clay pits, which could represent a potential source of gas production. Offsite: Made ground is also anticipated within close proximity to the site, associated with infilling of former clay pits, nearby infilling of the former 'Mill Dam Valley' and residual made ground/fill associated with the former St. Hilda's Colliery site and refuse tip which could represent a potential sources of ground gas migration.
Coal and historical mining	Humans: health risk Buildings: explosion	Low	The site could also be at potential risk from mine gases (i.e. stythe gas) associated with deep coal workings. At this stage, a low risk is anticipated due to the thickness of drift deposits inhibiting and/or providing a barrier to gas migration.
Radon	Humans: health risk	N/A	No precautions required.
PRELIMINARY GAS RISK RATING		**Low to Moderate**	

7.3 At this stage, the preliminary gas risk rating for each of the proposed regeneration areas is considered to be low to moderate for Areas 1 and 3, and moderate for Area 2. However, it is recommended that a re-assessment be undertaken following the completion of any future investigation works, to more accurately assess the level of potential risk.

8 GEOTECHNICAL CONSIDERATIONS

8.1 The following geotechnical considerations are given as preliminary guidelines only based on the available data on the ground conditions. Consequently, the following should not be taken as design criteria without further geotechnical data obtained from a suitably designed ground investigation. A summary of the geotechnical considerations for each individual regeneration area is provided below:

Area 1 – Barrington Street / St. Hilda's Square / King Street

Mining

8.2 From geological plans, the High Main (HM) coal seam is shown to sub-crop 150m north-east and dip below Area 1 to the south-west. The preliminary mining assessment suggests that areas of the site could be at potential risk from shallow coal mining activities should unrecorded workings be present within the HM seam (i.e. eastern extent of Chapter Road), with the level of risk increasing to the north-east and decreasing to the south-west.

Foundations

8.3 Across the majority of the site, made ground is anticipated to be generally limited in thickness (<2m), with these materials overlying natural Glacial Till (Boulder Clay) drift deposits. However, extensive made ground materials are potentially present below the southern site area associated with the infilling of a former 'Mill Dam Valley', the extent of which is generally unknown at this stage.

8.4 Made ground is considered unsuitable as a bearing stratum using conventional shallow spread foundations due to the potential for excessive total and differential settlements.

8.5 For redevelopment works situated wholly outwith the location of the infilled former 'Mill Dam Valley', the use of conventional strip or trench fill foundations could represent a potentially viable solution, based within the natural clay drift deposits, with foundations extended (utilising mass trench fill, or the like) where increased thicknesses of made ground are encountered (i.e. infilled basements, etc.,).

8.6 For redevelopment works confirmed as extending across the location of the infilled former 'Mill Dam Valley', it is considered likely that ground improvement techniques or a piled

foundation solution will be required, dependent upon the nature of the fill materials. Detailed foundation requirements should be assessed following a ground investigation.

Floor Slabs

8.7 In view of the likely thickness of made ground below the site, it is considered likely that suspended floor slabs or re-engineering of the made ground will be required should a ground bearing slab be proposed.

Pavements

8.8 It is anticipated, subject to a ground investigation, that standard construction techniques can be utilised.

Gas Protection Measures

8.9 The preliminary ground gas risk assessment identifies that there is a low to moderate risk to the development, primarily associated with the presence of made ground / fill materials below and within close proximity to the site. It is recommended that ground gas monitoring be completed to more accurately assess the level of potential risk.

Area 2 – Oyston Street Car Park

Mining

8.10 Following a review of available data this area is not considered to be at significant risk from shallow coal mining activities, with no further intrusive works and/or assessment considered necessary in this regard.

Foundations

8.11 Following a review of available data, potentially extensive made ground/fill materials are likely present below the site associated with infilling of the former 'Mill Dam Valley'. In addition, variable thicknesses of made ground are anticipated associated with previous site history (i.e. former garage), with these materials also overlying natural potentially variable strength Alluvium deposits.

8.12 Therefore, it is considered likely that ground improvement techniques or a piled foundation solution will be required for any future redevelopment works across this area, with the use of ground improvement generally dependent upon the nature of the fill materials. Detailed foundation requirements should be assessed following a ground investigation.

Floor Slabs

8.13 In view of the likely thickness of made ground below the site, it is considered likely that suspended floor slabs or re-engineering of the made ground will be required should a ground bearing slab be proposed.

Pavements

8.14 It is anticipated, subject to a ground investigation, that standard construction techniques can be utilised.

Gas Protection Measures

8.15 The preliminary ground gas risk assessment identifies that there is a low to moderate risk to the development, primarily associated with the presence of made ground / fill materials below and within close proximity to the site. It is recommended that ground gas monitoring be completed to more accurately assess the level of potential risk.

Area 3 – Fowler Street West

Mining

8.16 Following a review of available data this area is also not considered to be at significant risk from shallow coal mining activities, with no further intrusive works and/or assessment considered necessary in this regard.

Foundations

8.17 Following a review of available data, made ground is anticipated to be generally limited in thickness below this majority of this regeneration area (<2m), with these materials overlying natural Glacial Sand and Gravel deposits across the southern site area and

Laminated Clay across the northern site area. However, there is a potential for variable strength Alluvium deposits to extend below the north-western corner of the site, whilst potentially extensive made ground/fill is anticipated below the northern and south-western site areas associated with infilling of historical clay pits.

8.18 For areas situated wholly outwith the location of the infilled former clay pits and/or Alluvium drift deposits, the use of conventional strip or trench fill foundations could represent a potentially viable solution, with footings based within the natural sand and gravel and/or laminated clay, with foundations extended (utilising mass trench fill, or the like) where increased thicknesses of made ground are encountered (i.e. infilled basements, etc.,). Alternatively, a rafted foundation solution and/or ground improvement techniques could also be utilised.

8.19 When considering the potential for geotechnically 'poor' Alluvium deposits below the north-western site area and extensive made ground below northern and south-western site areas (infilled clay pits), it is considered likely that ground improvement techniques or a piled foundation solution will be required for any future redevelopment works extending across these areas, with the use of ground improvement generally dependent upon the nature of the fill materials. Detailed foundation requirements should be assessed following a ground investigation.

Floor Slabs

8.20 In view of the likely thickness of made ground below the site, it is considered likely that suspended floor slabs or re-engineering of the made ground will be required should a ground bearing slab be proposed.

Pavements

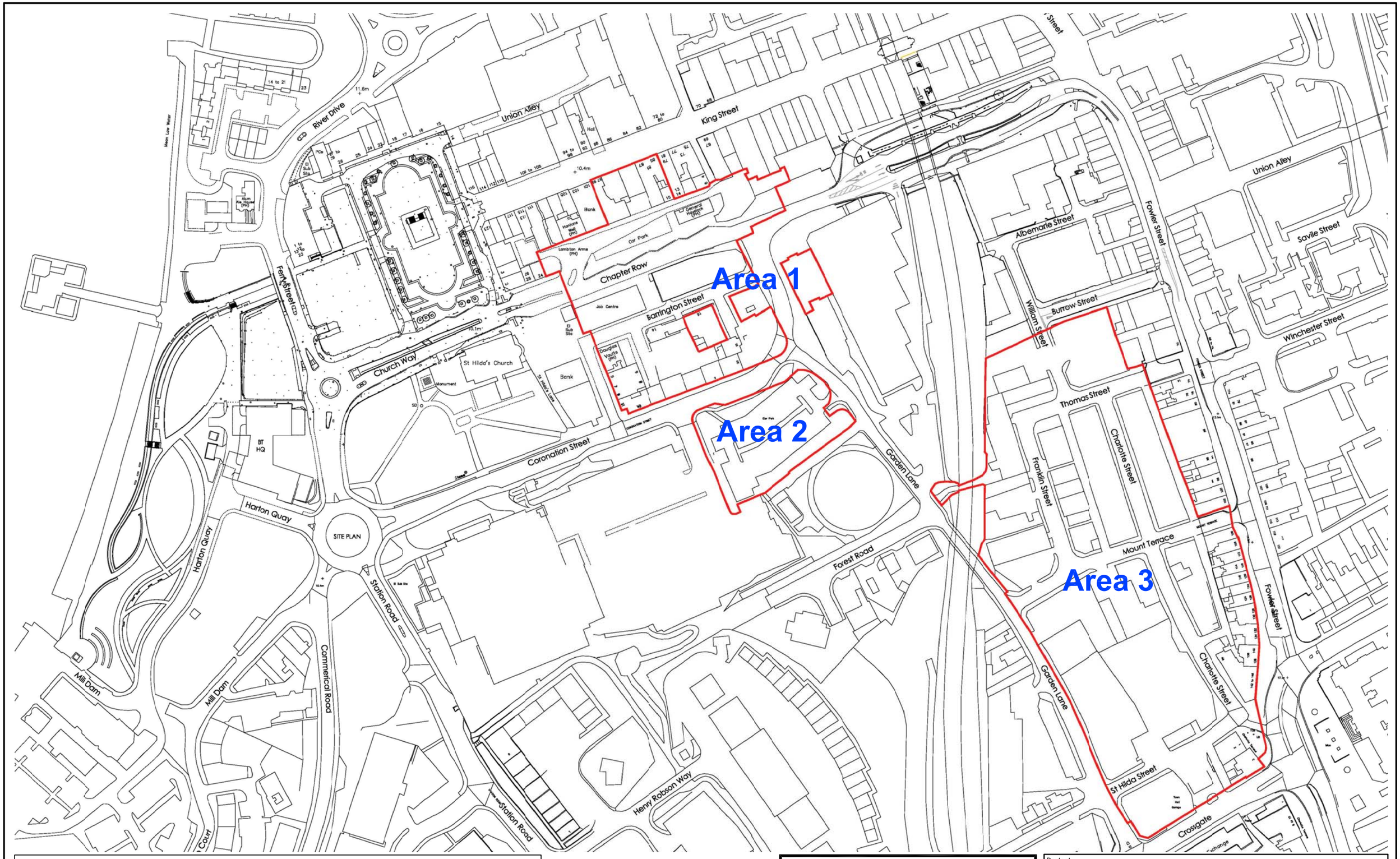
8.21 It is anticipated, subject to a ground investigation, that standard construction techniques can be utilised.

Gas Protection Measures

8.22 The preliminary ground gas risk assessment identifies that there is a low to moderate risk to the development, primarily associated with the presence of made ground / fill materials

below and within close proximity to the site. It is recommended that ground gas monitoring be completed to more accurately assess the level of potential risk.

Figures



Area 1 – Barrington Street/St. Hilda's Square/King Street
Area 2 – Oysten Street Car Park
Area 3 – Fowler Street West

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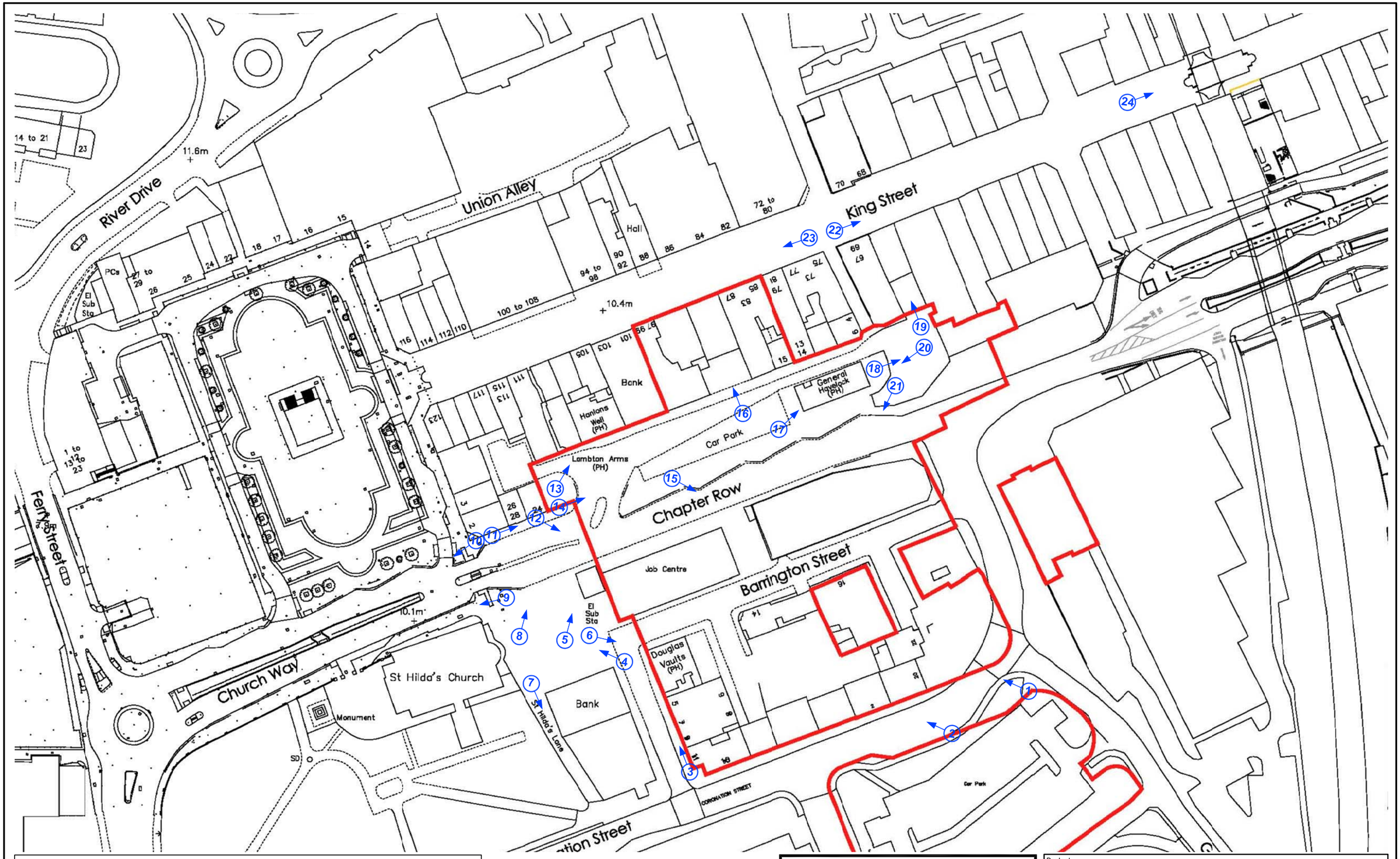
Project	South Shields Outline Masterplan Application Muse Developments & South Tyneside Council		
Title	Area Outline Plan		
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15
Job No.: 15504	Drawing No.: Figure 2		Rev: 0



Site Boundary

Photograph Location / Direction

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Holland Drive
Newcastle upon Tyne
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Title	Area 1 - Site Photographs		
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15
Job No.: 15504	Drawing No.: Figure 3		Rev: 0

Plate 1

Plate 2

Plate 3

Plate 4

Plate 5

Plate 6

Plate 7

Plate 8

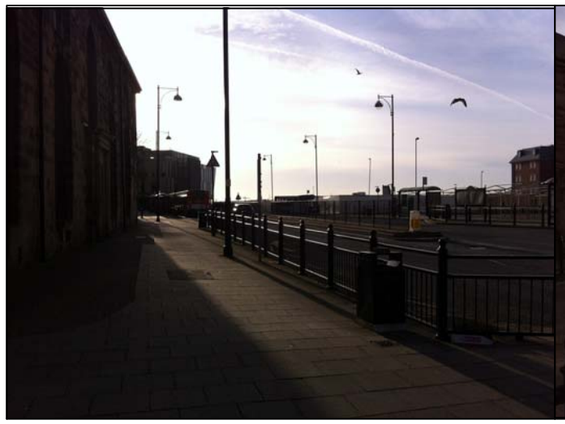

Plate 9

Plate 10

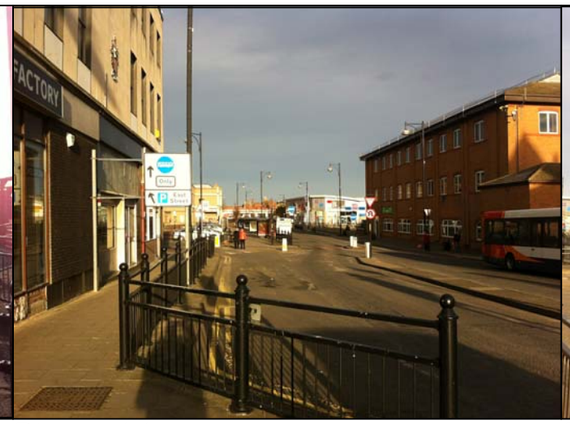

Plate 11

Plate 12

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Title	Area 1 - Site Photographs		
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15
Job No.: 15504	Drawing No.: Figure 3A		Rev: 0

Plate 13

Plate 14

Plate 15

Plate 16

Plate 17

Plate 18

Plate 19

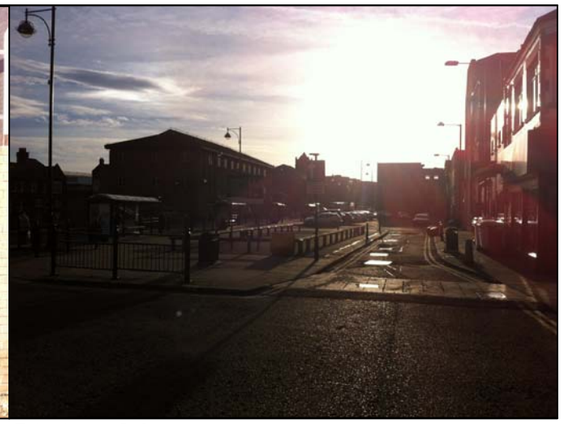

Plate 20

Plate 21

Plate 22

Plate 23

Plate 24

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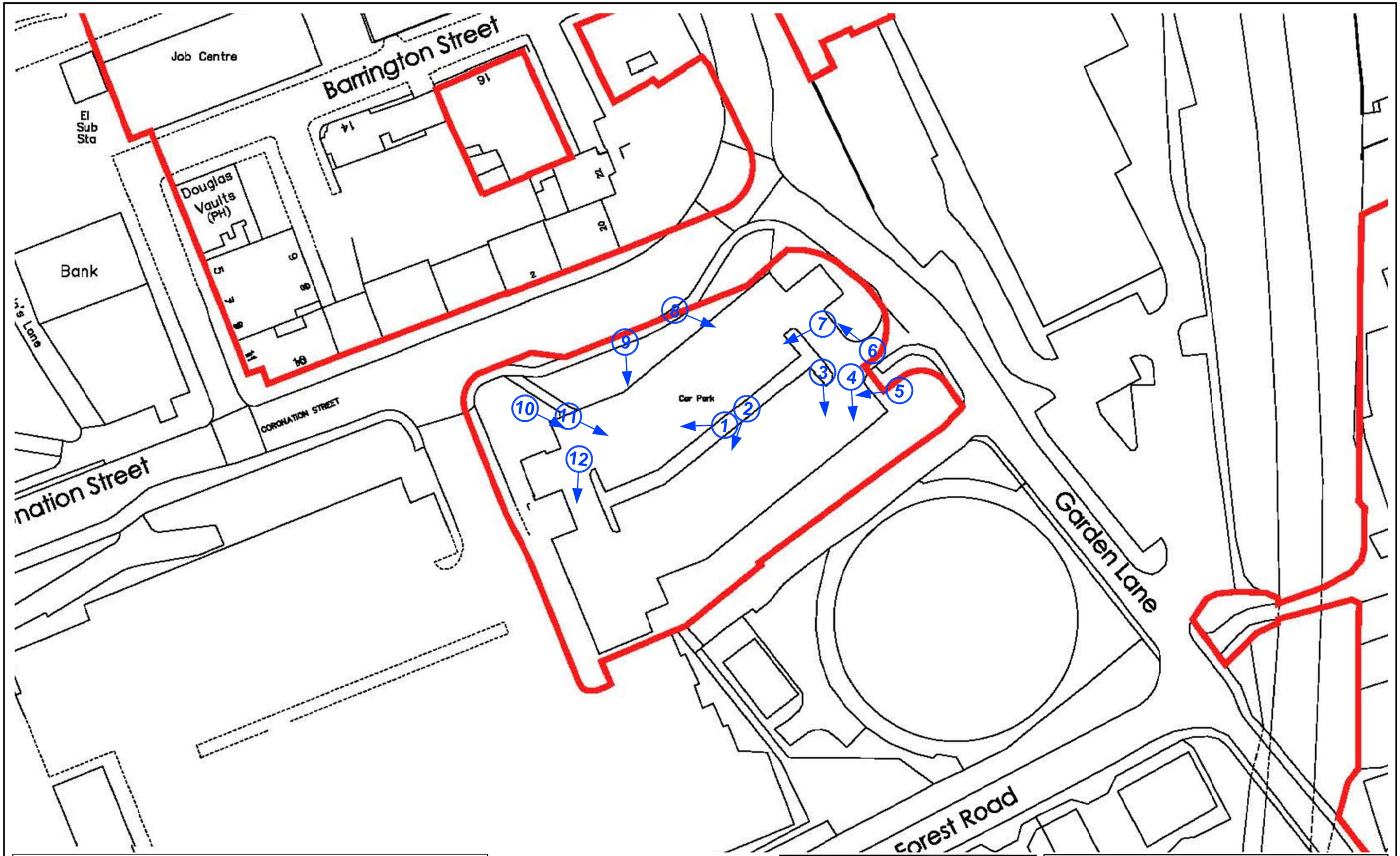
Project	South Shields Outline Masterplan Application Muse Developments & South Tyneside Council			
Title	Area 1 - Site Photographs			
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15	
Job No.: 15504	Drawing No.: Figure 3B		Rev: 0	



Site Boundary

Photograph Location / Direction

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Project	South Shields Outline Masterplan Application Muse Developments & South Tyneside Council		
Title	Area 2 - Site Photographs		
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15
Job No.: 15504	Drawing No.: Figure 4		Rev: 0

Plate 1

Plate 2

Plate 3

Plate 4

Plate 5

Plate 6

Plate 7

Plate 8

Plate 9

Plate 10

Plate 11

Plate 12

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Project	South Shields Outline Masterplan Application Muse Developments & South Tyneside Council			
Title	Area 2 - Site Photographs			
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15	
Job No.: 15504	Drawing No.: Figure 4A		Rev: 0	

Site Boundary

Photograph Location / Direction

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Title	Area 3 - Site Photographs			
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15	
Job No.: 15504	Drawing No.: Figure 5		Rev: 0	

Plate 1

Plate 2

Plate 3

Plate 4

Plate 5

Plate 6

Plate 7

Plate 8

Plate 9

Plate 10

Plate 11

Plate 12

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Title	Area 3 - Site Photographs			
Scale: NTS	Drawn: NJW	Checked: AC	Date: Jun '15	
Job No.: 15504	Drawing No.: Figure 5A		Rev: 0	

Plate 13

Plate 14

Plate 15

Plate 16

Plate 17

Plate 18

Plate 19

Plate 20

Plate 21

Plate 22

Plate 23

Plate 24

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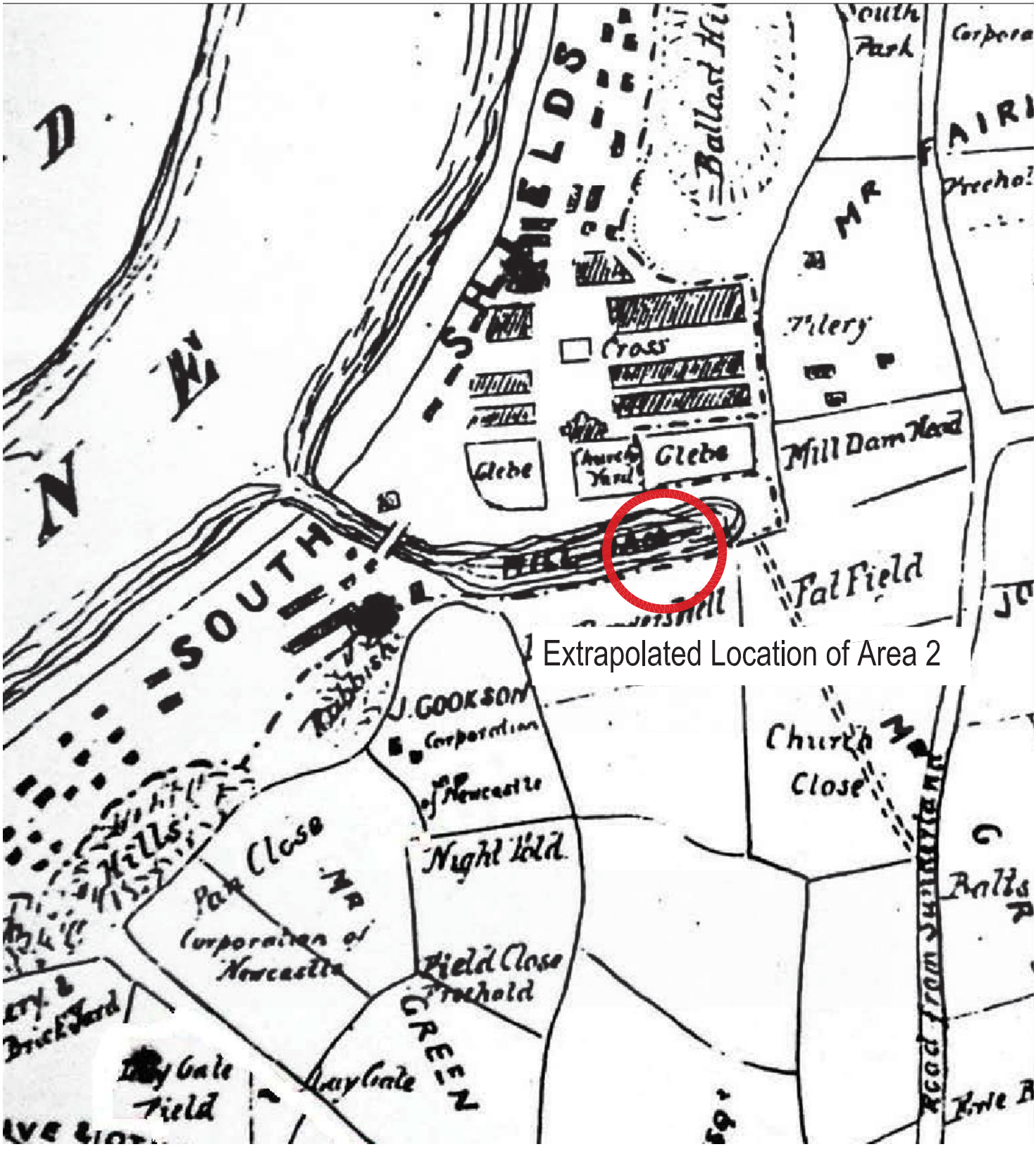
Project	South Shields Outline Masterplan Application Muse Developments & South Tyneside Council			
Title	Area 3 - Site Photographs			
Scale: NTS		Drawn: NJW	Checked: AC	Date: Jun '15
Job No.: 15504	Drawing No.: Figure 5B			Rev: 0



Date	Revision	Checked	Rev.

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Project	South Shields Outline Masterplan Application Muse Developments & South Tyneside Council		
Title	Extract of Historical Plan (Richardson 1768)		
Scale NTS at A4	Drawn NW	Checked AC	Date Jun '15
Job No. 15504	Drawing No. Figure 6		

Appendix A

Outline Masterplan Application
Boundary Plan

NORTH

Application Line
Outline Masterplan Application
12.1 acres
4.9 hectares

B.	10.06.15	Areas amended	HP	CB
A.	07.04.15	Red Line updated	HP	CB
Rev	Date	Description	Rev By	Chk'd By

Project Title	South Shields 365 Regeneration MASTERPLAN South Shields Town Centre					
Client	Muse Developments					
Status	PLANNING					
Scale	1:1250		Drawing Size	A1		
Drawn By	CAB	Checked By	HSP	Date	11.2014	
Drawing Title	Ouline Masterplan Application Boundary					
Job-Dwg No	12569M_1005			Rev	B	

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ARCHITECTS
www.harrispartnership.com

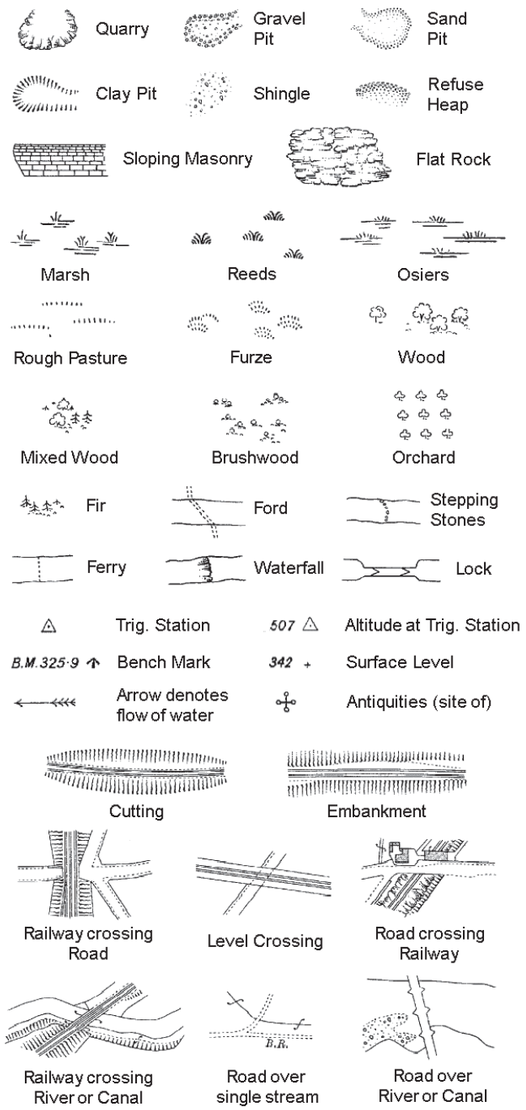
CAD file reference J:12569/outline application/drawings

Appendix B

Historical Maps

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

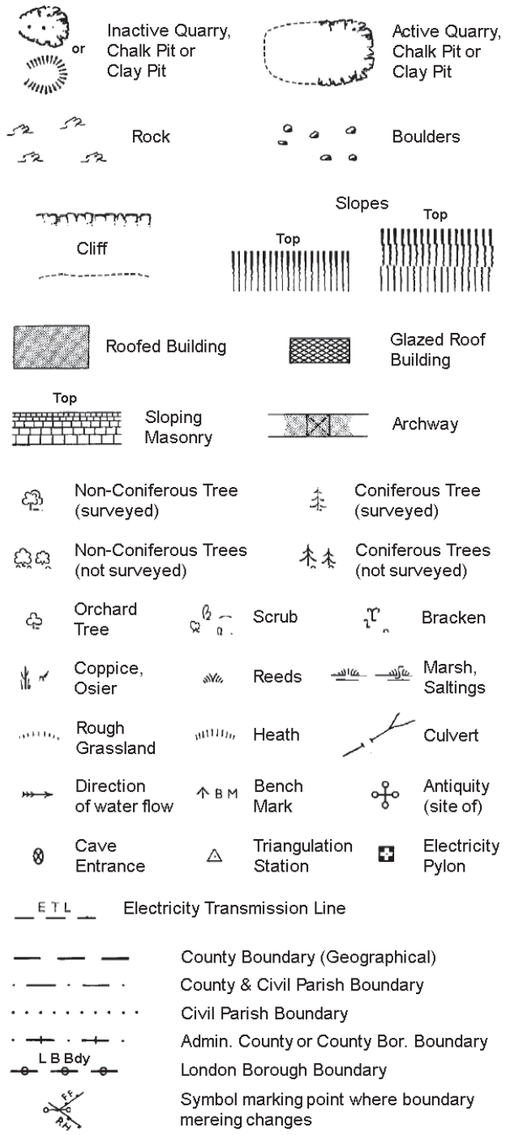
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	Sl.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

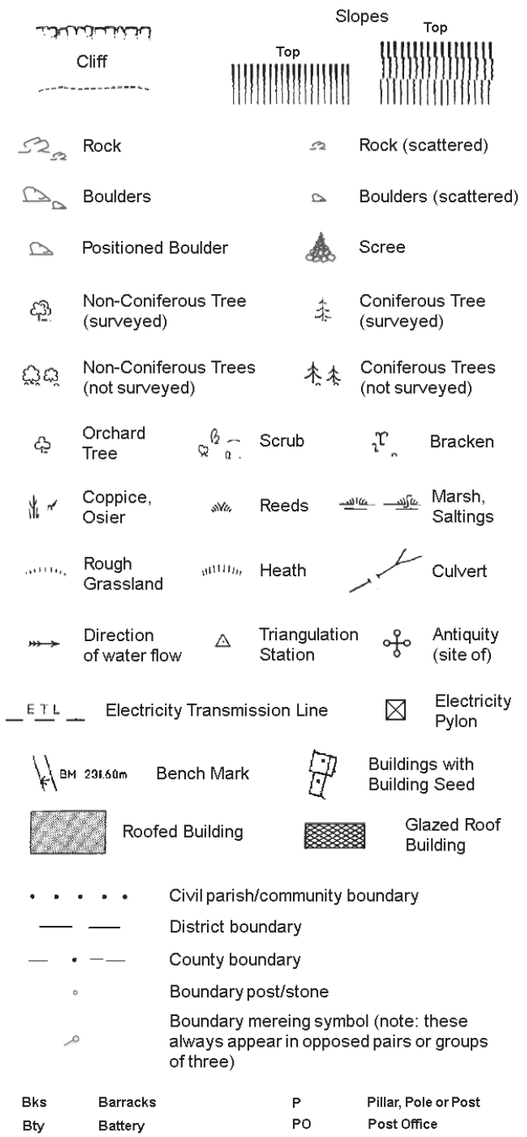
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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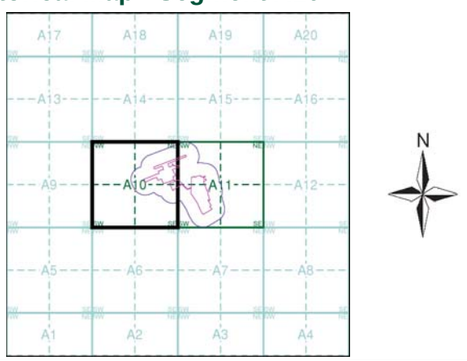
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Durham	1:2,500	1858	2
Northumberland	1:2,500	1861	3
Durham	1:2,500	1897	4
Durham	1:2,500	1915	5
Ordnance Survey Plan	1:1,250	1956	6
Ordnance Survey Plan	1:2,500	1956	7
Ordnance Survey Plan	1:1,250	1963 - 1973	8
Ordnance Survey Plan	1:1,250	1969 - 1975	9
Ordnance Survey Plan	1:2,500	1970	10
Supply of Unpublished Survey Information	1:1,250	1973 - 1975	11
Additional SIMs	1:1,250	1985 - 1989	12
Ordnance Survey Plan	1:1,250	1989 - 1990	13
Additional SIMs	1:1,250	1989	14
Large-Scale National Grid Data	1:1,250	1993	15
Large-Scale National Grid Data	1:1,250	1994 - 1995	16
Large-Scale National Grid Data	1:1,250	1994	17

Historical Map - Segment A10



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

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Durham

Published 1858

Source map scale - 1:2,500

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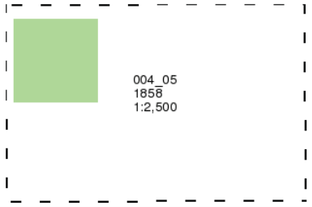
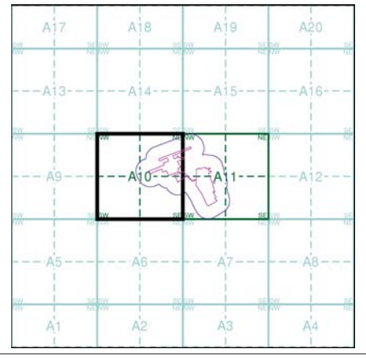
Map Name(s) and Date(s)



Historical Map - Segment A10



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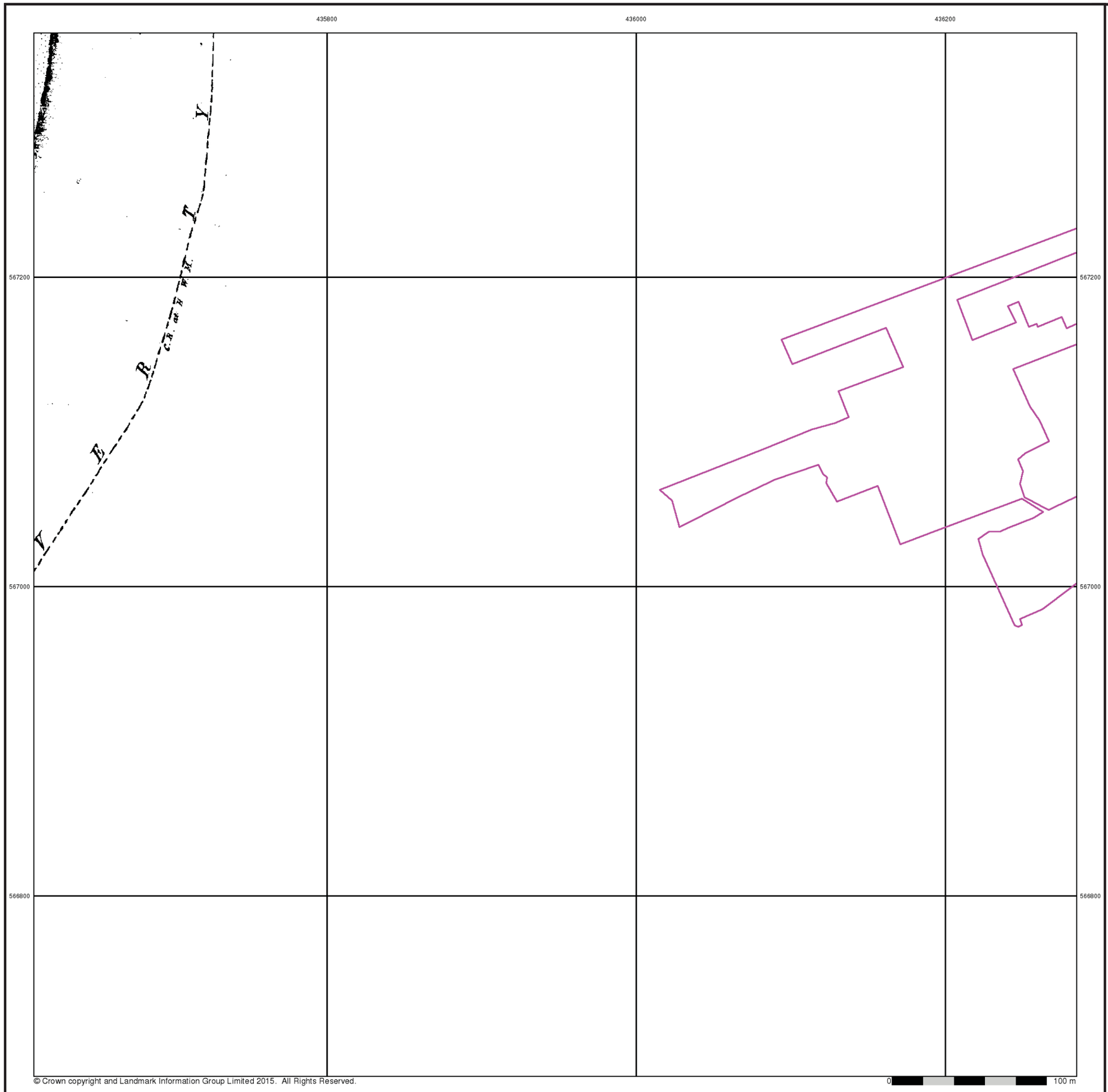

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Northumberland

Published 1861

Source map scale - 1:2,500

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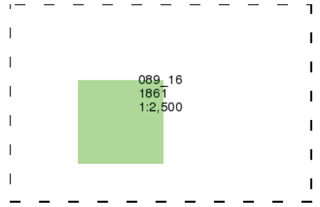
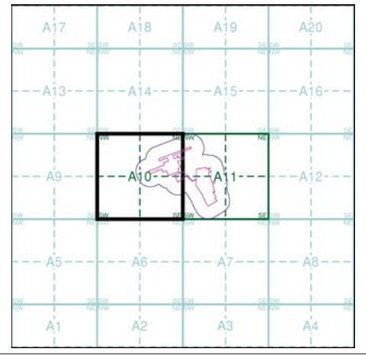
Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

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National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

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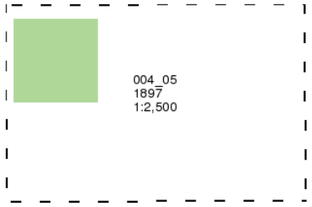
Map Name(s) and Date(s)



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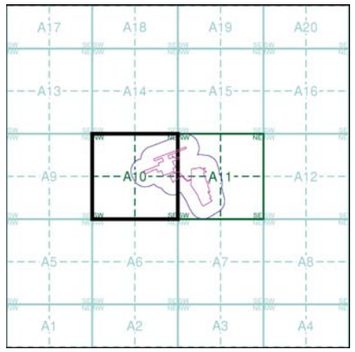

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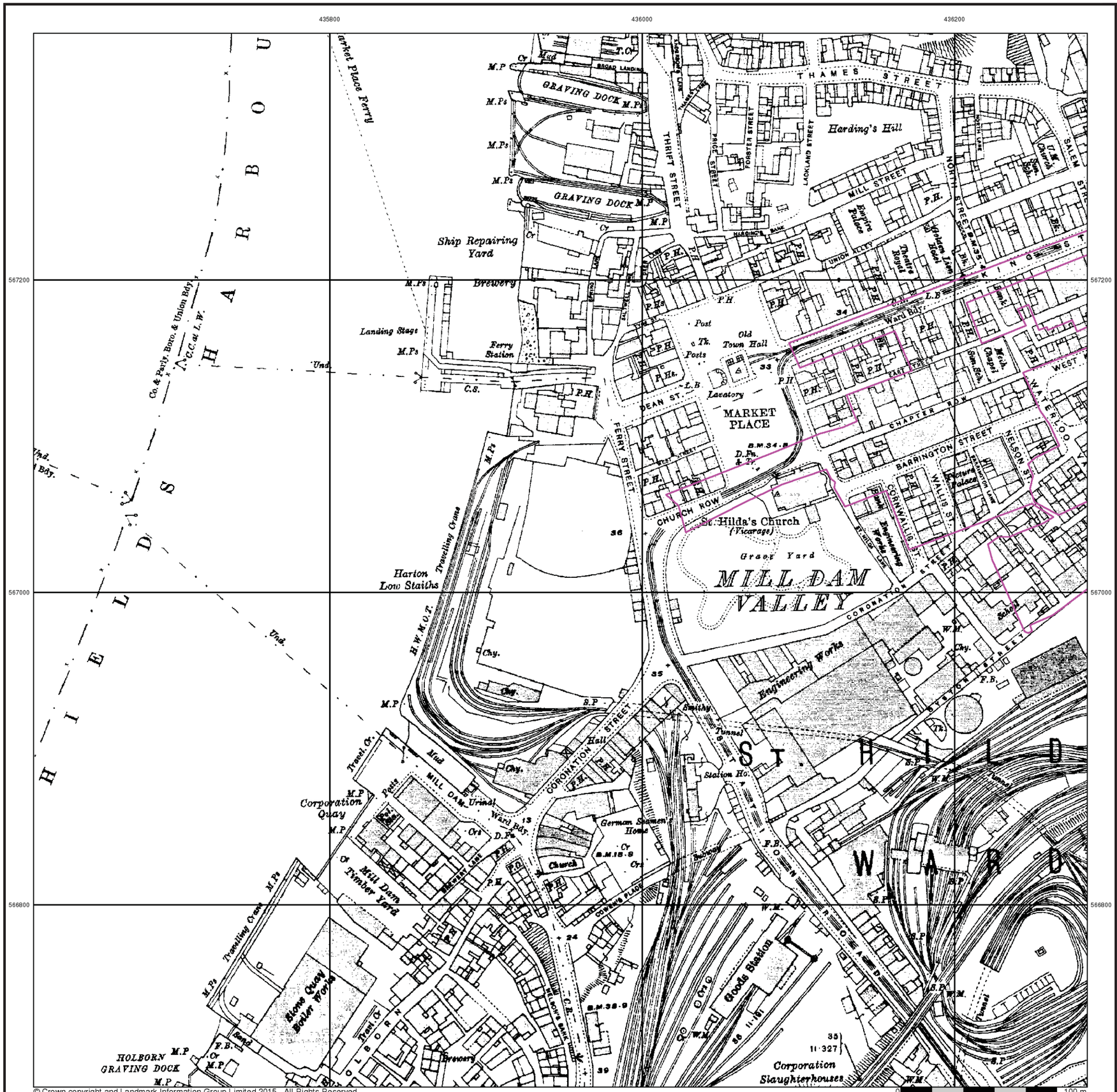

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Durham

Published 1915

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

🟩 004_05
1915
1:2,500

Historical Map - Segment A10

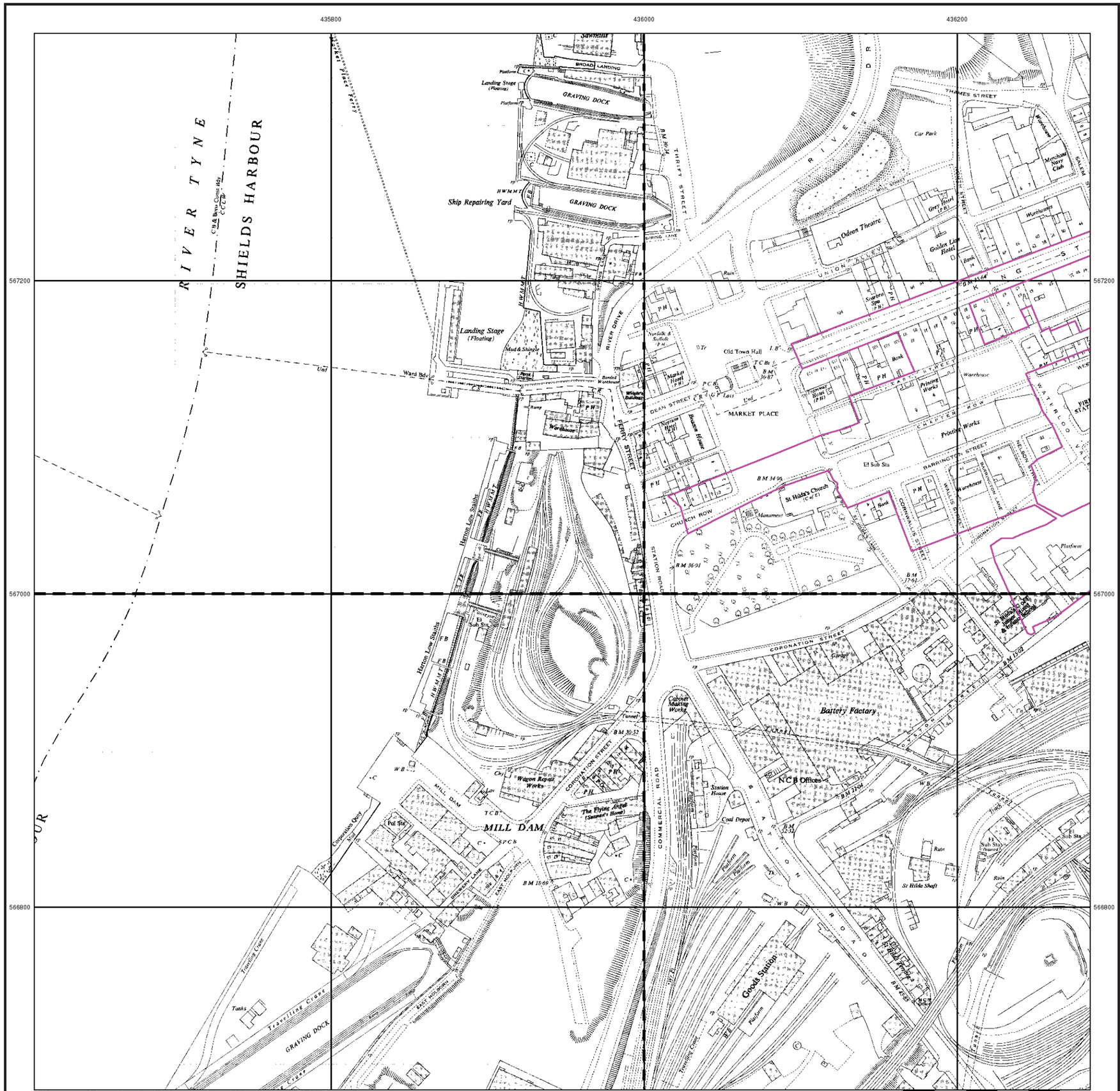
Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk



consulting engineers

Ordnance Survey Plan

Published 1956

Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

Historical Map - Segment A10

Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
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Site Details

Site at, South Shields, South Tyneside

Landmark
Information Group

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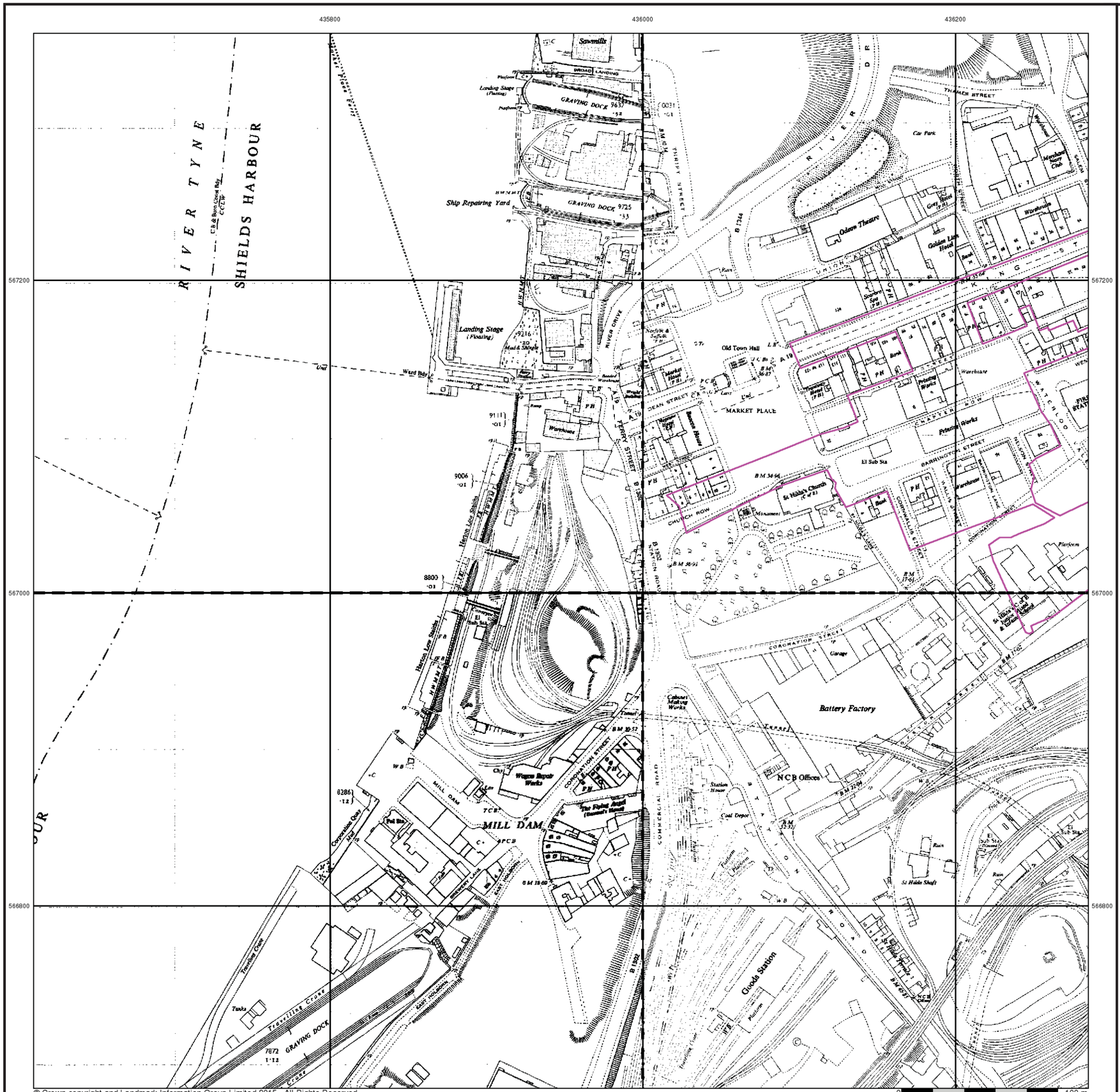

consulting engineers

Ordnance Survey Plan

Published 1956

Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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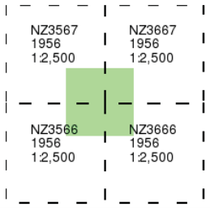
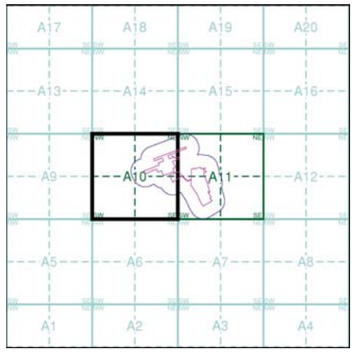


Historical Map - Segment A10



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

consulting engineers

Ordnance Survey Plan
Published 1963 - 1973
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

NZ3567SE 1973 1:1,250	NZ3667SW 1963 1:1,250
NZ3566NE 1968 1:1,250	NZ3666NW 1967 1:1,250

Historical Map - Segment A10

Order Details

Order Number: 65061966_1_1
Customer Ref: 15504
National Grid Reference: 436310, 567020
Slice: A
Site Area (Ha): 5.72
Search Buffer (m): 100

Site Details

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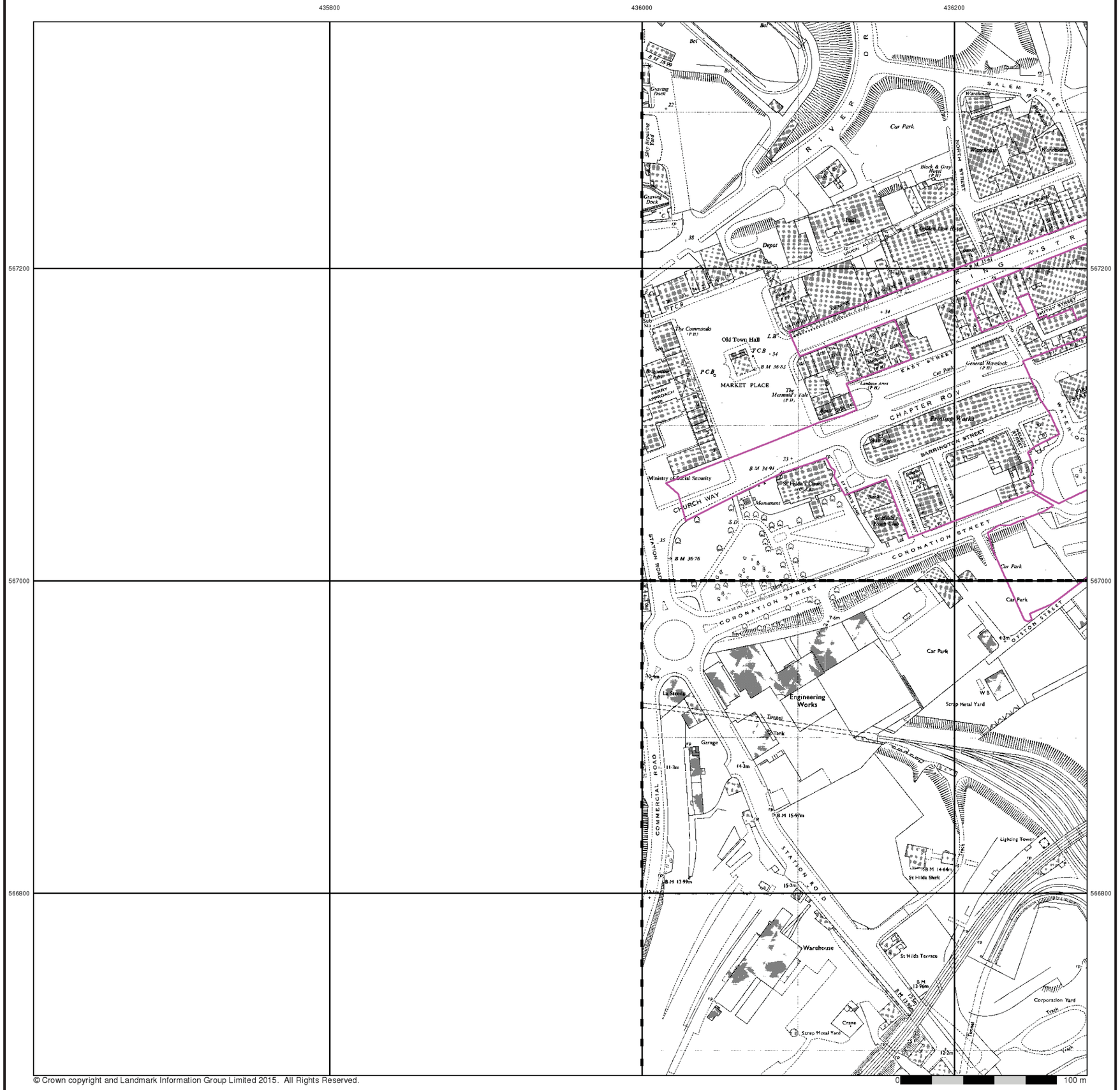


consulting engineers

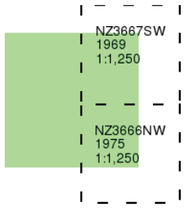
Ordnance Survey Plan

Published 1969 - 1975

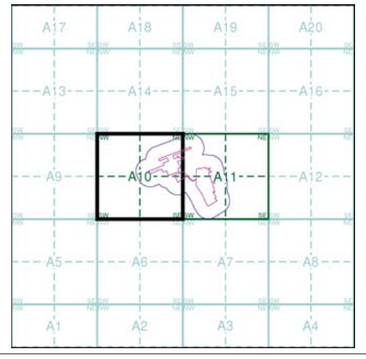
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

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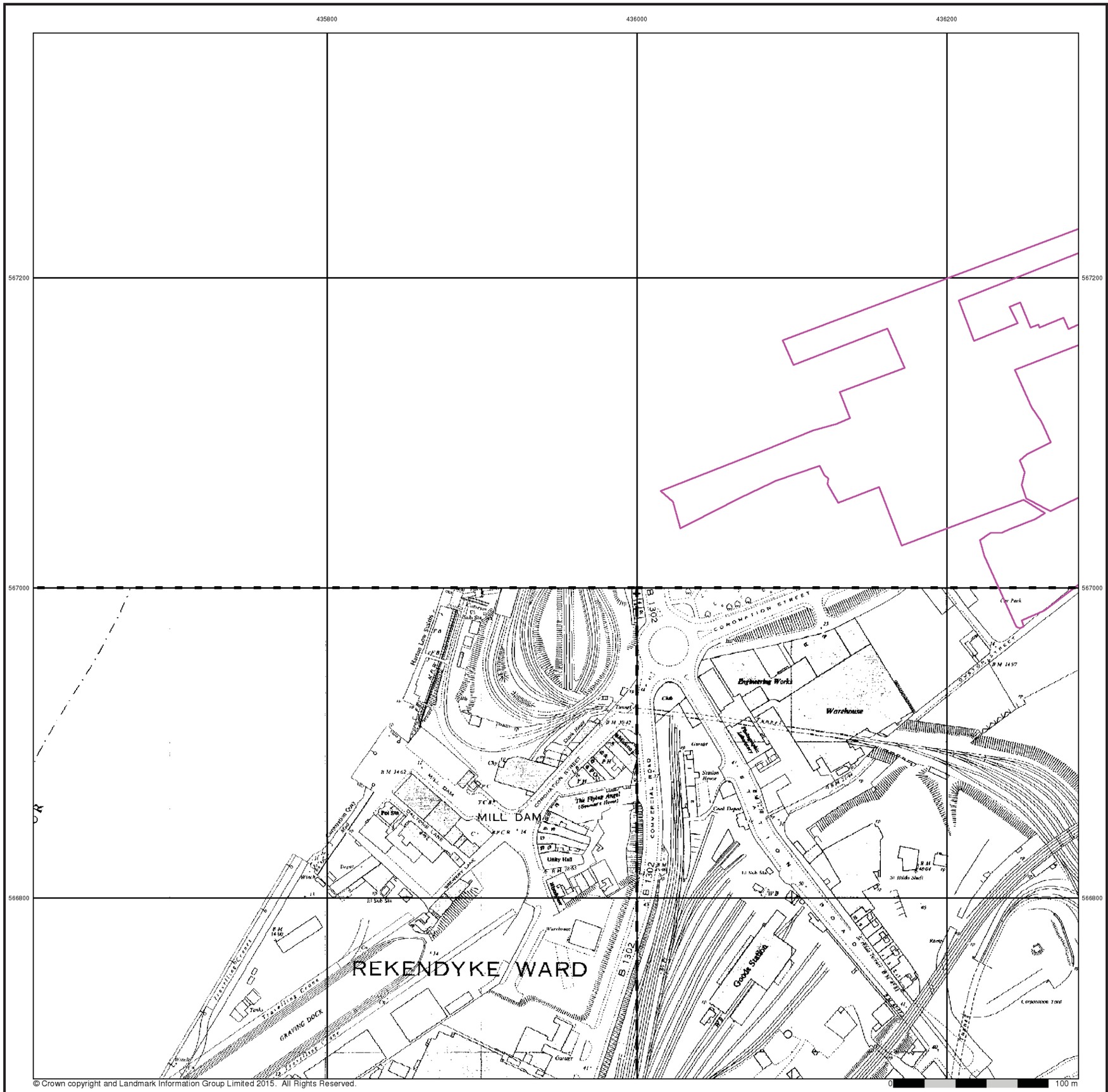


consulting engineers

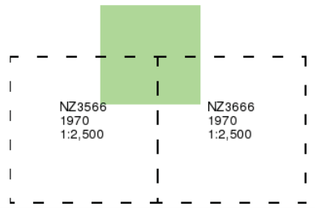
Ordnance Survey Plan

Published 1970

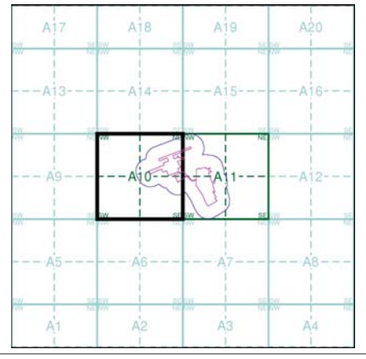
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

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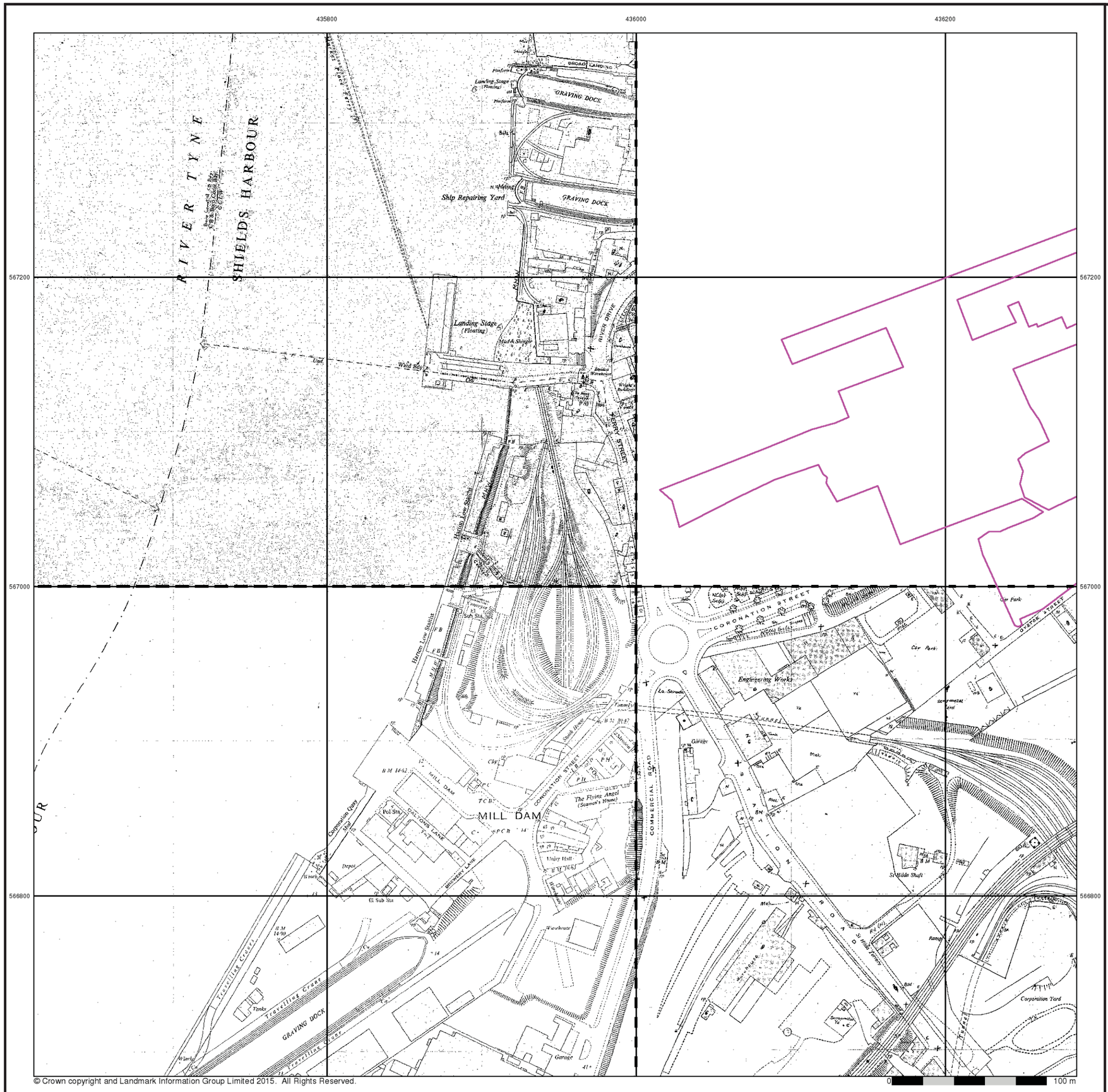


consulting engineers

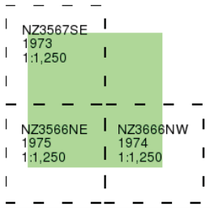
Supply of Unpublished Survey Information

Published 1973 - 1975

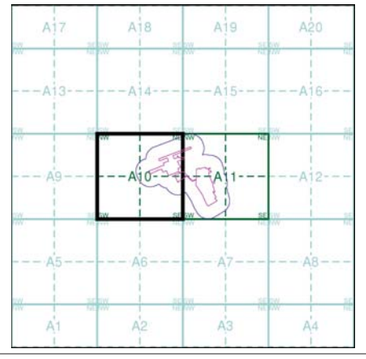
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number:	65061966_1_1
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National Grid Reference:	436310, 567020
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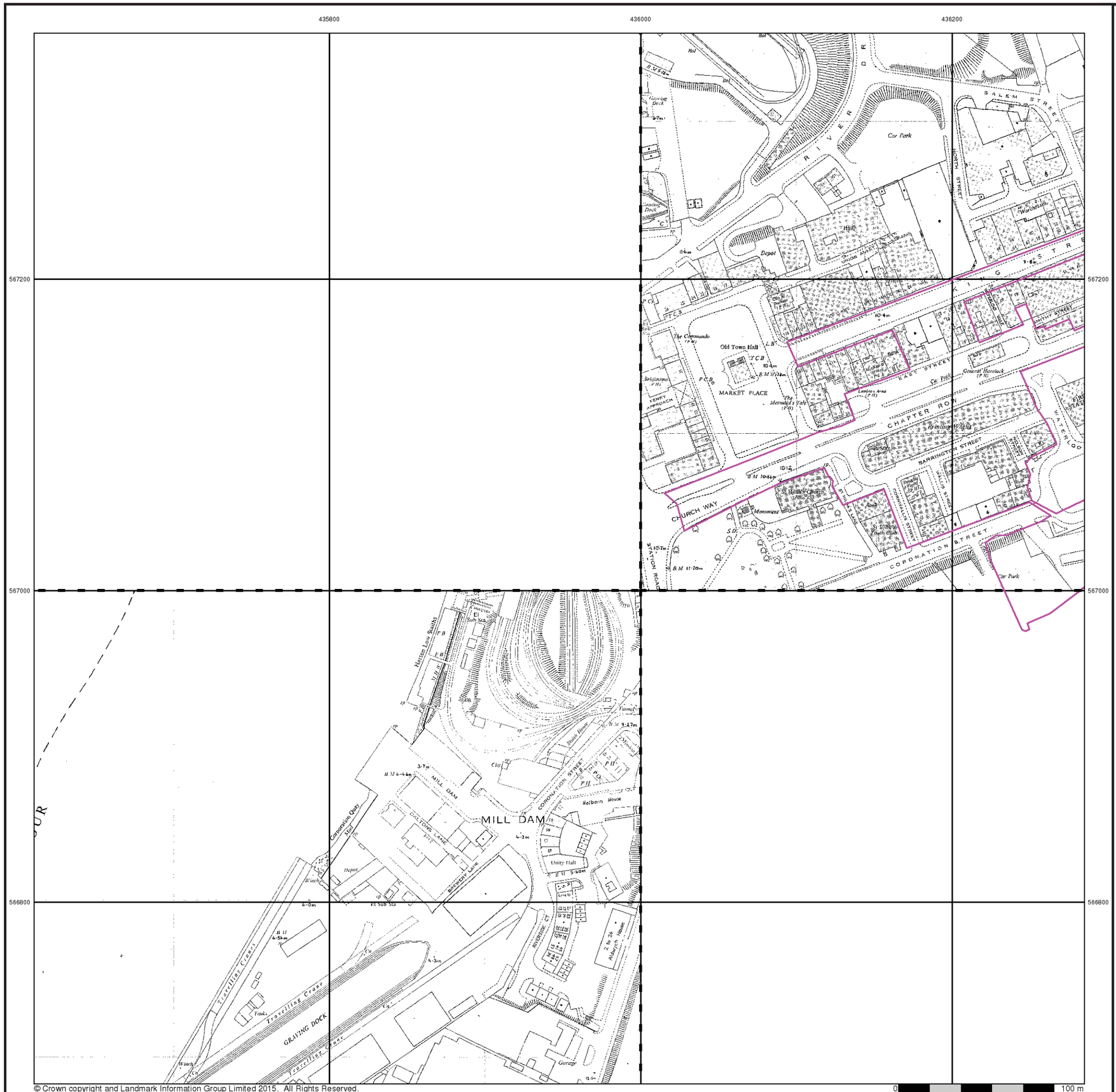


consulting engineers

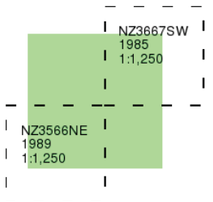
Additional SIMs

Published 1985 - 1989

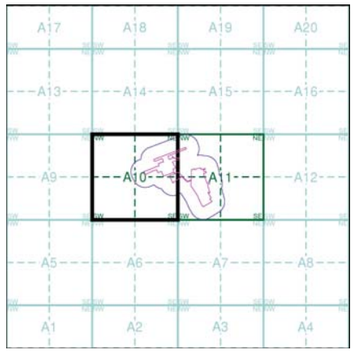
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

Landmark Information Group
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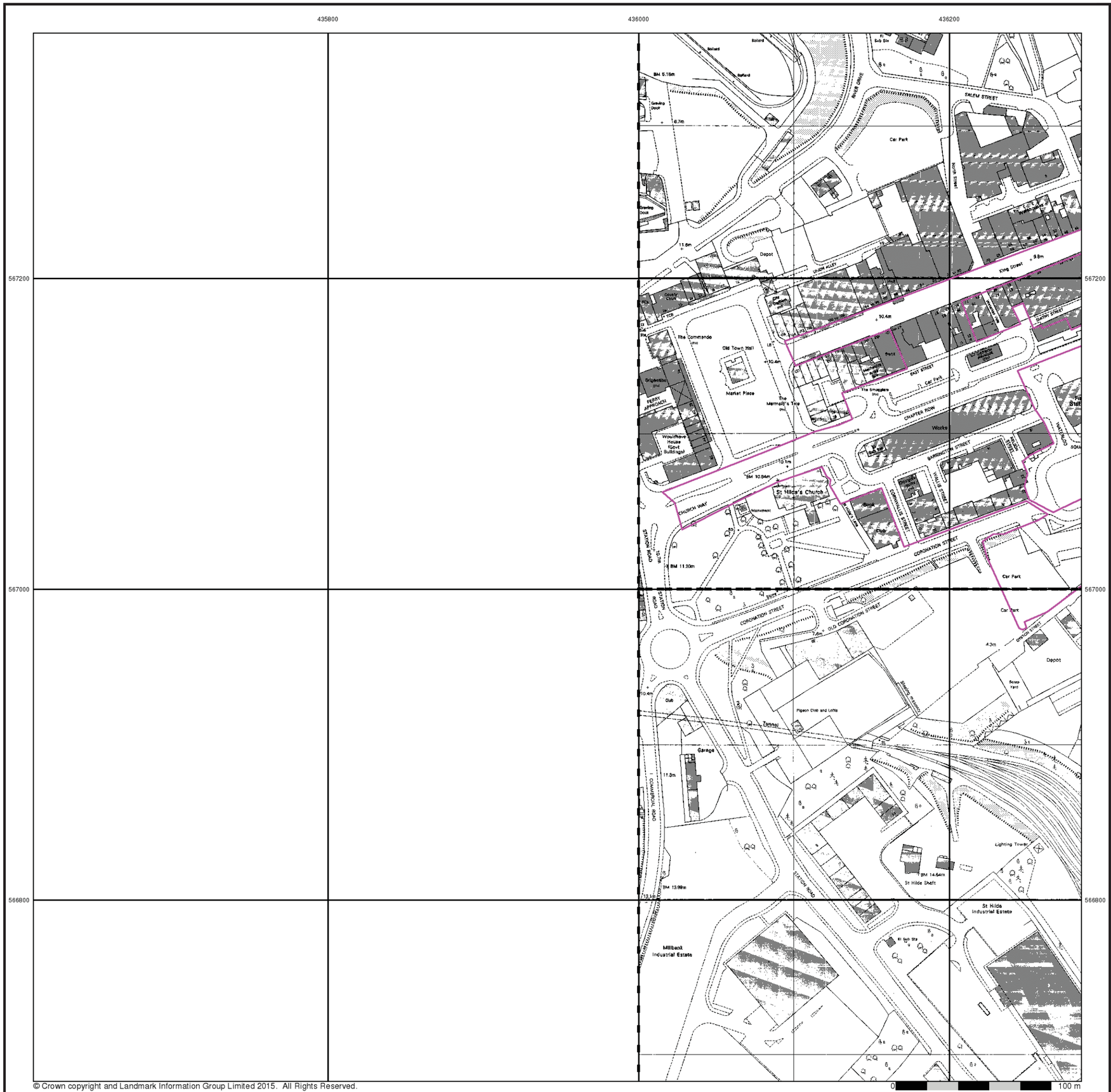
Web: www.envirocheck.co.uk



consulting engineers

Ordnance Survey Plan

Published 1989 - 1990

Source map scale - 1:1,250

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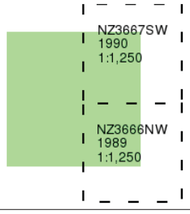
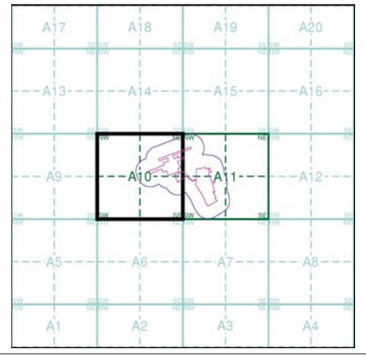
Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
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Site Details

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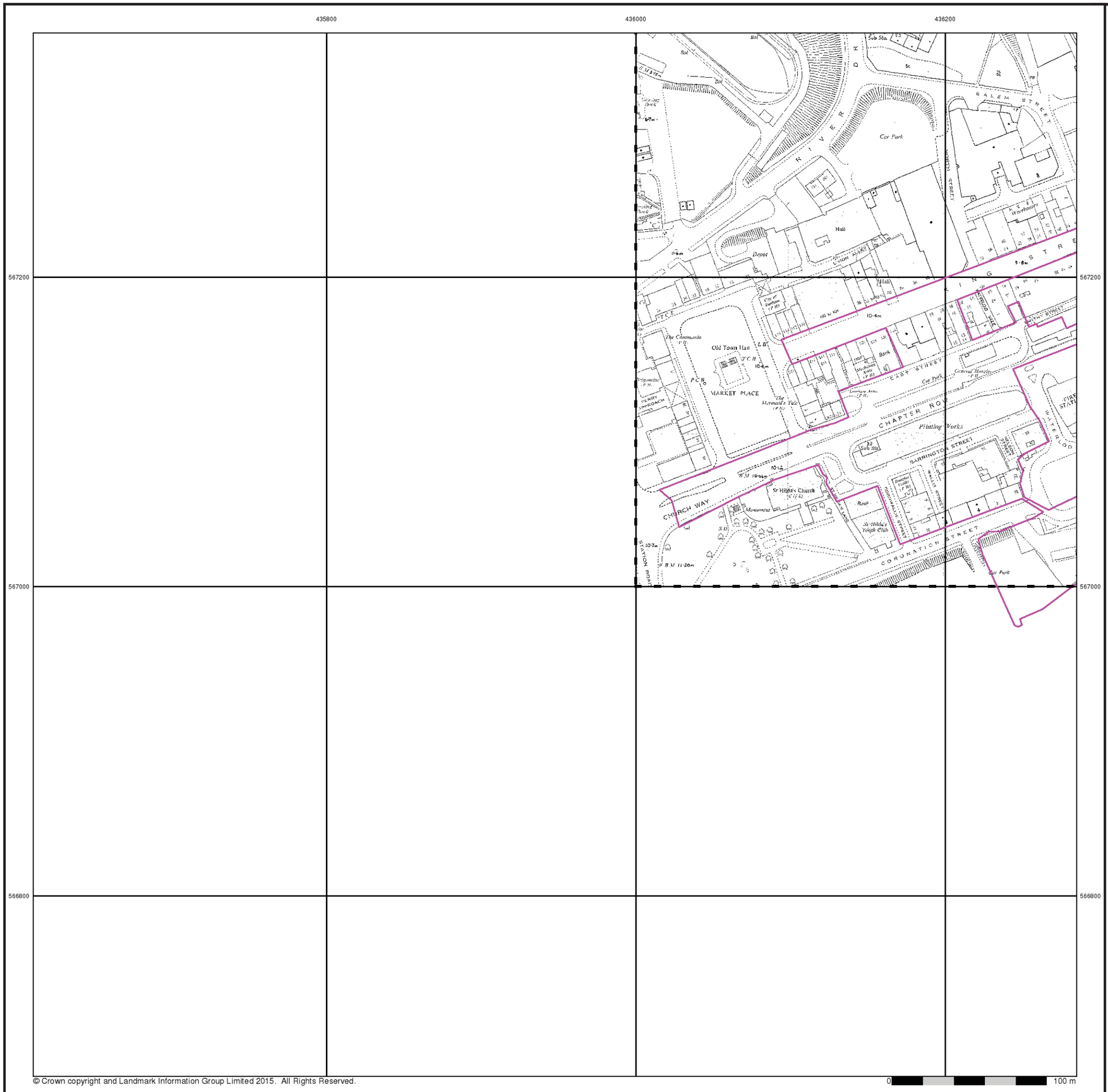

consulting engineers

Additional SIMs

Published 1989

Source map scale - 1:1,250

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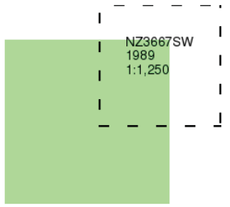
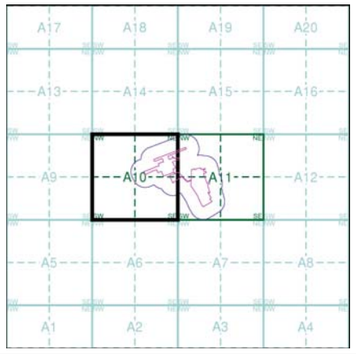


Historical Map - Segment A10



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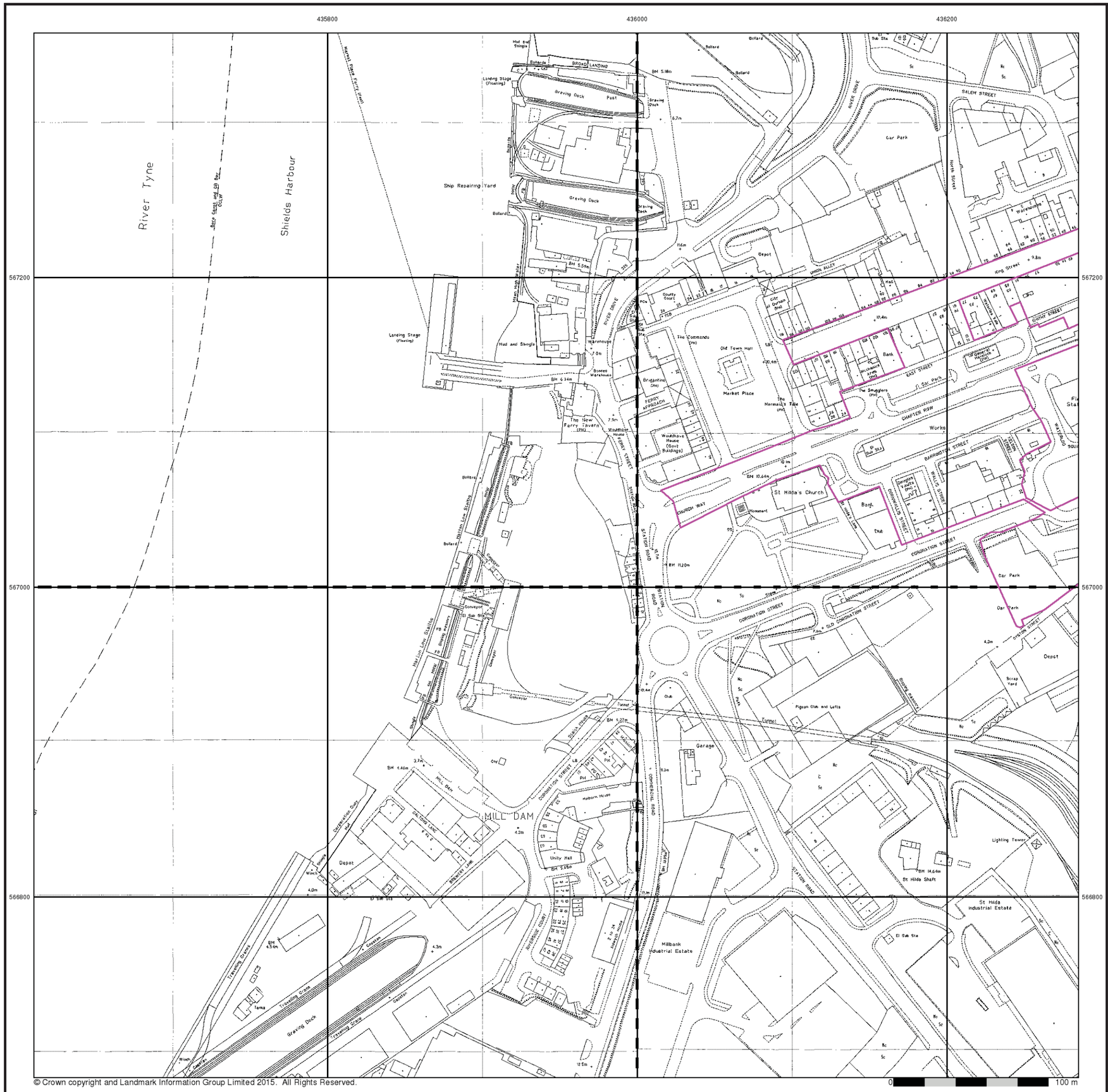


consulting engineers

Large-Scale National Grid Data

Published 1993

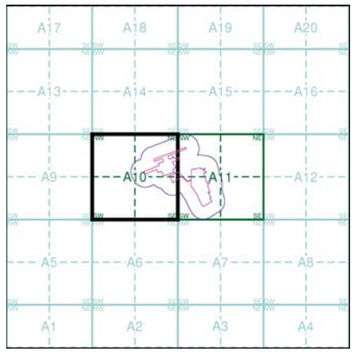
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

NZ3567SE 1993 1:1,250	NZ3667SW 1993 1:1,250
NZ3566NE 1993 1:1,250	NZ3666NW 1993 1:1,250

Historical Map - Segment A10



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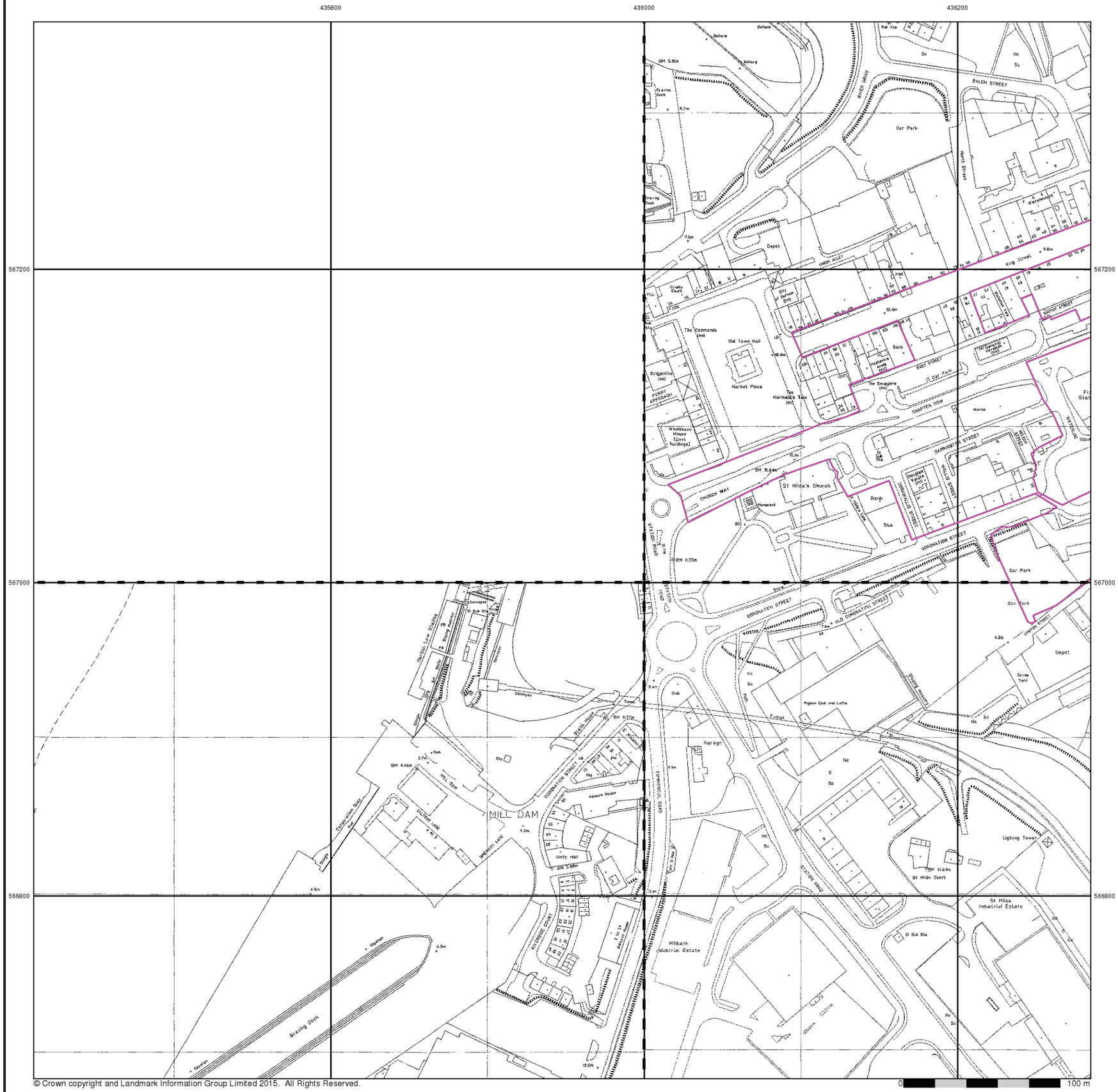


consulting engineers

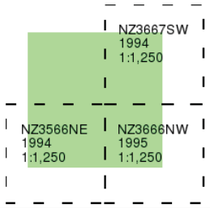
Large-Scale National Grid Data

Published 1994 - 1995

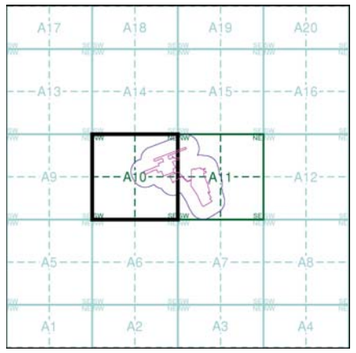
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



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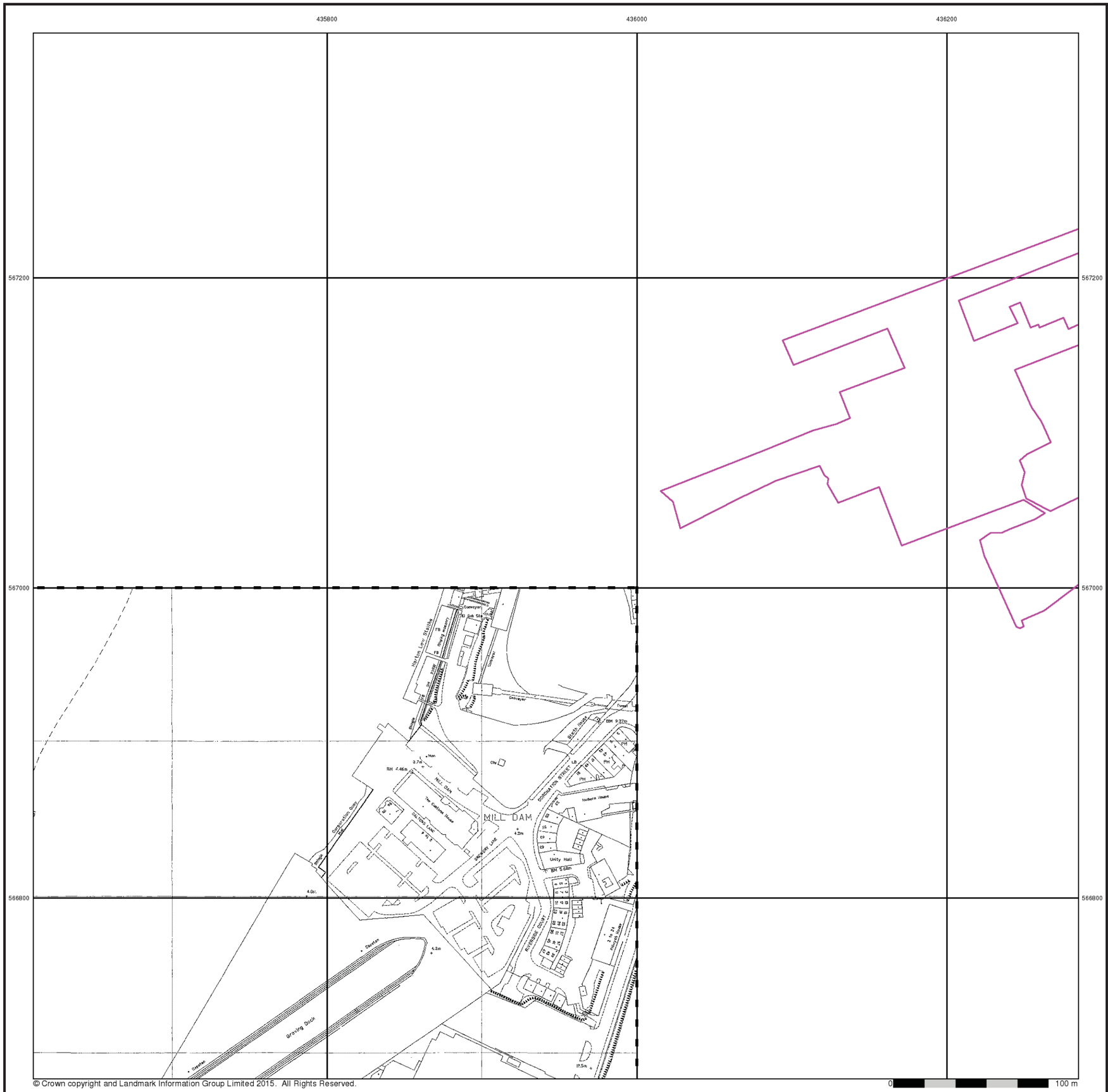

consulting engineers

Large-Scale National Grid Data

Published 1994

Source map scale - 1:1,250

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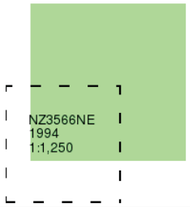
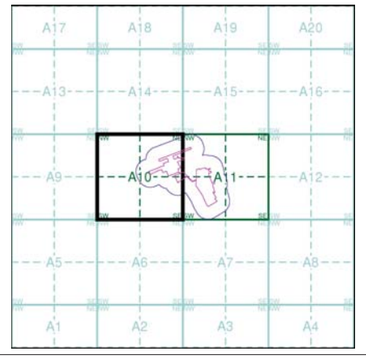
Map Name(s) and Date(s)



Historical Map - Segment A10



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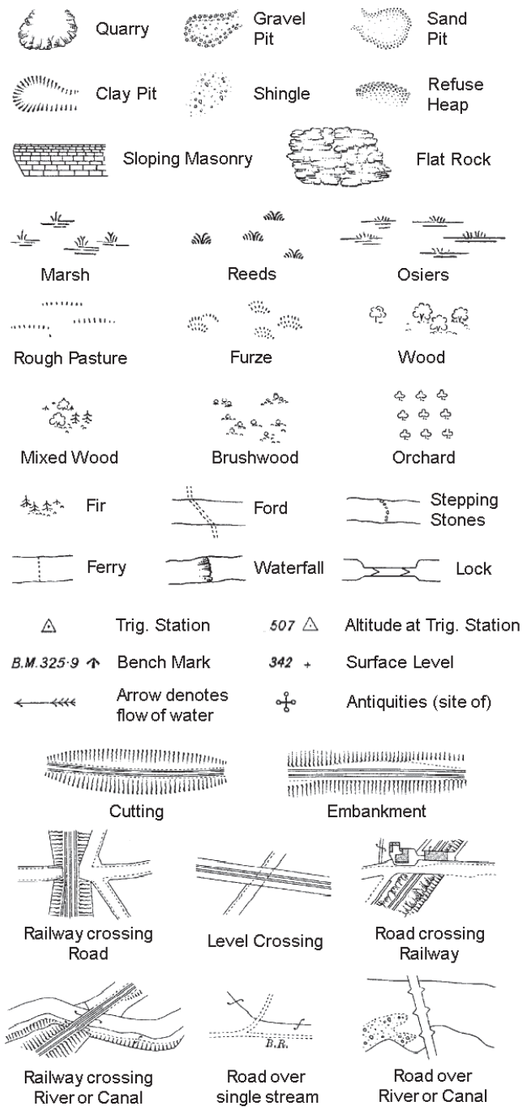
Historical Mapping Legends

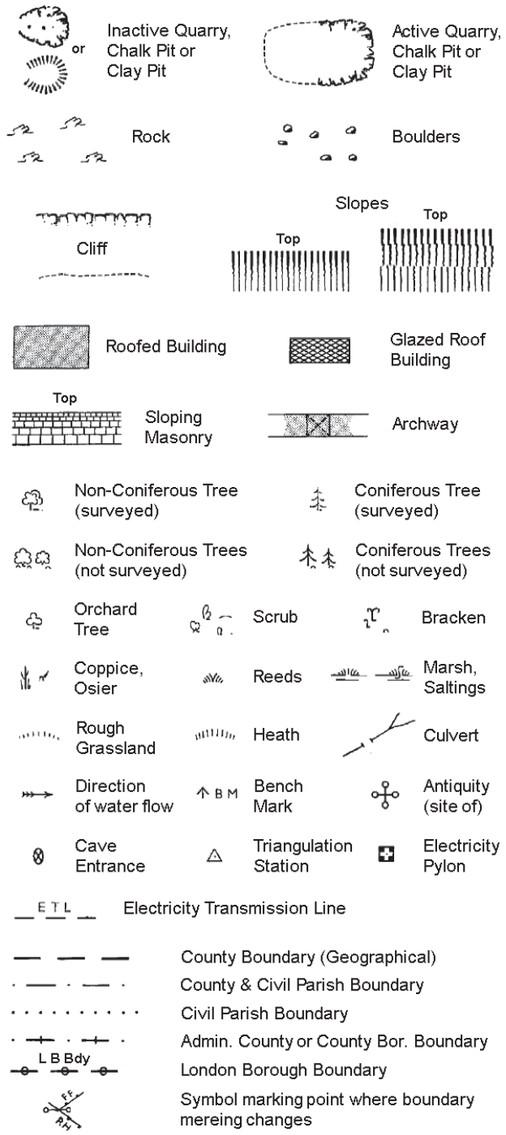
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	Sl.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

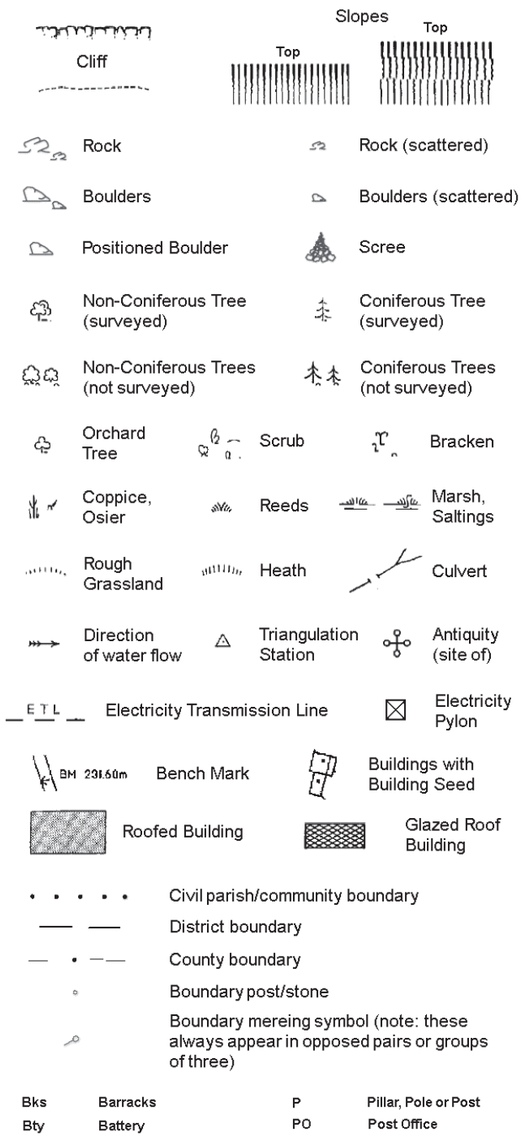
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
L B Bdy London Borough Boundary
Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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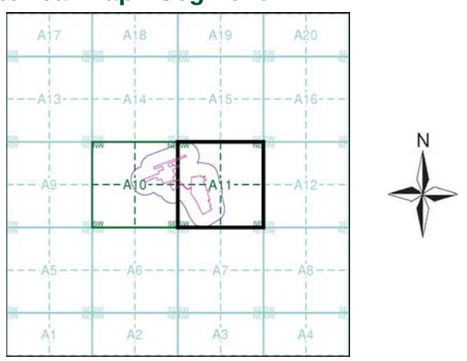
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Durham	1:2,500	1858	2
Northumberland	1:2,500	1861	3
Durham	1:2,500	1897	4
Durham	1:2,500	1915	5
Ordnance Survey Plan	1:2,500	1956	6
Ordnance Survey Plan	1:1,250	1956	7
Ordnance Survey Plan	1:1,250	1963 - 1975	8
Ordnance Survey Plan	1:1,250	1969 - 1989	9
Ordnance Survey Plan	1:2,500	1970	10
Supply of Unpublished Survey Information	1:1,250	1974 - 1975	11
Additional SIMs	1:1,250	1977 - 1985	12
Ordnance Survey Plan	1:1,250	1989 - 1990	13
Additional SIMs	1:1,250	1989 - 1991	14
Large-Scale National Grid Data	1:1,250	1993	15
Large-Scale National Grid Data	1:1,250	1994 - 1995	16
Large-Scale National Grid Data	1:1,250	1996	17

Historical Map - Segment A11



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

Landmark Information Group
Tel: 0844 844 9952
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Durham

Published 1858

Source map scale - 1:2,500

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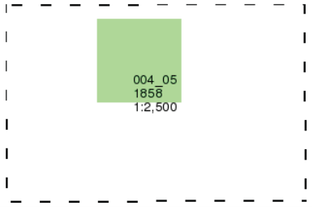
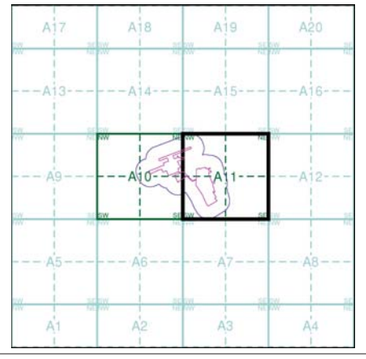
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

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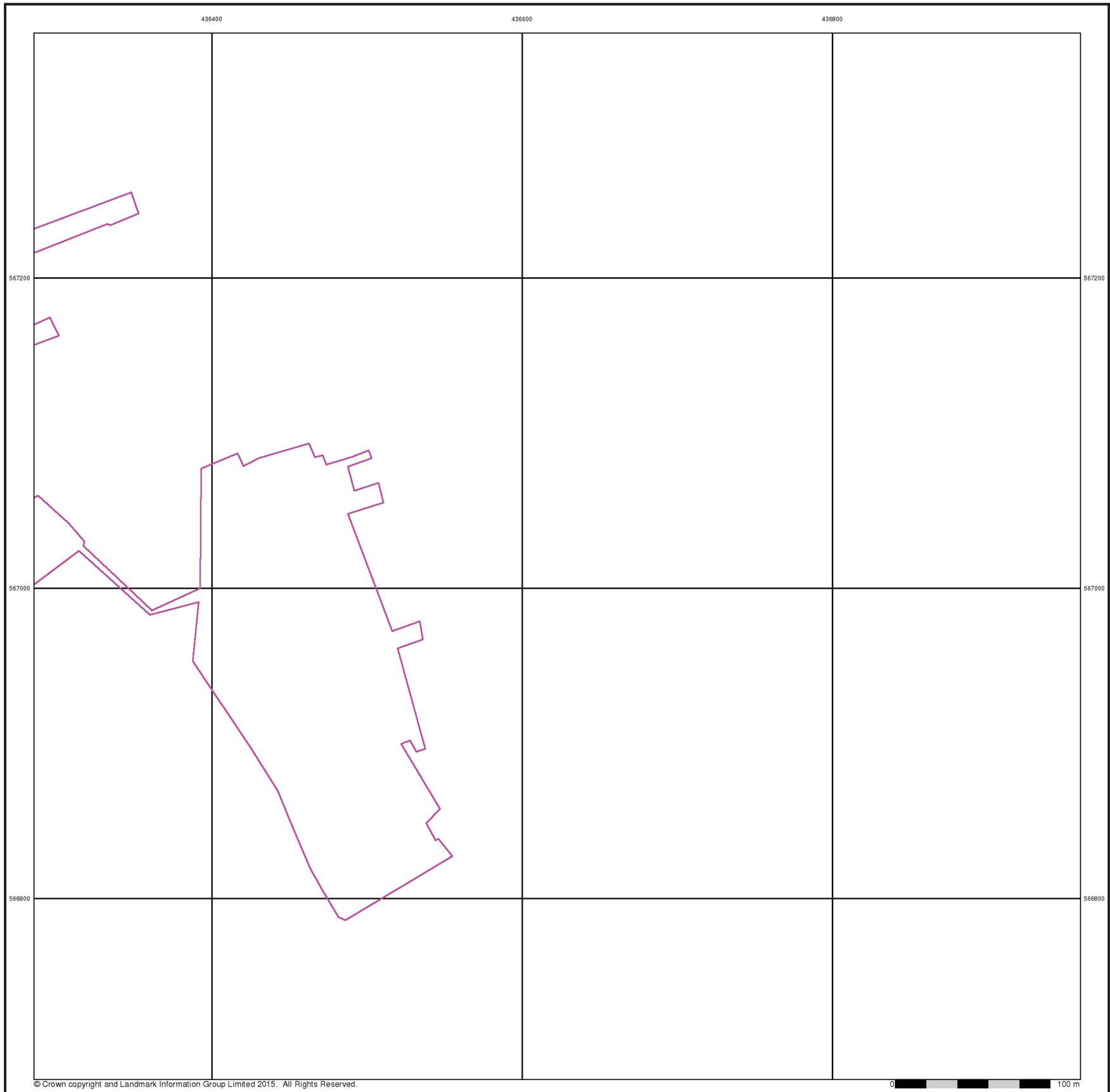

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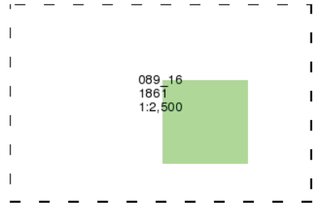
Northumberland

Published 1861

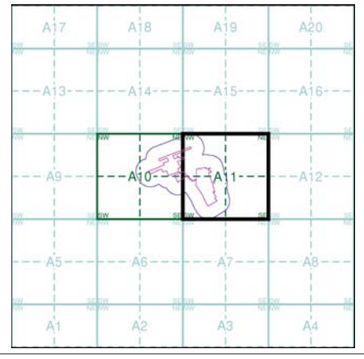
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
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Durham

Published 1897

Source map scale - 1:2,500

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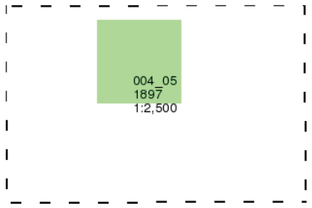
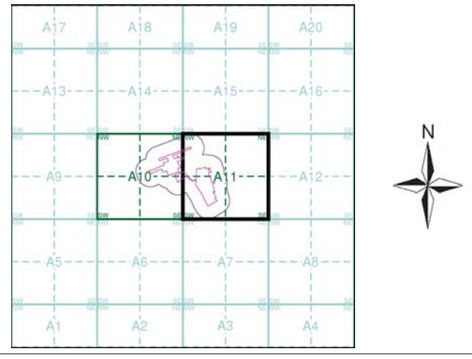
Map Name(s) and Date(s)



Historical Map - Segment A11



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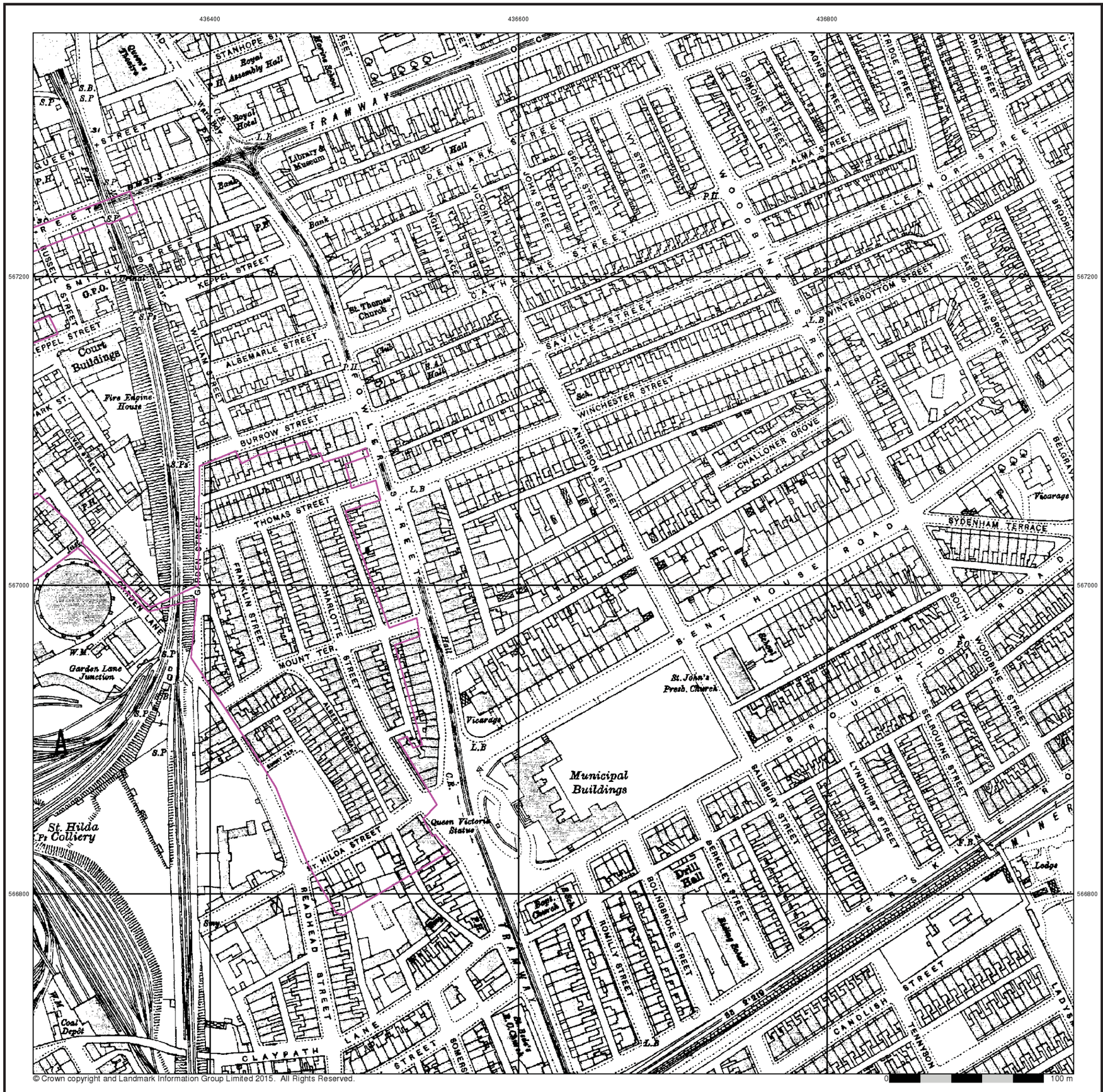

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Durham

Published 1915

Source map scale - 1:2,500

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Map Name(s) and Date(s)

Historical Map - Segment A11

Order Details

Order Number:	65061966_1_1
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Ordnance Survey Plan

Published 1956

Source map scale - 1:2,500

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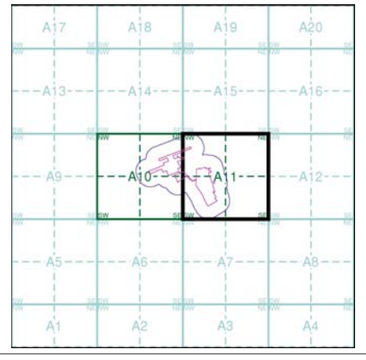
Map Name(s) and Date(s)

NZ3667
1956
1:2,500

NZ3666
1956
1:2,500

Historical Map - Segment A11



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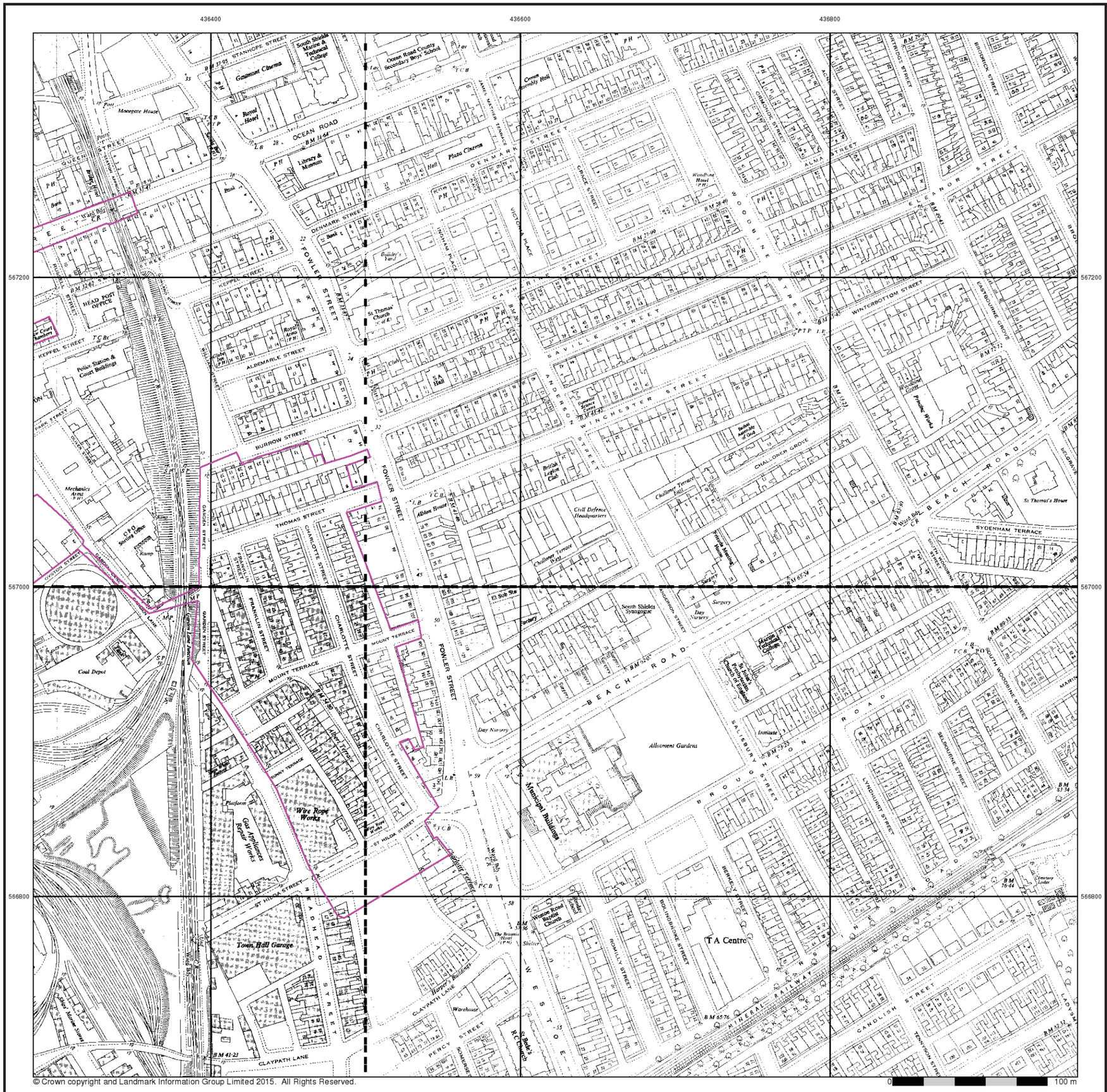

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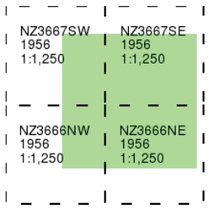
Ordnance Survey Plan

Published 1956

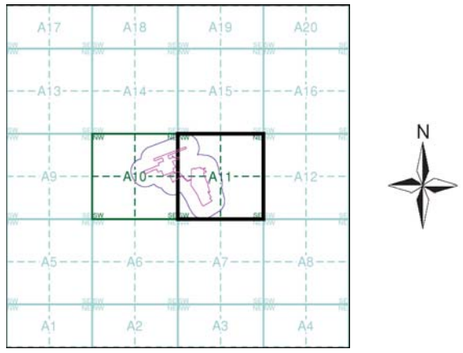
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

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Slice:	A
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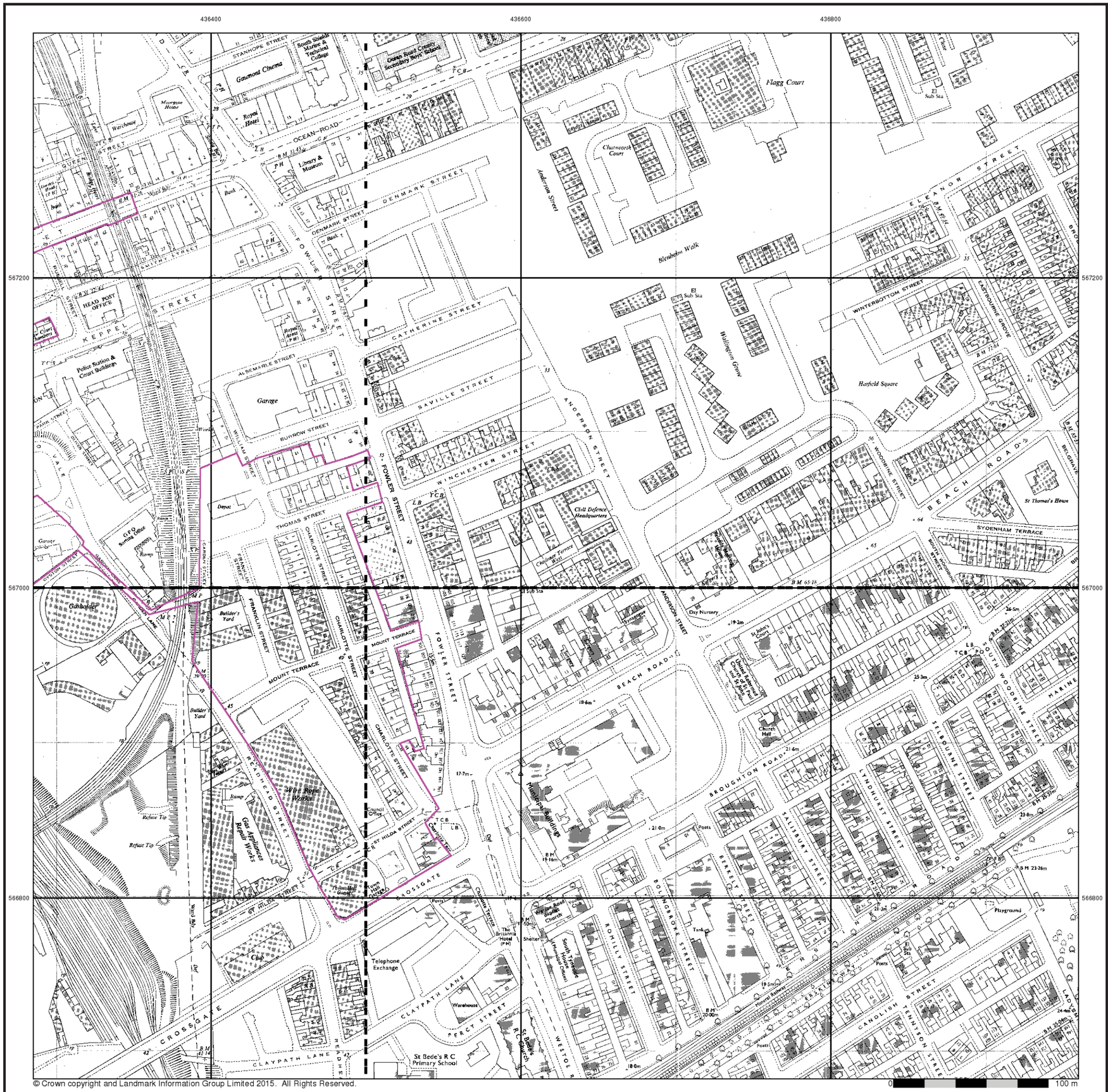

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Ordnance Survey Plan

Published 1963 - 1975

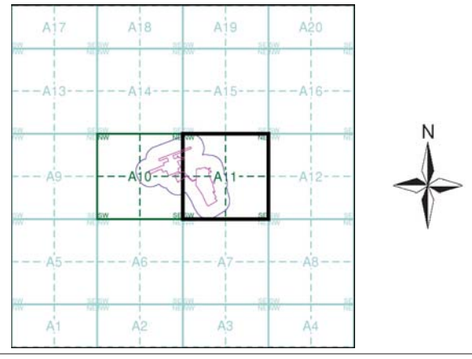
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

NZ3667SW 1963 1:1,250
NZ3667SE 1968 1:1,250
NZ3666NW 1967 1:1,250
NZ3666NE 1975 1:1,250

Historical Map - Segment A11



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

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Ordnance Survey Plan

Published 1969 - 1989

Source map scale - 1:1,250

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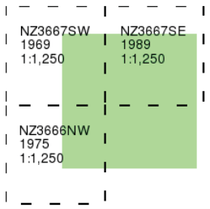
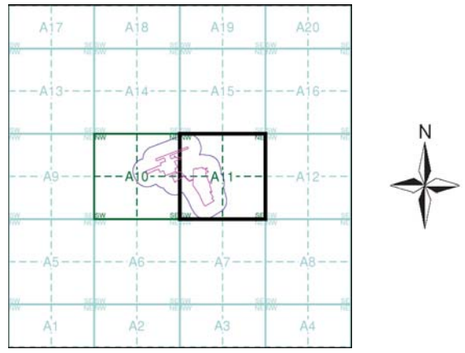
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
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Site Details

Site at, South Shields, South Tyneside

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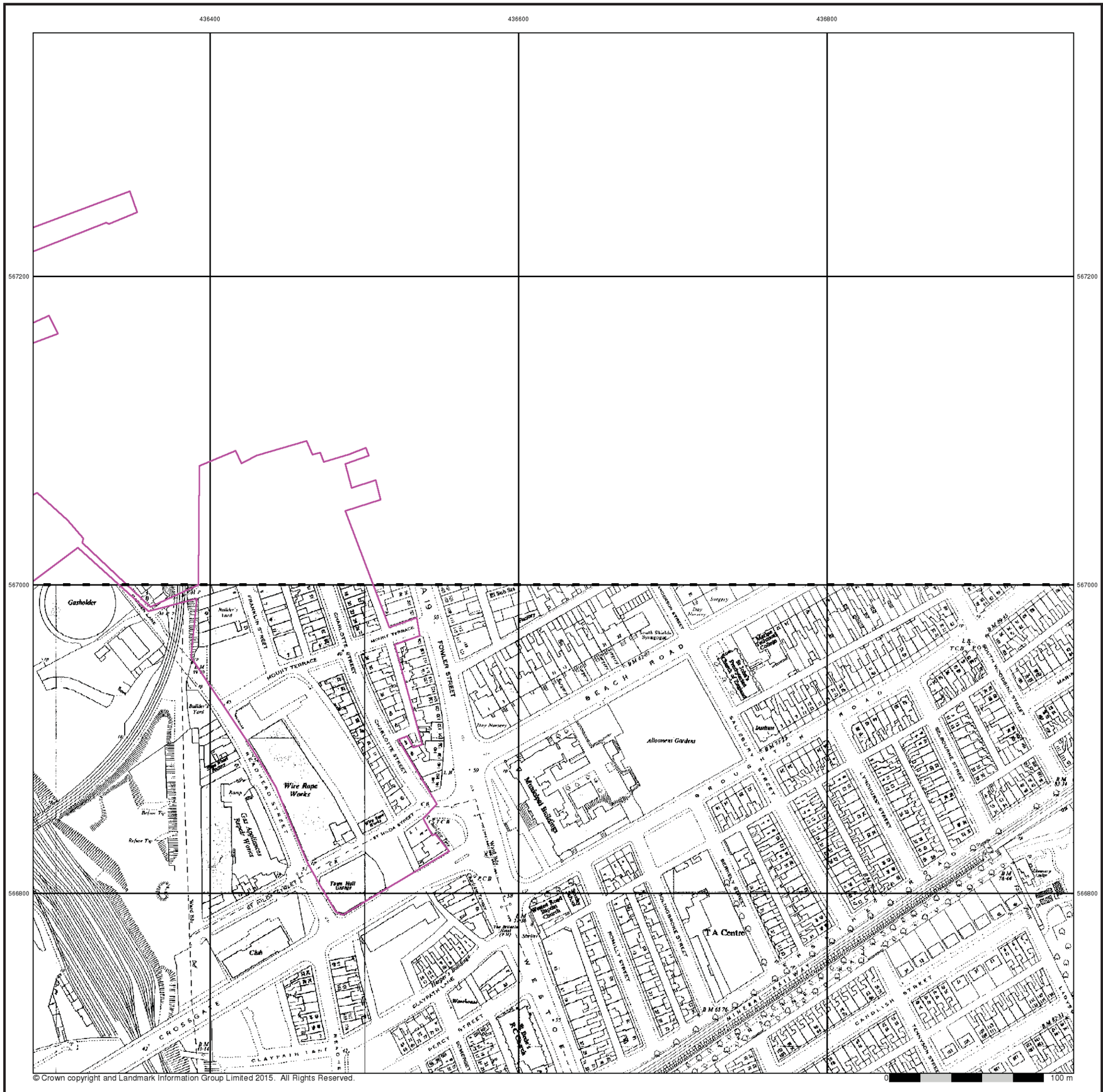

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Ordnance Survey Plan

Published 1970

Source map scale - 1:2,500

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Map Name(s) and Date(s)

Historical Map - Segment A11

Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

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0 100 m

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Supply of Unpublished Survey Information

Published 1974 - 1975

Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

Historical Map - Segment A11

Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
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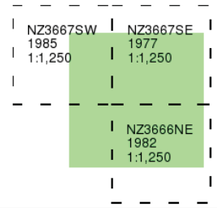
Additional SIMs

Published 1977 - 1985

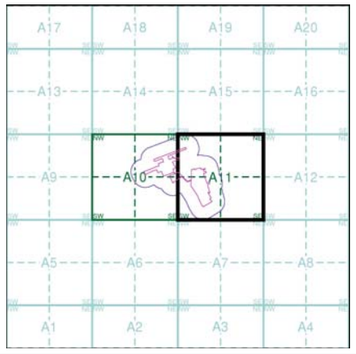
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

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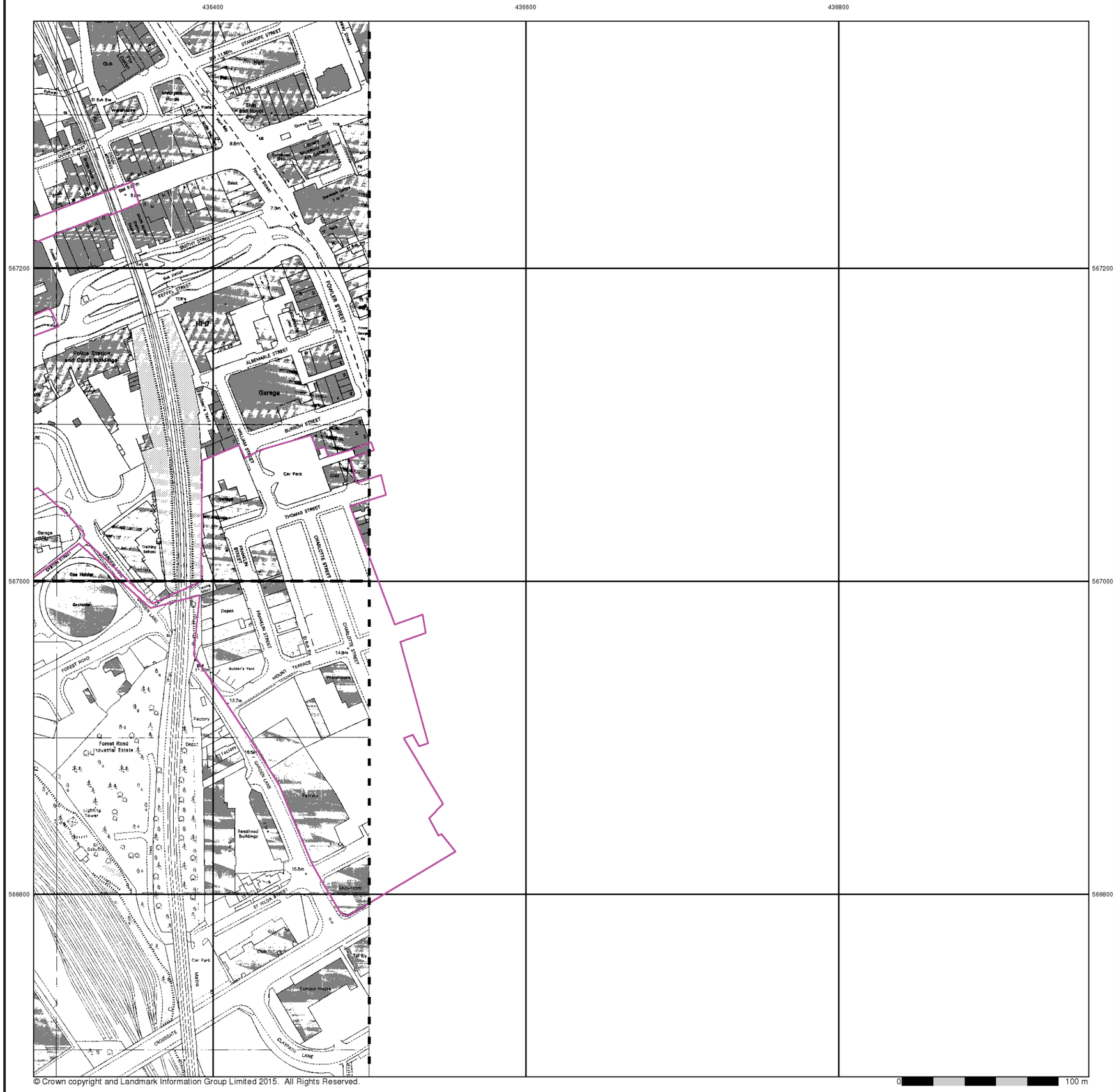

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Ordnance Survey Plan

Published 1989 - 1990

Source map scale - 1:1,250

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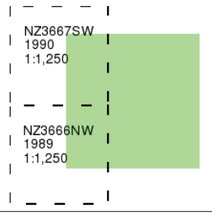
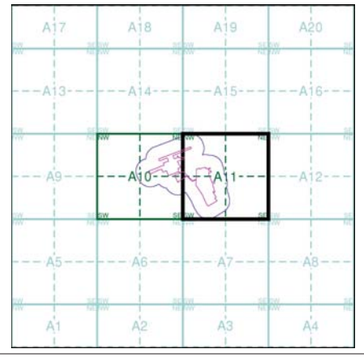


Historical Map - Segment A11



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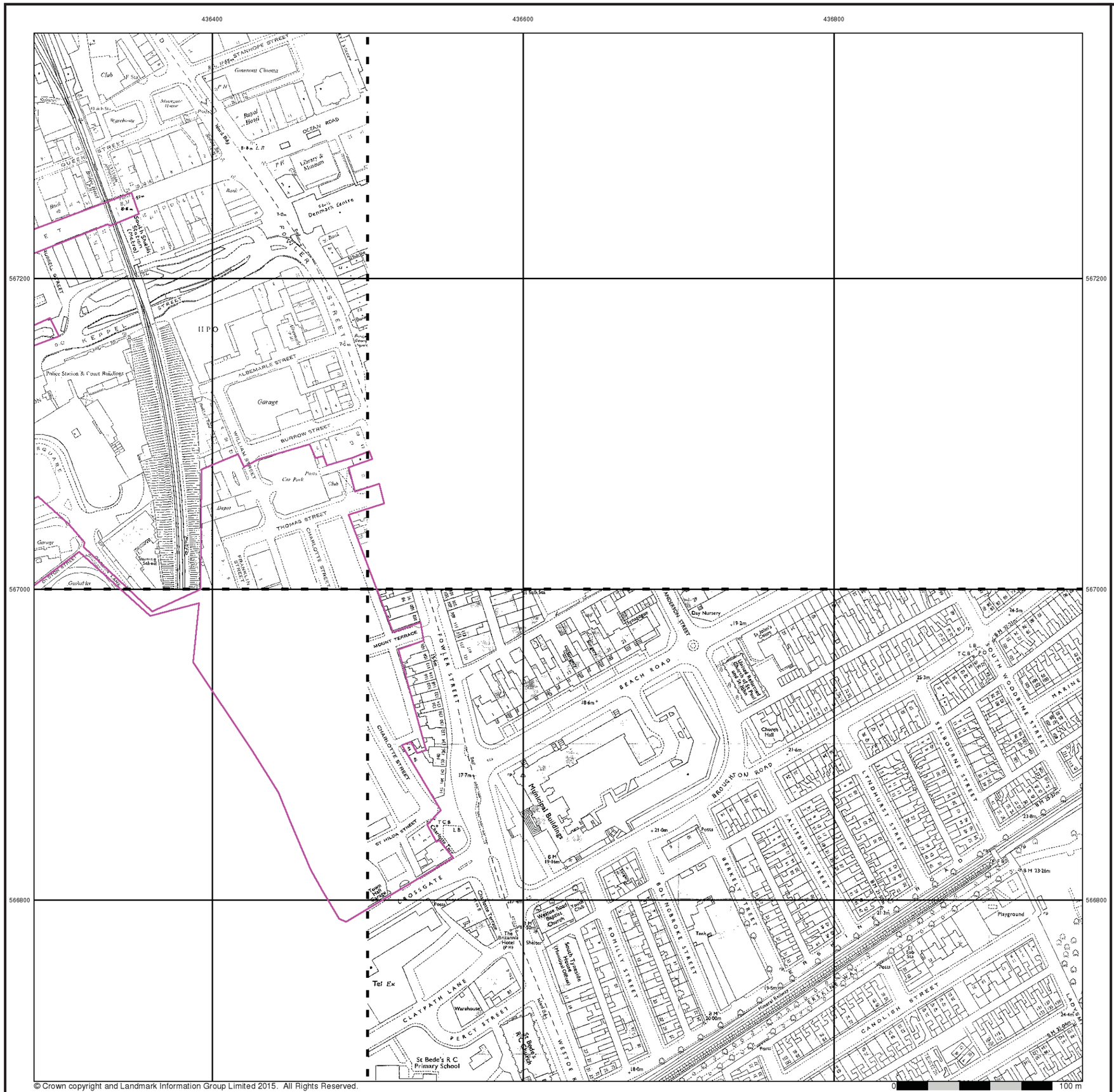

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Additional SIMs

Published 1989 - 1991

Source map scale - 1:1,250

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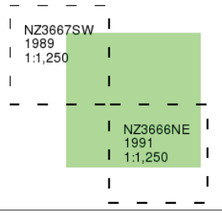
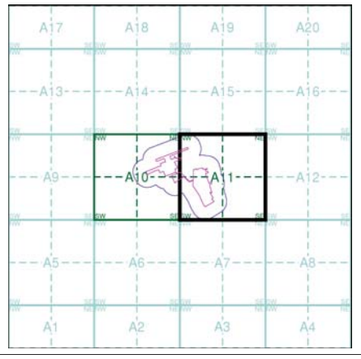
Map Name(s) and Date(s)



Historical Map - Segment A11



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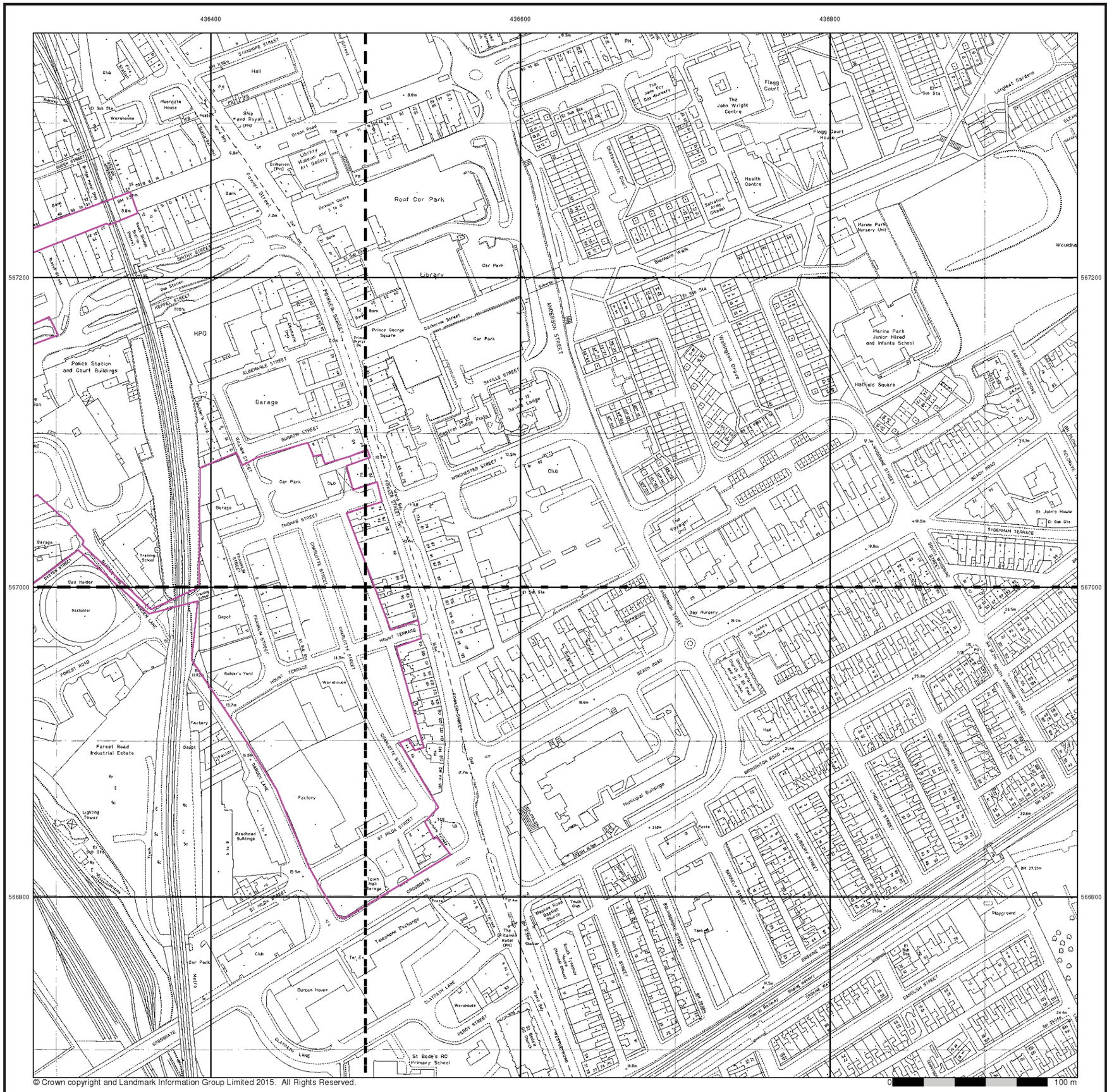

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0 100 m

Large-Scale National Grid Data

Published 1993

Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

Historical Map - Segment A11

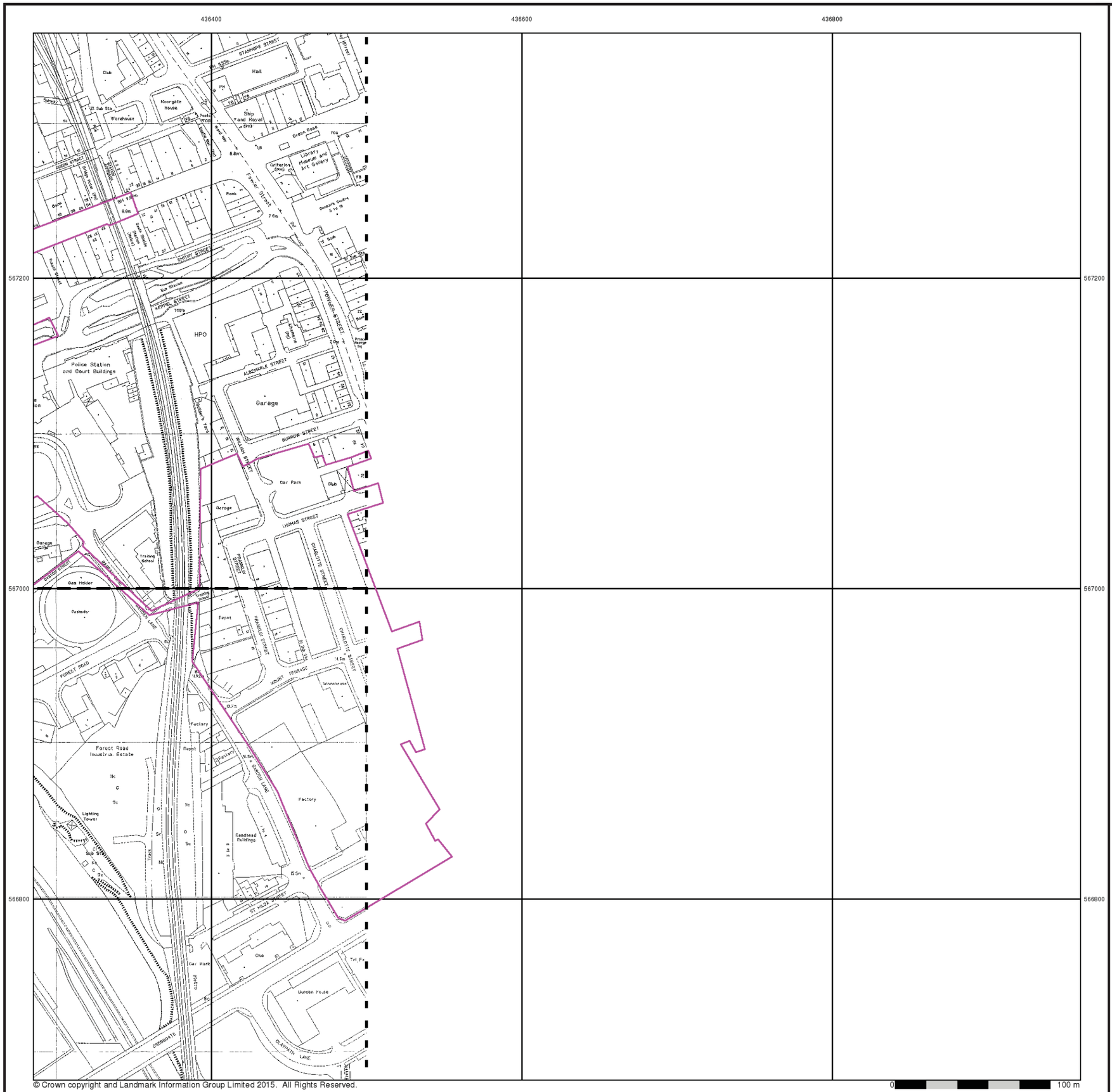
Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	100

Site Details

Site at, South Shields, South Tyneside

Tel:	0844 844 9952
Fax:	0844 844 9951
Web:	www.envirocheck.co.uk



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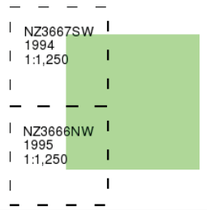
Large-Scale National Grid Data

Published 1994 - 1995

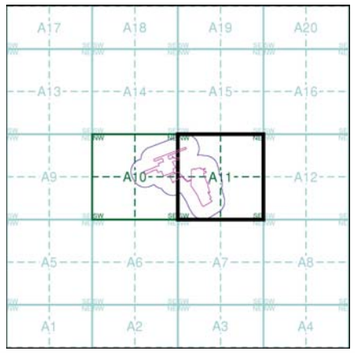
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11



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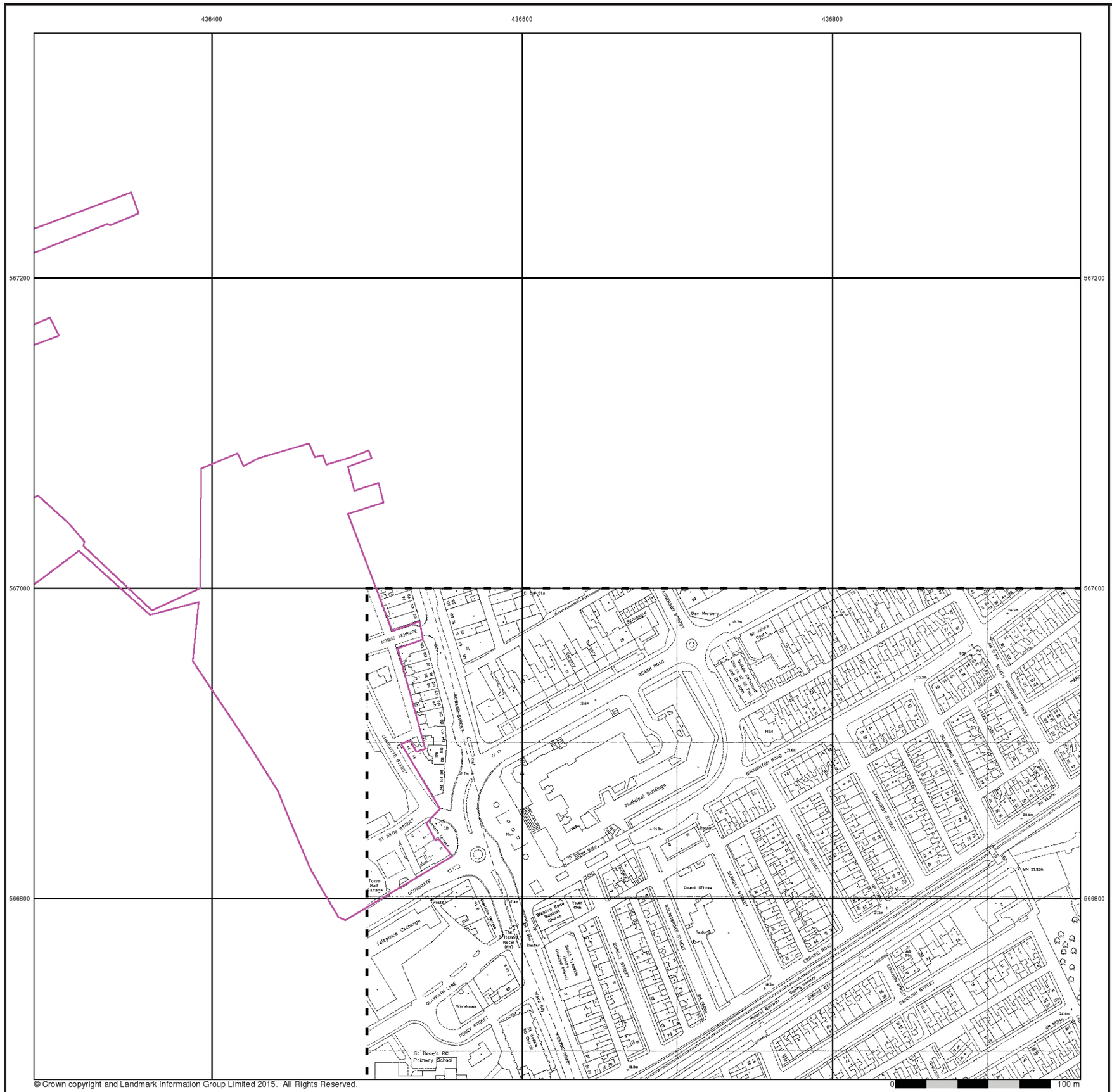

consulting engineers

Large-Scale National Grid Data

Published 1996

Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

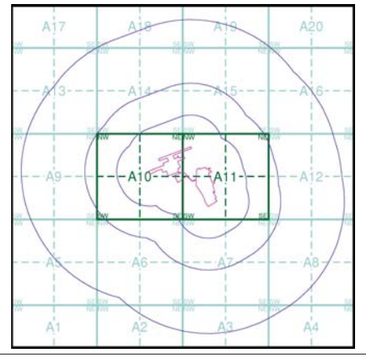
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

consulting engineers

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Durham	1:10,560	1862	3
Northumberland	1:10,560	1864 - 1865	4
Durham	1:10,560	1898	5
Northumberland	1:10,560	1899	6
Durham	1:10,560	1921	7
Durham	1:10,560	1938	8
Ordnance Survey Plan	1:10,000	1951 - 1952	9
Ordnance Survey Plan	1:10,000	1957	10
Ordnance Survey Plan	1:10,000	1967	11
Ordnance Survey Plan	1:10,000	1973 - 1976	12
Newcastle-upon-Tyne	1:25,000	1977	13
Ordnance Survey Plan	1:10,000	1982 - 1986	14
Ordnance Survey Plan	1:10,000	1993 - 1995	15
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2014	17

Historical Map - Slice A



Order Details

Order Number: 65061966_1_1
Customer Ref: 15504
National Grid Reference: 436310, 567020
Slice: A
Site Area (Ha): 5.72
Search Buffer (m): 1000

Site Details

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Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Fireproof Building
- Prominent Fireproof Building
- Non-fireproof Building
- Non-fireproof Building (non-dwelling)
- Factory, mill, and flour mill, with chimneys
- Factory, mill, and flour mill, without chimneys
- Power Station, drawn to scale
- Hydroelectric Power Station
- Radio Station, drawn to scale
- Telephone Station, drawn to scale
- Abandoned Open-pit Mine or Quarry
- Open-pit Salt Mine
- Pit
- Oil Deposit or Well
- Oil Seepage
- Tailings Pile
- Fuel Storage Tanks
- Natural Gas Tank
- Bench Mark
- Drill Hole
- Burial Mound
- Triangulation Point on Burial Mound
- Single-track Railroad
- Double-track Railroad and Station Building
- Coniferous Forest
- Deciduous Forest
- Mixed Forest
- Lawns
- Citrus Orchard
- Wet Ground
- Scattered Vegetation

243,8 — Values for prominent elevations

186.0 — Numbers for spot elevations, depth soundings, contour lines, etc.

0,2 — Velocity of the current, width of river bed, depth of river

Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	ъ (–)
Д д (D)	Л л (L)	У у (U)	ы (Y)
Е е (E)	М м (M)	Ф ф (F)	ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

- Government and Administrative Buildings
- Military and Industrial Buildings
- Military and Communication Areas
- Subway Entrance
- Partly Demolished Buildings
- Demolished Buildings
- Built-Up Area with Fireproof Buildings Predominant
- Built-Up Area with Non-Fireproof Buildings Predominant
- Individual Fireproof Building
- Prominent Industrial Building
- Individual Dwelling, Fireproof
- Ruins of an Individual Dwelling
- Factory or Mill Chimney
- Factory or Mill with Chimney
- Factory or Mill without Chimney
- Mine or Open Pit Mine
- Operating Shaft or Mine
- Non-Operating Shaft or Mine
- Salt Mine
- Tailings Pile
- Pit
- Stone Quarry
- Gas Pump or Service Station
- Fuel Storage or Natural Gas Tank
- Oil or Natural Gas Derrick
- Small Hydroelectric Power Station
- Power Station
- Transformer Station
- Cemetery
- Burial Mound (height in metres)
- Triangulation Point on Burial Mound
- Triangulation Point
- Bench Mark
- Bench Mark (monumented)
- Telegraph Office
- Telephone Station
- Radio Station
- Radio Tower
- Airfield or Seaplane Base
- Landing Strip
- Main Highway
- Highway under Construction
- Improved Dirt Road (former truck road)
- Double-track Railroad with First Class Station
- Dismantled Railroad
- Railroad Under Construction
- Shore Embankment
- River or Ditch with Embankment
- Direction and velocity of current
- Well
- Water Reservoir or Rain Water Pit
- Spring
- Isobath with value
- Heavy (Index) Contour Line
- Contour Line and Value
- Half Contour Line
- Spot Elevation Value
- Coniferous
- Deciduous
- Mixed
- Scrub

Key to Numbers on Mapping

NZ36_Newcastle

No.	Description
31	Sawmill
39	Factory (Metal Works)
63	Factory (Ship Repairs)
64	Factory (Ship Repairs)
132	Council/Government Buildings/Courts
134	Storage (Flammable And Lubricant Materials)
142	Warehouses (Use Unknown) And Port Buildings
147	Railway Station (Freight)
163	Custom House

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Historical Mapping & Photography included:

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Durham	1:10,560	1862	3
Northumberland	1:10,560	1864 - 1865	4
Durham	1:10,560	1898	5
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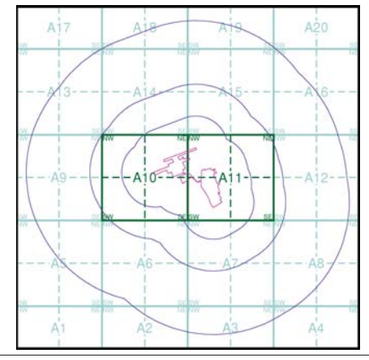
10K Raster Mapping	1:10,000	2006	16
VectorMap Local	1:10,000	2014	17

Russian Map - Slice A



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	1000

Site Details

Site at, South Shields, South Tyneside

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

0 400 m

consulting engineers

Durham

Published 1862

Source map scale - 1:10,560

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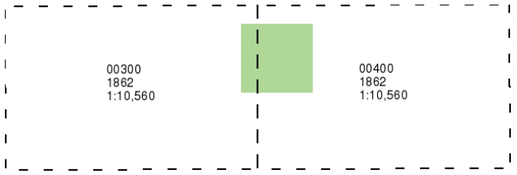
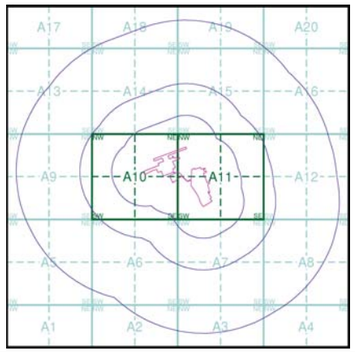
Map Name(s) and Date(s)



Historical Map - Slice A



N

Order Details

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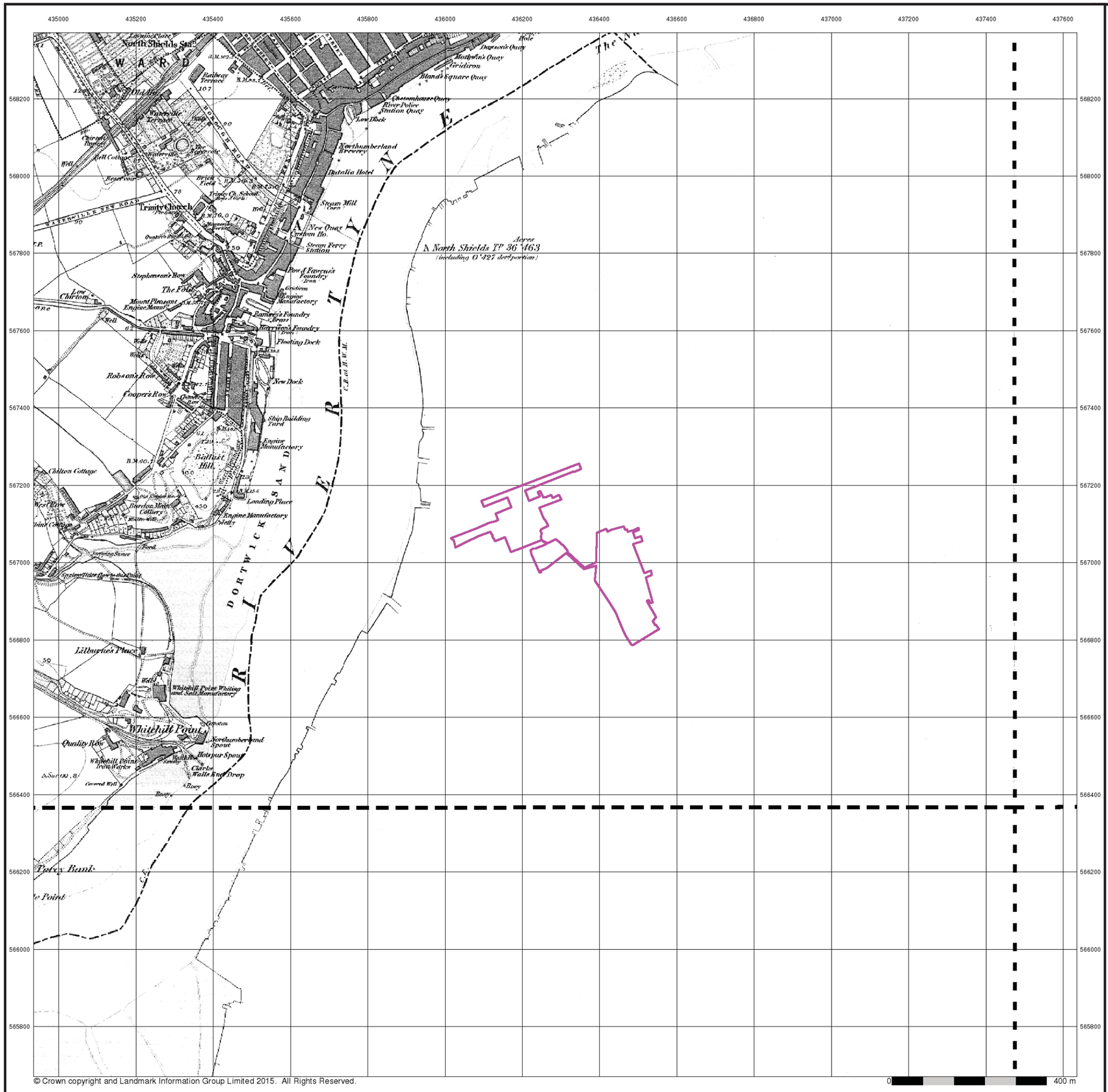

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Northumberland

Published 1864 - 1865

Source map scale - 1:10,560

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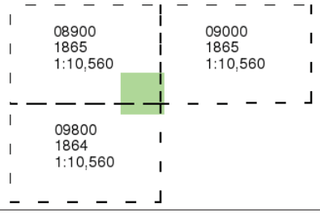
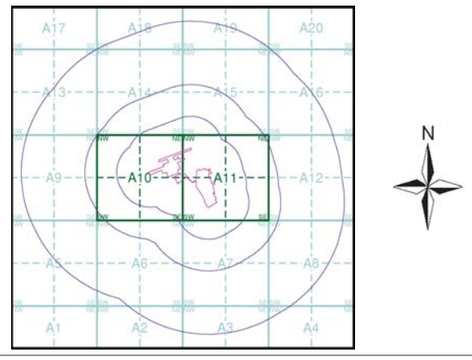
Map Name(s) and Date(s)



Historical Map - Slice A



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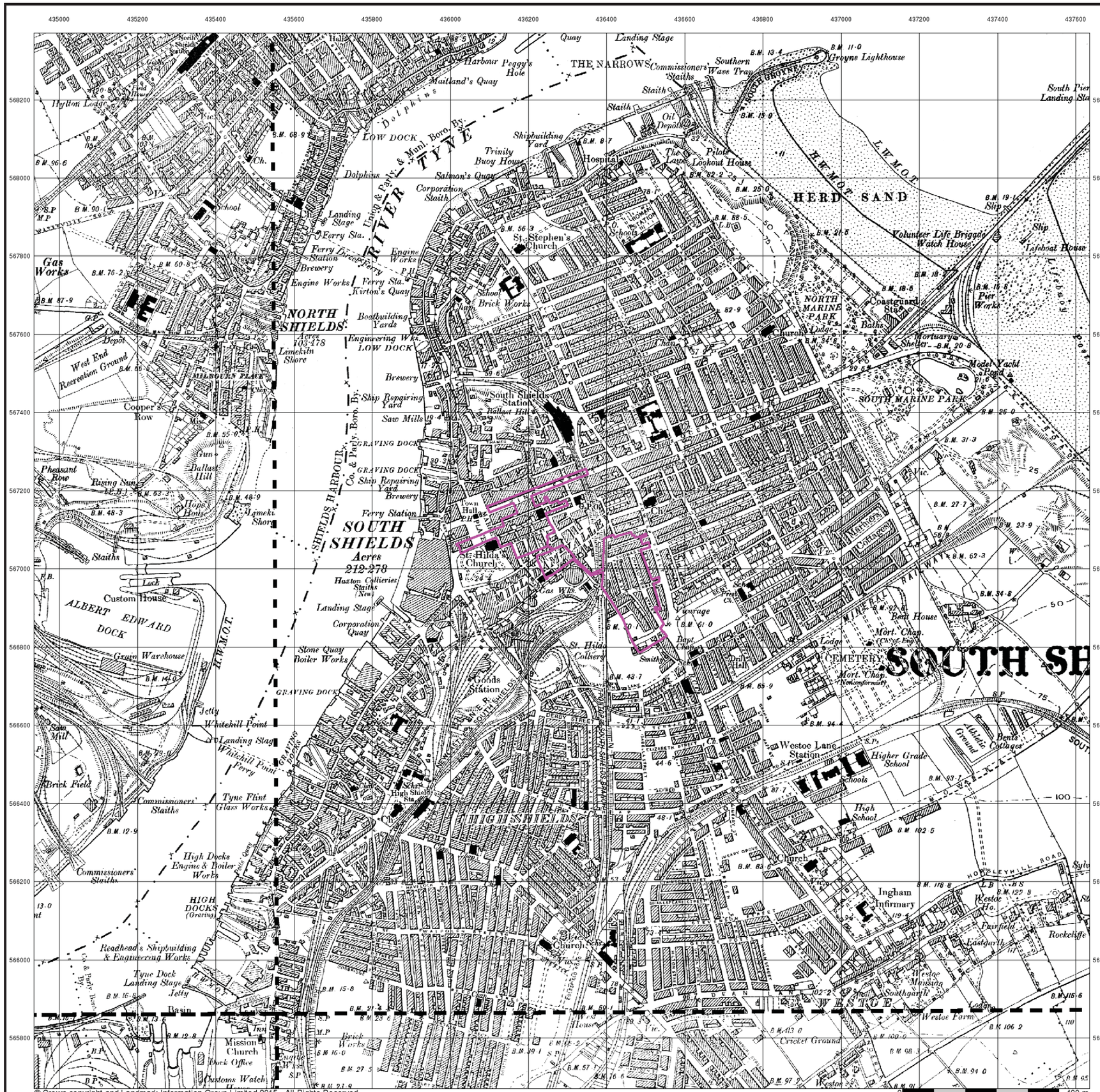

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Durham

Published 1898

Source map scale - 1:10,560

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Map Name(s) and Date(s)

003NE 1898 1:10,560	004NW 1898 1:10,560
003SE 1898 1:10,560	004SW 1898 1:10,560

Historical Map - Slice A

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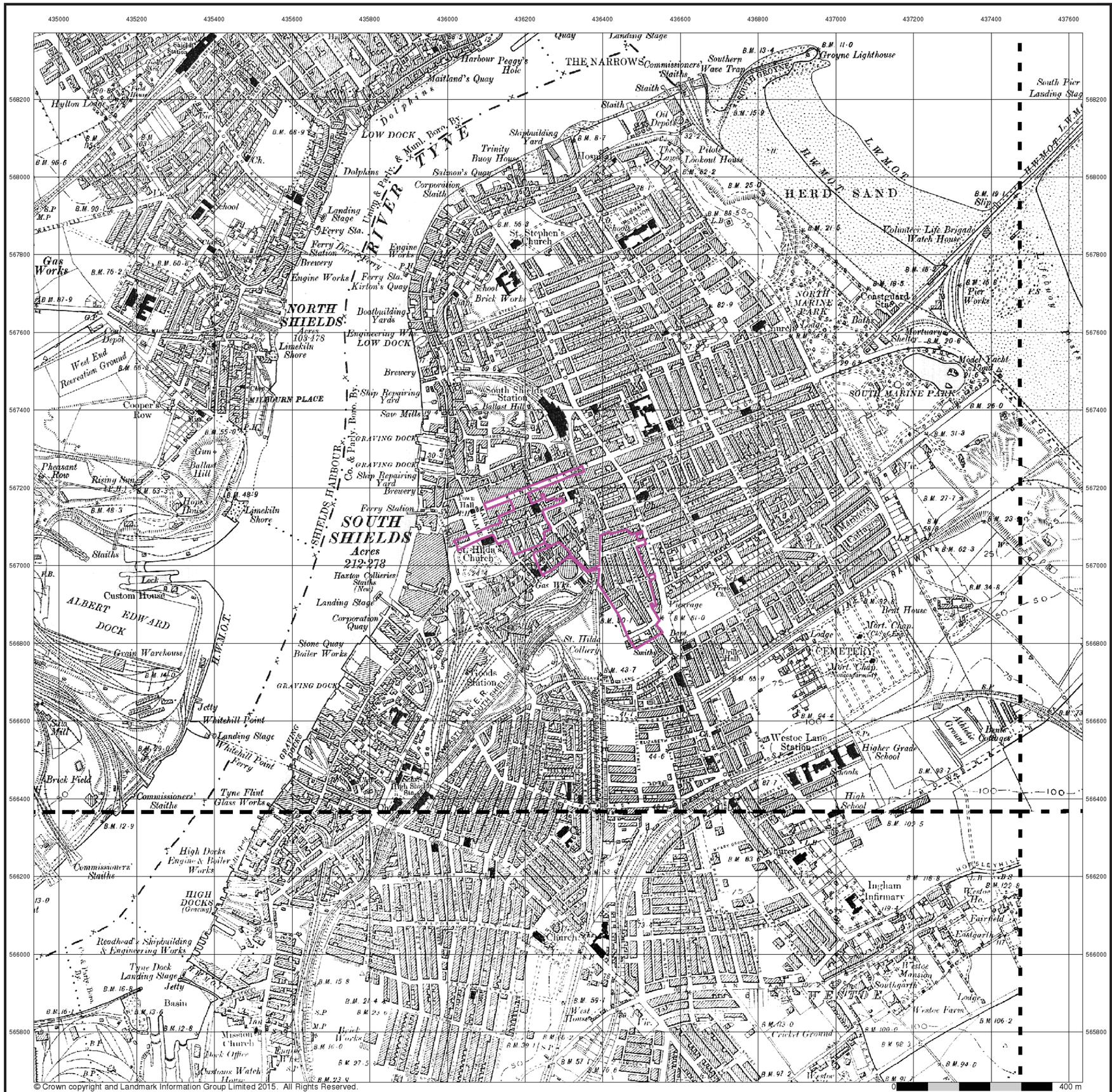

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Northumberland

Published 1899

Source map scale - 1:10,560

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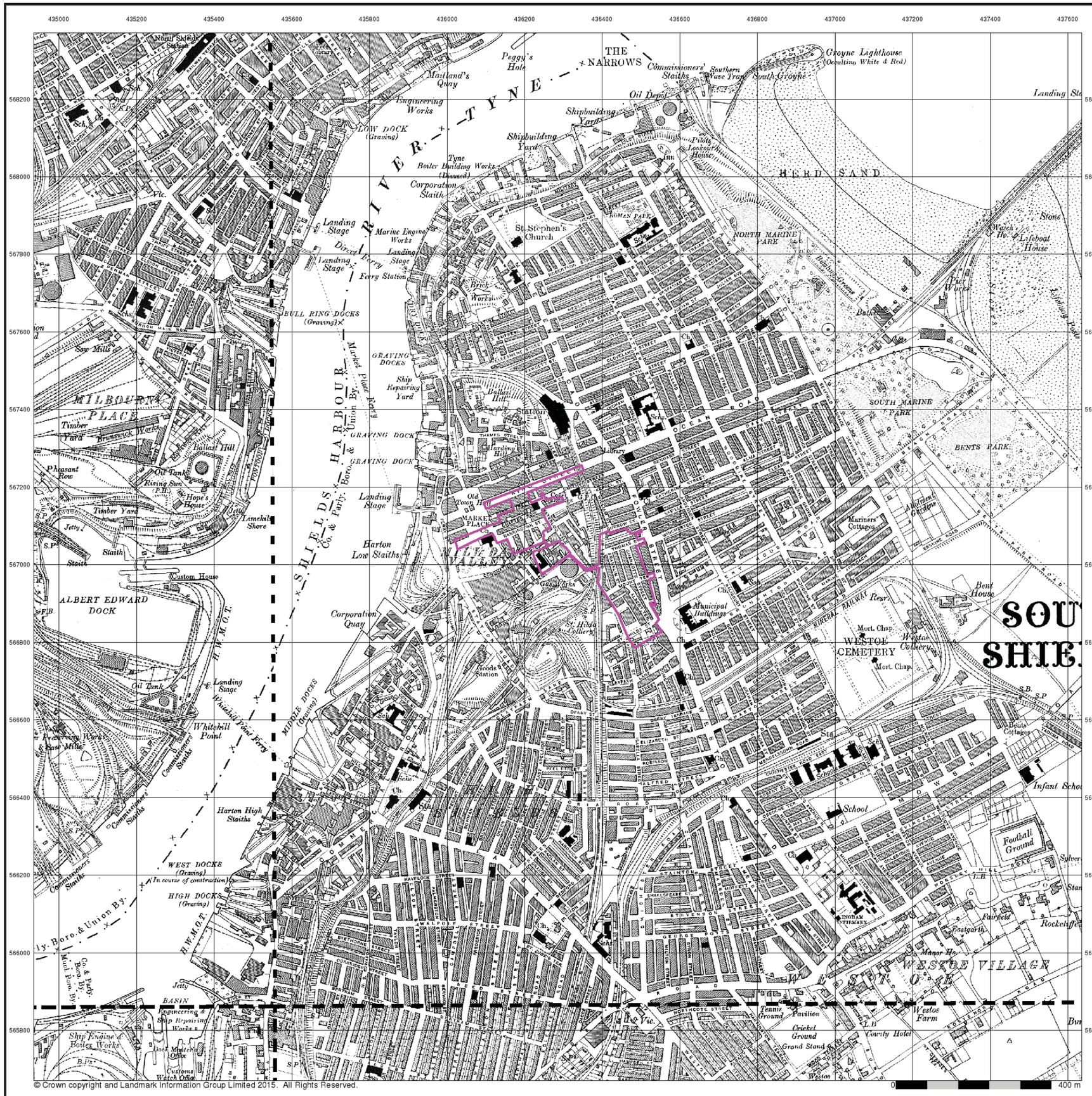

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Durham

Published 1921

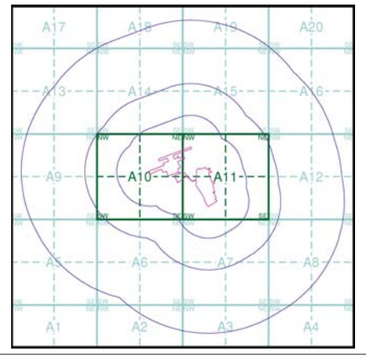
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

003NE 1921 1:10,560	004NW 1921 1:10,560
003SE 1921 1:10,560	004SW 1921 1:10,560

Historical Map - Slice A



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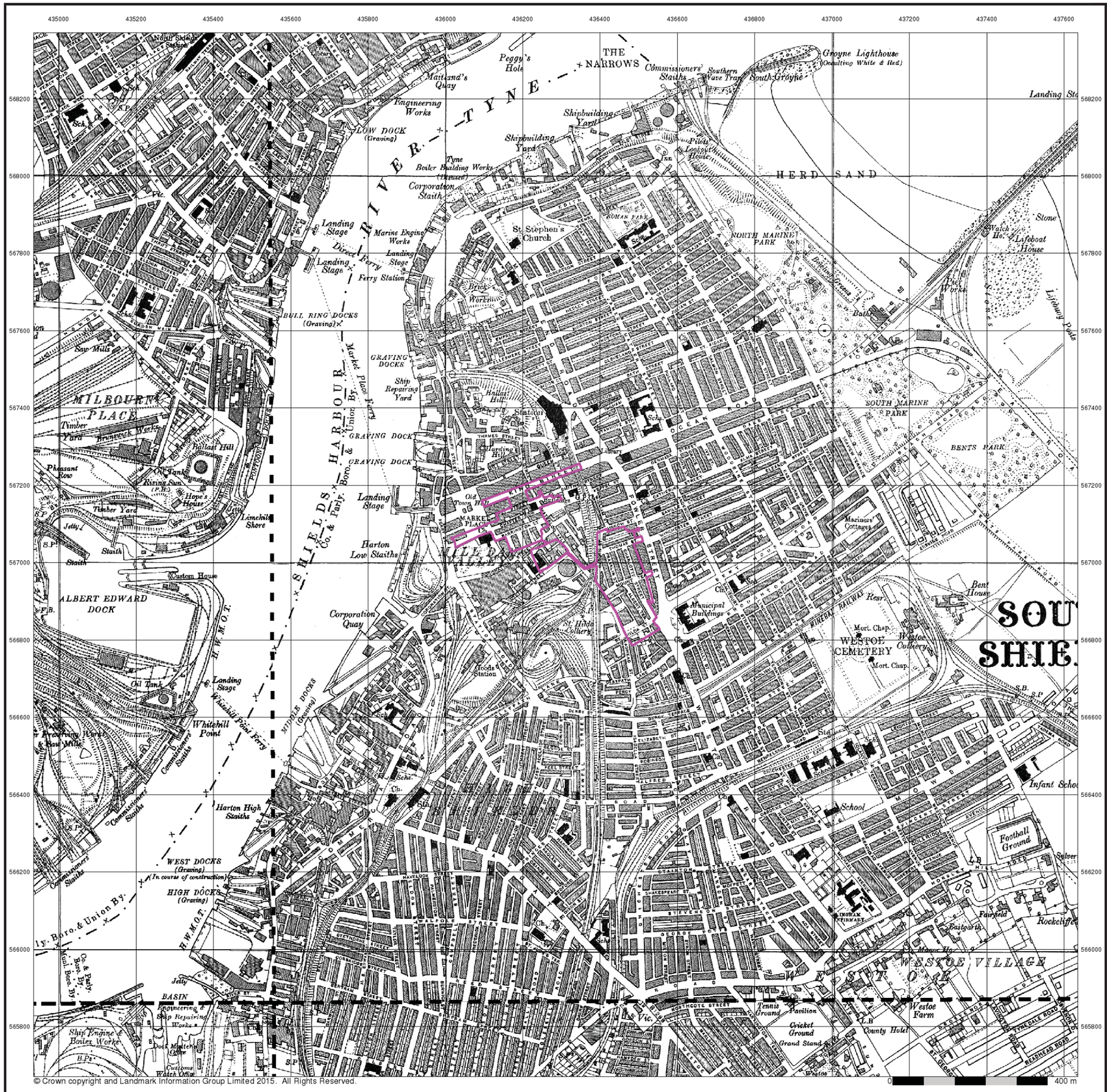

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Durham

Published 1938

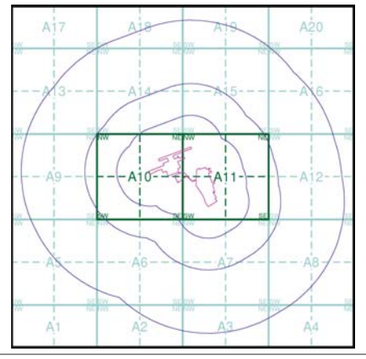
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

003NE 1938 1:10,560	004NW 1938 1:10,560
003SE 1938 1:10,560	004SW 1938 1:10,560

Historical Map - Slice A



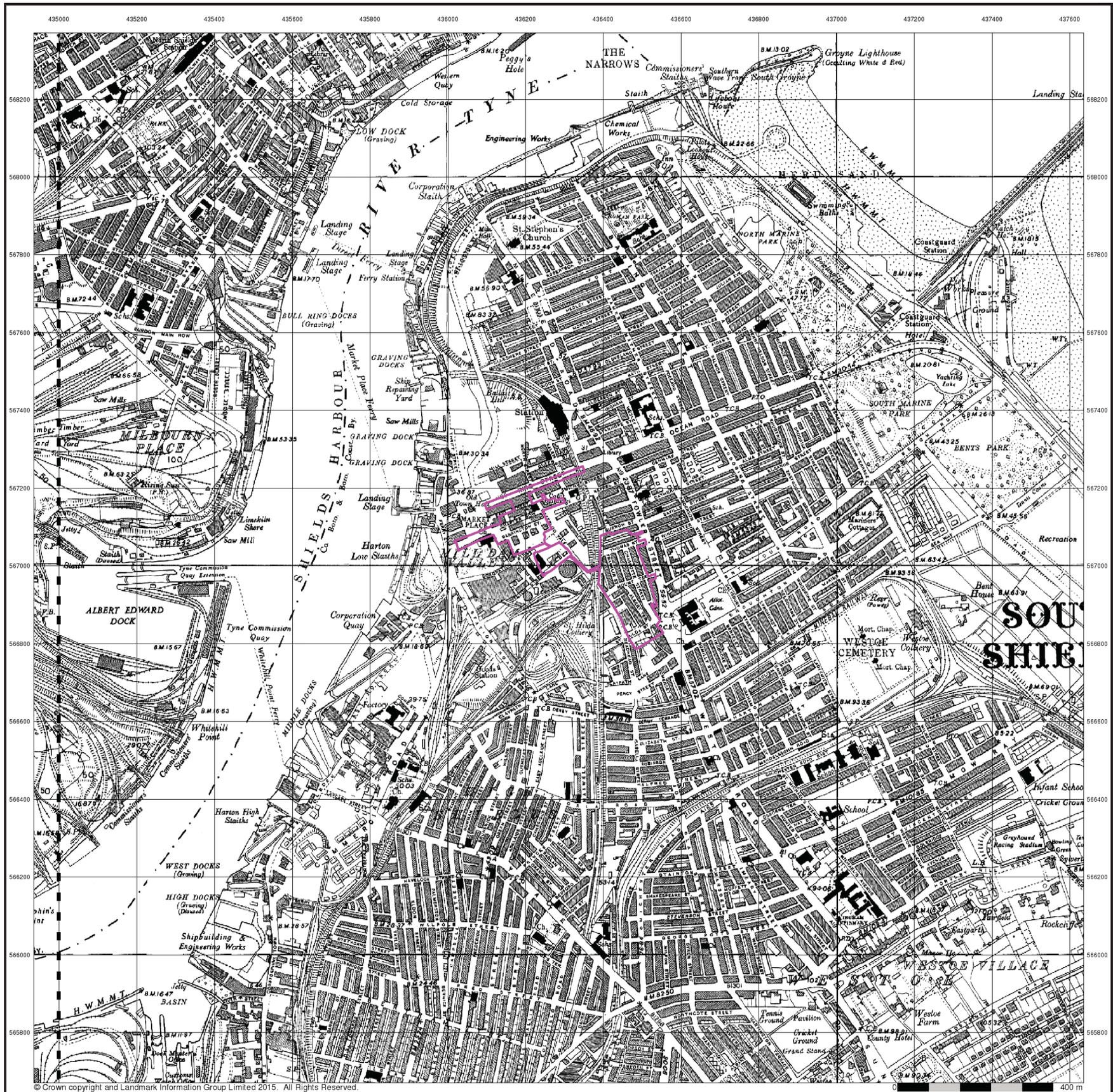
Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	1000

Site Details

Site at, South Shields, South Tyneside

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



consulting engineers

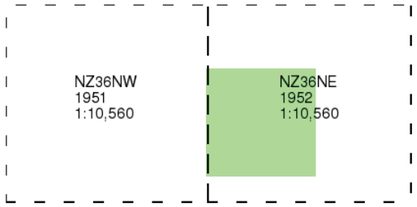
Ordnance Survey Plan

Published 1951 - 1952

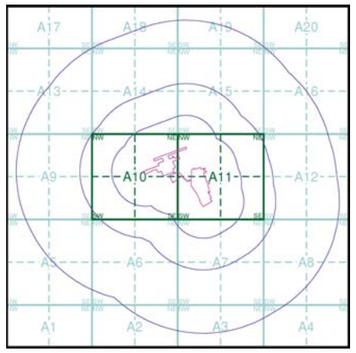
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

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Customer Ref:	15504
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Site Area (Ha):	5.72
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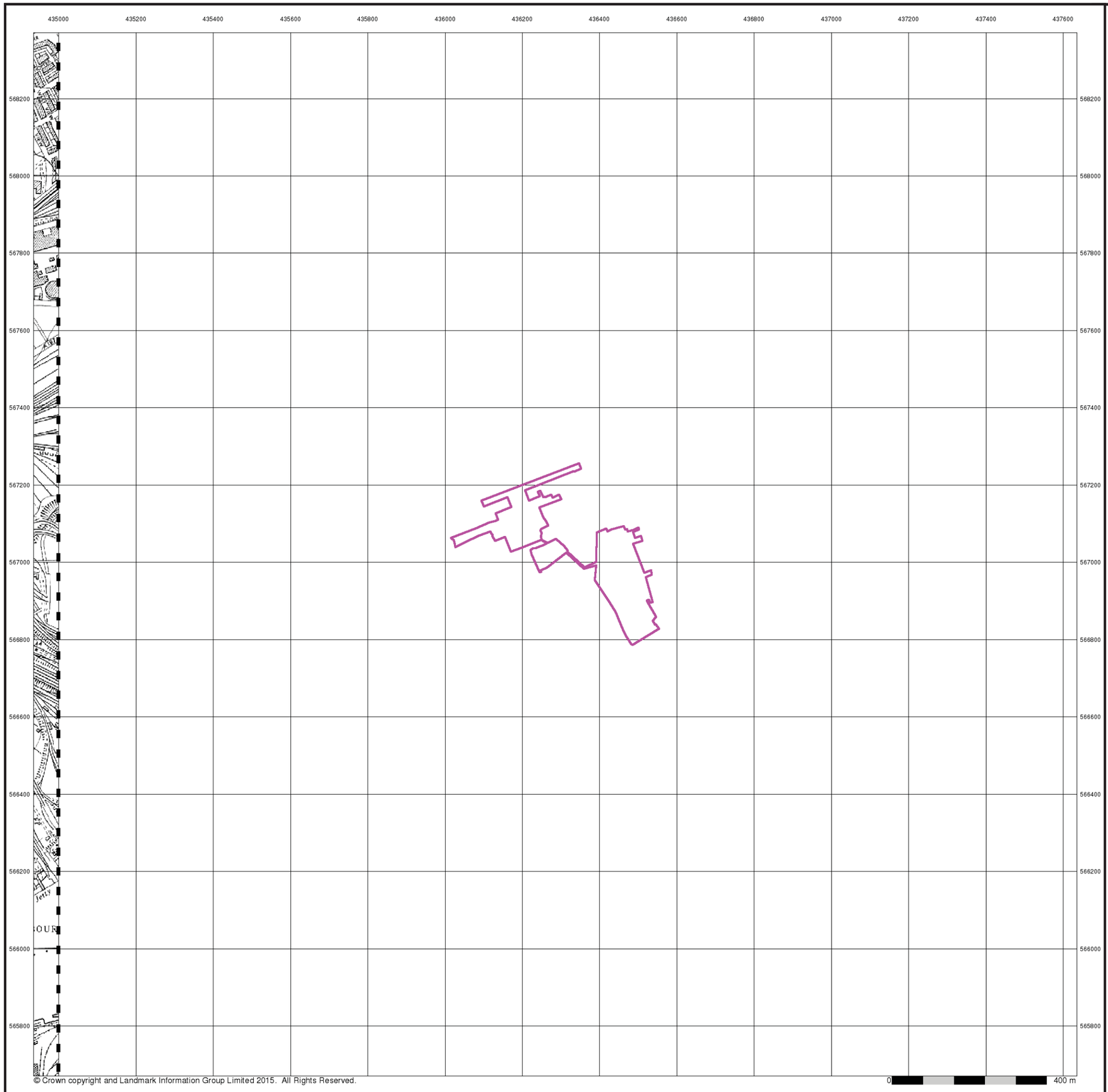

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Ordnance Survey Plan

Published 1957

Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

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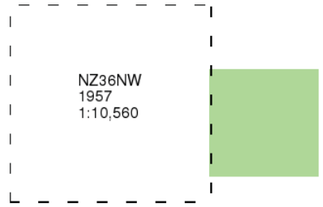
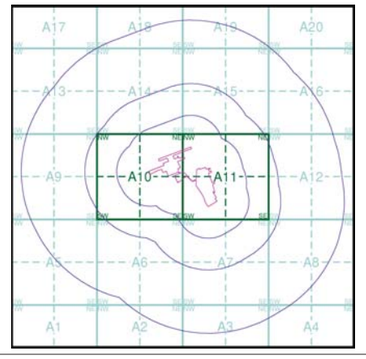


Historical Map - Slice A



Order Details

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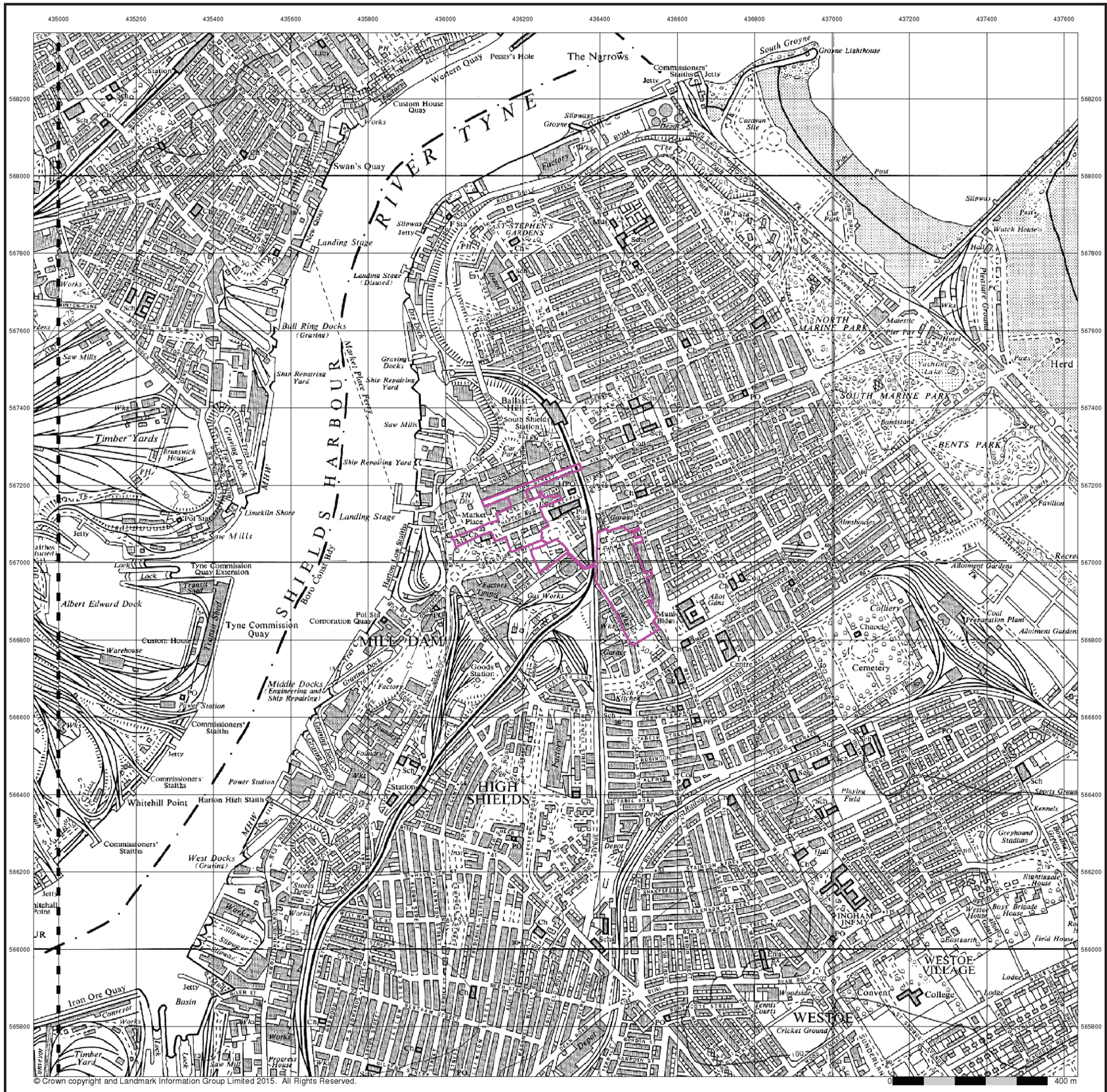


consulting engineers

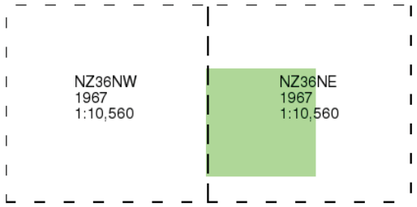
Ordnance Survey Plan

Published 1967

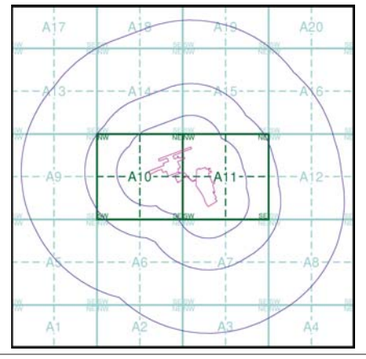
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



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Slice:	A
Site Area (Ha):	5.72
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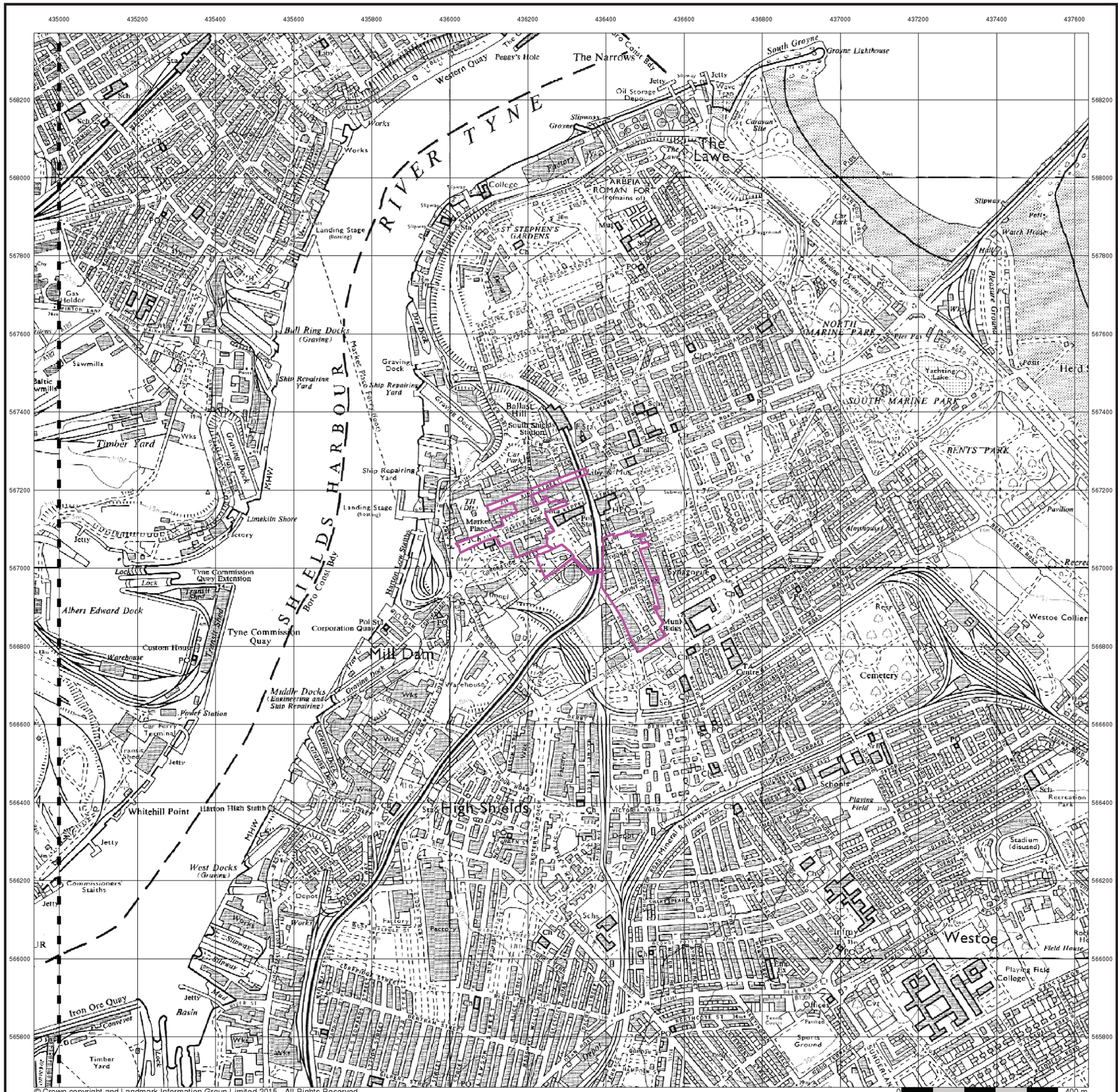


0 400 m

consulting engineers

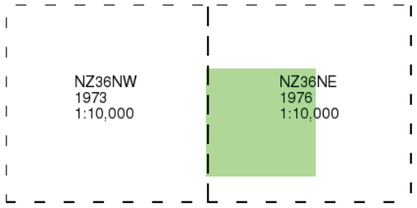
Ordnance Survey Plan

Published 1973 - 1976

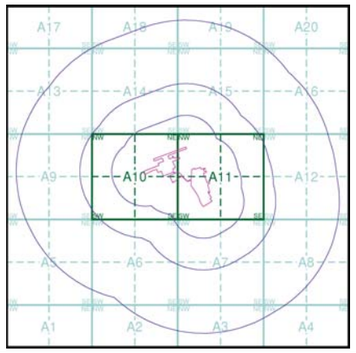
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	65061966_1_1
Customer Ref:	15504
National Grid Reference:	436310, 567020
Slice:	A
Site Area (Ha):	5.72
Search Buffer (m):	1000

Site Details

Site at, South Shields, South Tyneside

Landmark Information Group

Tel: 0844 844 9952
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Web: www.envirocheck.co.uk

consulting engineers

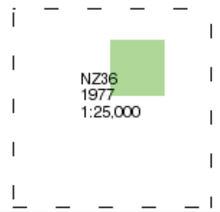
Newcastle-upon-Tyne

Published 1977

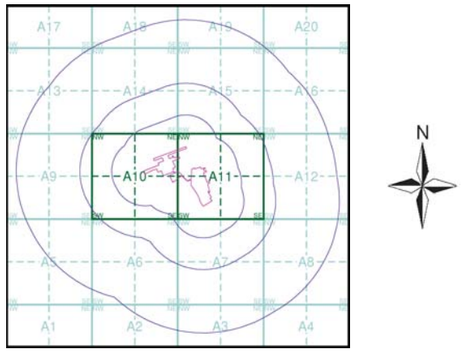
Source map scale - 1:25,000

These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use.
They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)



Russian Map - Slice A



Order Details

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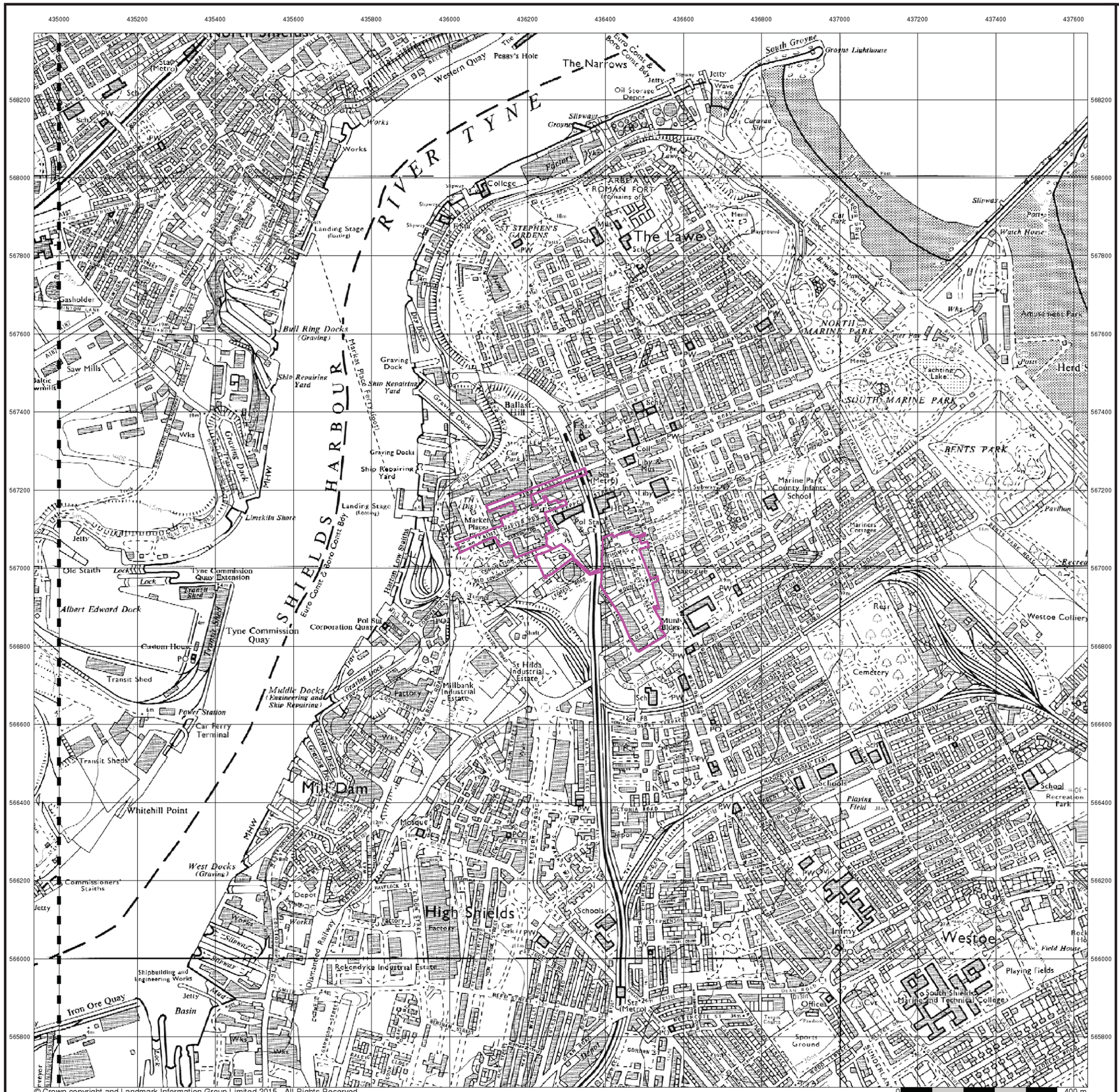


consulting engineers

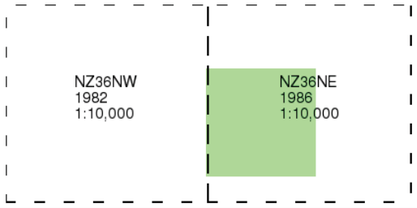
Ordnance Survey Plan

Published 1982 - 1986

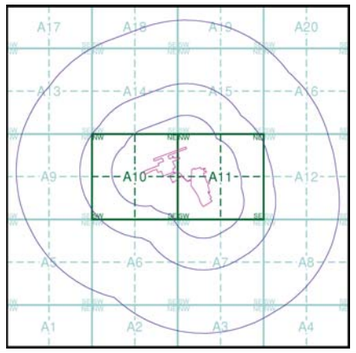
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



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Site Details

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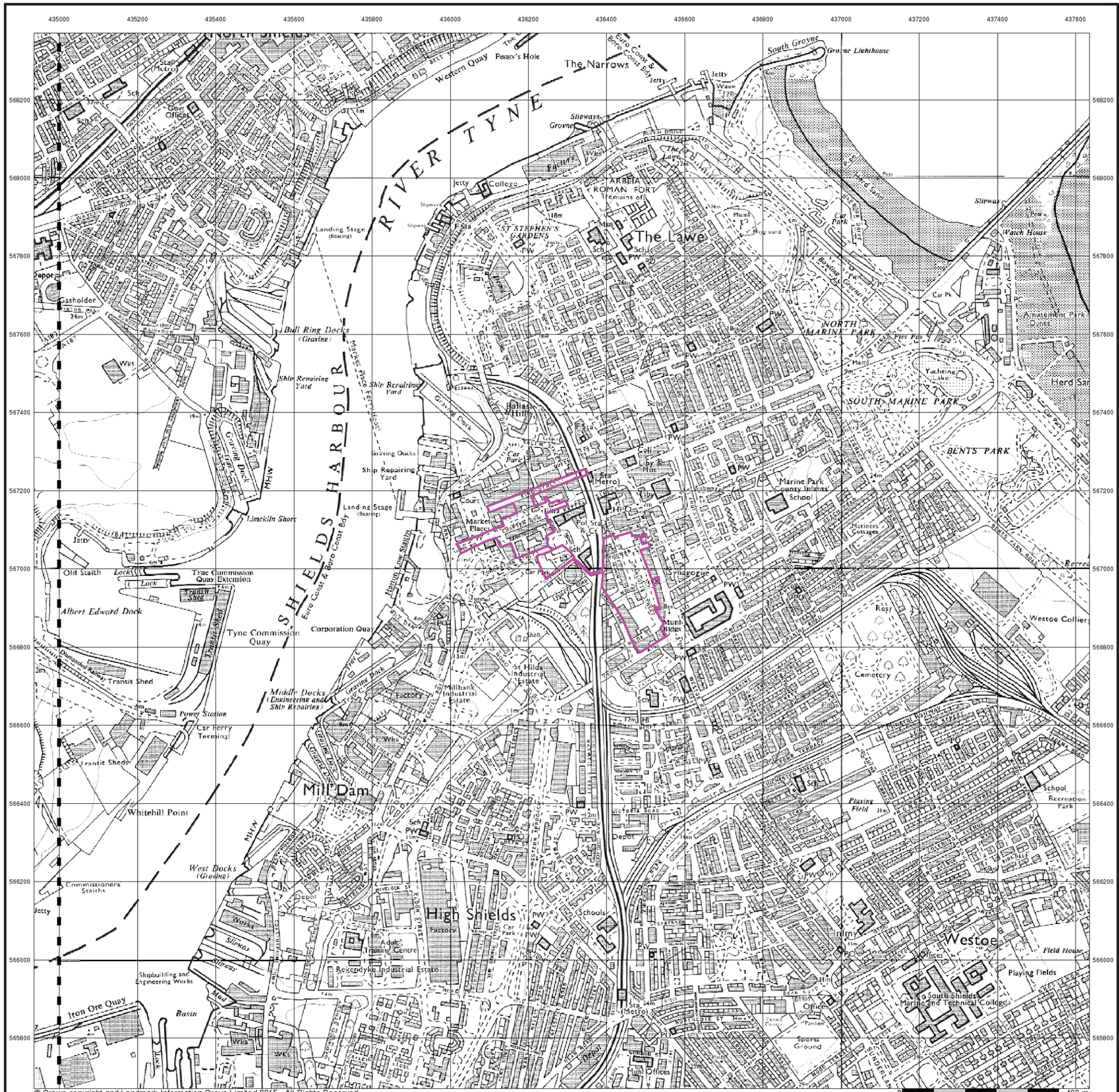


consulting engineers

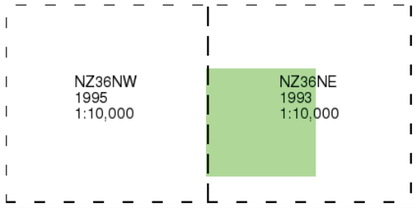
Ordnance Survey Plan

Published 1993 - 1995

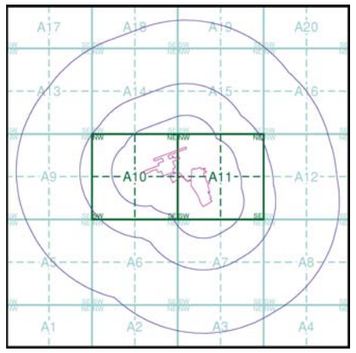
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



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10k Raster Mapping
Published 2006
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

Historical Map - Slice A

Order Details

Order Number:	65061966_1_1
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Slice:	A
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Search Buffer (m):	1000

Site Details

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Landmark
Information Group

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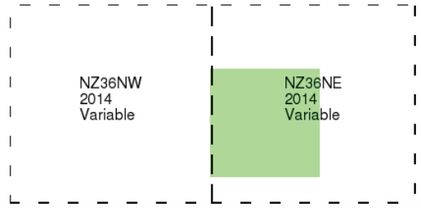
VectorMap Local

Published 2014

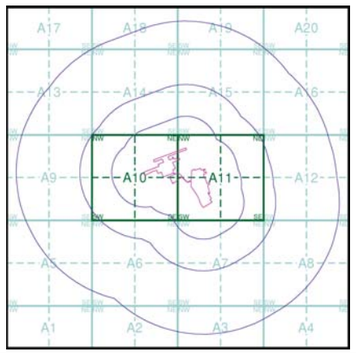
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)



Historical Map - Slice A



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Appendix C

Coal Authority Reports
(Area 1 to Area 3)

The Coal Authority

Issued by:
The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

LANDMARK INFORMATION GROUP LIMITED
SOWTON INDUSTRIAL ESTATE
ABBEY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY

Our reference:	**51000797270001**
Your reference:	**65066322_2|**
Date of your enquiry:	**04 March 2015**
Date we received your enquiry:	**04 March 2015**
Date of issue:	**04 March 2015**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

SITE AT AREA 1, SOUTH SHIELDS, SOUTH TYNESIDE, TYNE & WEAR,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 2 seams of coal at 120m to 180m depth, and last worked in 1916.

Any ground movement from these coal workings should have stopped by now.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

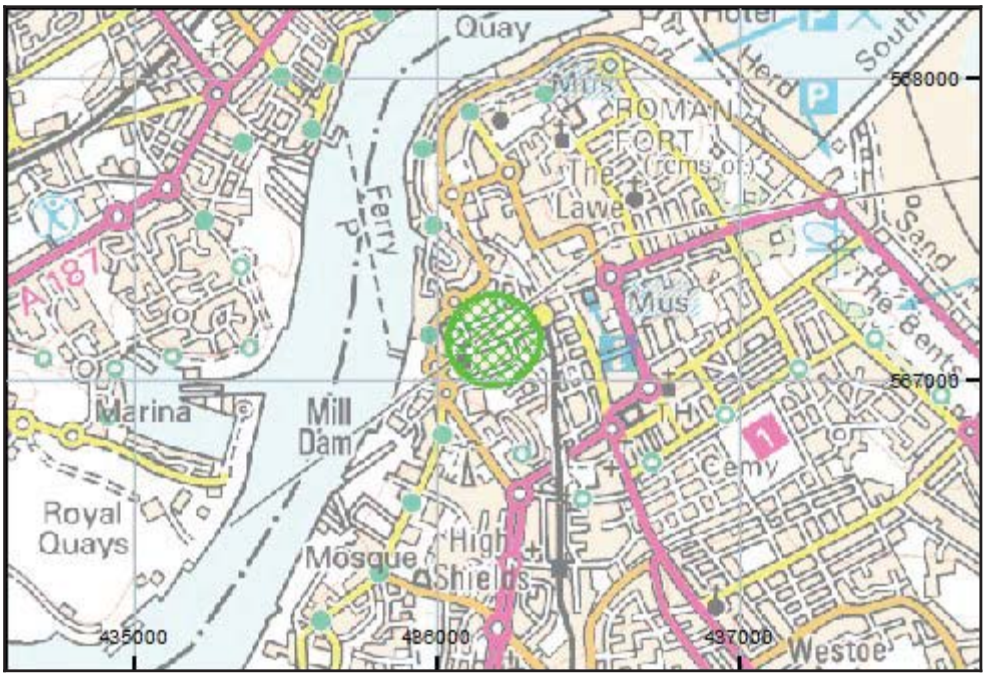
The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

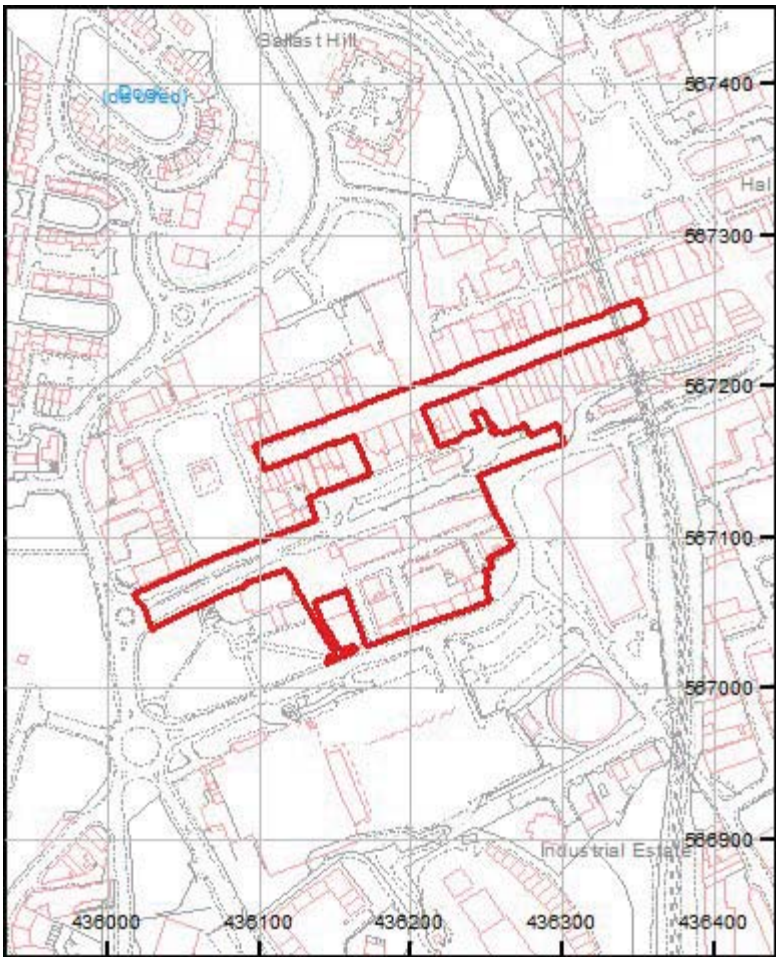
This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006.

Location map

Approximate position of property



Enquiry boundary



Key

Approximate position of enquiry boundary shown

The Coal Authority

Issued by:
The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

LANDMARK INFORMATION GROUP LIMITED
SOWTON INDUSTRIAL ESTATE
ABBEY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY

Our reference:	**51000797168001**
Your reference:	**65067302_2|**
Date of your enquiry:	**04 March 2015**
Date we received your enquiry:	**04 March 2015**
Date of issue:	**04 March 2015**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

AREA 2, SOUTH SHIELDS, SOUTH TYNESIDE, TYNE & WEAR,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 2 seams of coal at 120m to 170m depth, and last worked in 1916.

Any ground movement from these coal workings should have stopped by now.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

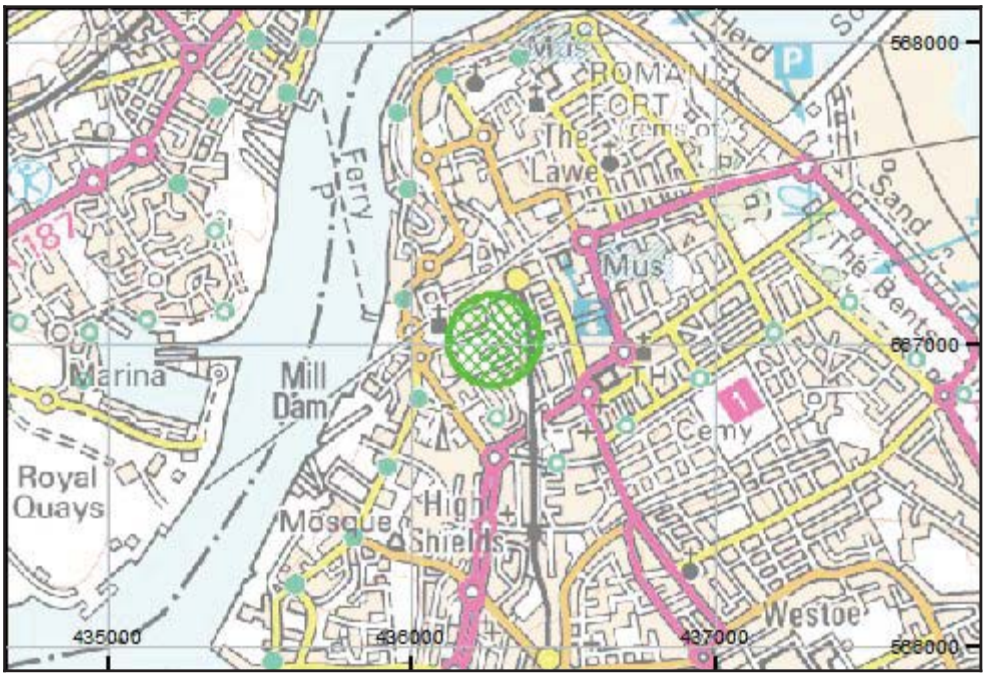
The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

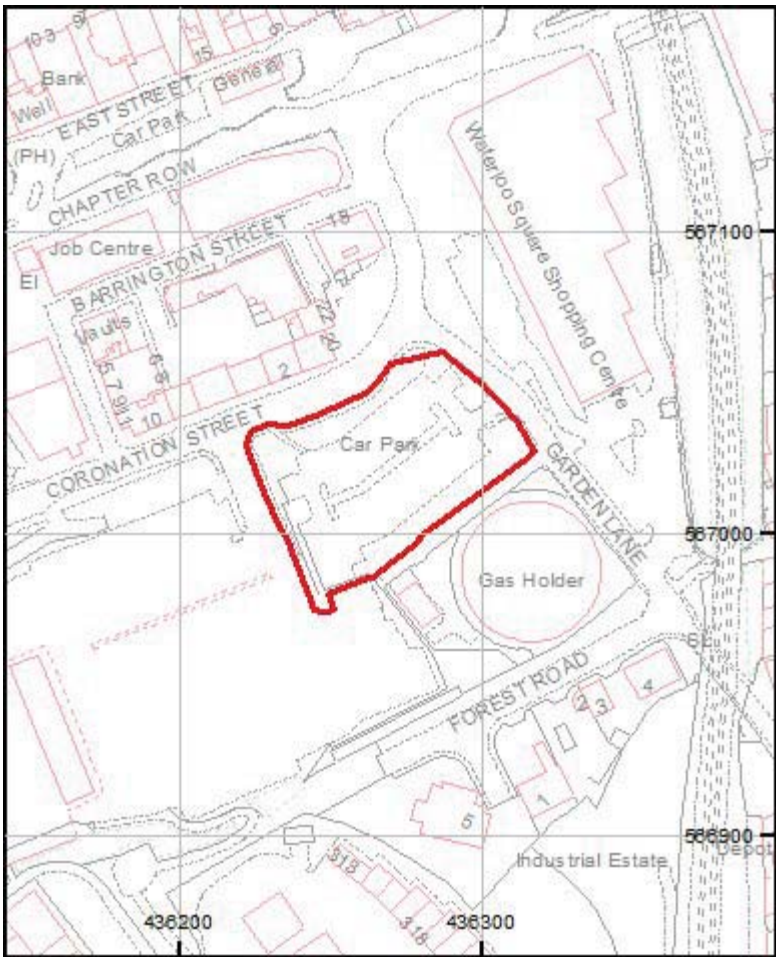
This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006.

Location map

Approximate position of property



Enquiry boundary



Key

Approximate position of enquiry boundary shown

Mapping sourced from Ordnance Survey

The Coal Authority

Issued by:
The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

LANDMARK INFORMATION GROUP LIMITED
SOWTON INDUSTRIAL ESTATE
ABBEY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY

Our reference:	**51000781247001**
Your reference:	**65070476_2|**
Date of your enquiry:	**04 March 2015**
Date we received your enquiry:	**04 March 2015**
Date of issue:	**04 March 2015**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

AREA 3, SOUTH SHIELDS, SOUTH TYNESIDE, TYNE & WEAR,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 5 seams of coal at 120m to 290m depth, and last worked in 1925.

Any ground movement from these coal workings should have stopped by now.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

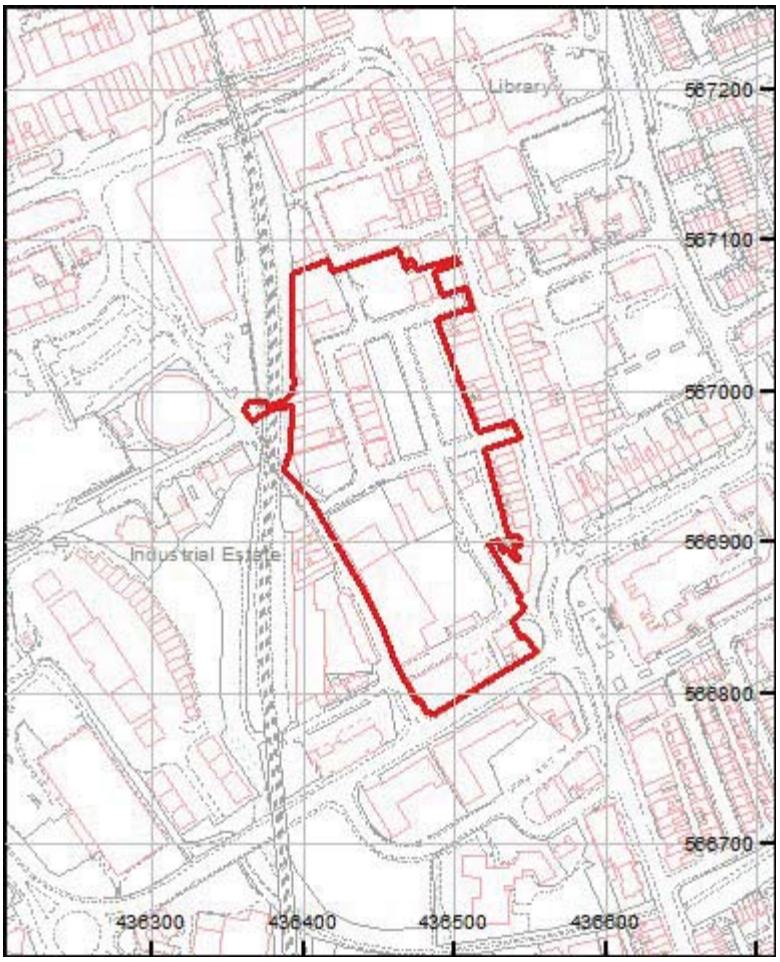
Additional Remarks

This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006.

Location map

Approximate position of property

Enquiry boundary



Key

Approximate position of enquiry boundary shown

Mapping sourced from Ordnance Survey

Appendix D

BGS Borehole Records &
Shaft Details for St. Hilda Colliery

(2126) Wt 4595-41 1000 8/25 M & G Ltd G 29

36 NZ 36 NE 12 Downing

SECTION OF Church or New Engine Pit, Manor Wallsend
" now called ST. HILDA COLLIERY, South Shields

Lat. 54° 59' 39" Long 1° 26' 3"

Surface Level 40 ft.

Communicated N. of Eng. Inst. Mining Eng. 'Boring & Sinkings' Vol. L-R pp 55-58 No. 131

Date of boring or sinking June 1825 Borer

One-inch Map 21 Six-inch Map (County and Half-Quarter Sheet) Durham 4. NE

BGS REGISTRATION NO. NZ 36 NE / 12

PAGE NO. 1

	Thickness.			Depth from
	Fms.	feet.	ins.	Fms.
Soil	-	1	-	-
Red clay	-	4	-	-
Brown clay, seared with sand.	2	2	-	3
Sand, with water	-	2	-	3
Blue stony clay	2	1	6	5
Blue metal	-	1	-	5
Brown metal	-	2	8	6
Blue metal	-	2	2	6
Post girdles	-	-	3	6
Blue metal	-	1	11	7
Black parting	-	-	2	7
Blue metal stone	-	1	5	7
Coal, regularly stratified	-	-	7	7
Thill	-	1	-	7
Brown post	12	1	3	19
Soft brown metal	-	-	10	19
Black coaly partings	-	-	7	20
Soft blue metal	-	5	6	20
Blue metal	-	1	9½	21
Black metal	-	2	9½	21
Post girdles	-	4	4	22
Grey metal mixed with post girdles	-	1	5½	22
Post girdles	-	-	4	22

37

	Thickness.			Depth from Surface.		
	Fms.	feet.	ins.	Fms.	feet.	ins.
Post girdle	-	-	4	23	4	11
Grey metal, seams of thin post girdles	1	1	8	25	-	7
Black stone	-	4	-	25	4	7
Coal	-	-	3½	25	4	10½
Black band	-	-	2	25	5	-½
Coal	-	-	4	25	5	4½
Black band	-	-	3	25	5	7½
Coal	-	1	4½	26	1	-
Thill	-	-	10½	26	1	10½
Post girdles	-	2	3½	26	4	2
Grey metal mixed with post	-	3	3½	27	1	5½
Grey metal, stone girdles	2	-	9	29	2	2½
Post girdles	-	1	4	29	3	6½
Grey metal	2	2	5	31	5	11½
Grey metal mixed with post	-	-	7	32	-	6½
Black stone	1	-	-	33	-	6½
Coal	-	-	7	33	1	1½
Thill	-	3	3½	33	4	5
Post girdle	-	2	5	34	-	10
Grey metal mixed with post	-	2	2½	34	3	-½
Post girdles + water	-	3	9	35	-	9½
Grey metal	-	-	6½	35	1	4
Post girdle	-	3	11½	35	5	3½
Blue metal girdles	-	4	9	36	4	-½
Coal	-	-	8	36	4	8½
Thill	-	2	9	37	1	5½
Grey seamy post	-	2	8	37	4	1½
Blue metal	-	2	10	38	-	11½
Grey metal partings	-	-	2	38	1	1½
Black stone	-	1	4	38	2	5½
Blue metal	-	1	2	38	3	7½

BGS REGISTRATION NO. NZ 36 NE / 12
PAGE NO. 2

(47/1554) Wt. 11280/14 500 1/34 M. & St., Ltd. G 47

NZ 36 NE 12 D 3.

SECTION OF St. HILDA COLLIERY, South Shields.

Six-inch Map (County and Quarter Sheet) Durham 4. NW.

BGS REGISTRATION NO. NZ 36 NE / 12

PAGE NO. 3

	Thickness.			Depth from	
	Fms.	feet.	ins.	Fms	fee
Thill stone	-	1	9	40	
Grey post	2	-	5	42	
Grey metal mixed with post	-	2	4	42	4
Grey metal	1	1	7	44	
Coal Metal Coal Seam	-	1	3	44	
Thill	-	2	5	44	
Grey post girdle	-	2	11	45	
Grey metal mixed with post	-	4	8	45	
White post girdle	-	-	4	45	
Grey metal mixed with post	-	-	11	46	
White post, with water	8	5	5	54	
Coal	-	1	9	55	
Thill	-	3	-	55	4
Grey post girdles	-	-	4	55	
Grey + lead metal + metal stone	1	3	-	57	
Black stone	1	-	2	58	
Coal, stony	-	-	2	58	
Soft grey metal in leader of trouble	-	-	2	58	
Thill	-	1	6	58	
Blue metal	1	1	9	59	
Scarry post girdles	-	4	-	60	
Grey metal with post girdles	-	3	2	61	
Grey post	1	3	3	62	
Grey metal	-	2	8	63	
Grey metal with post	-	5	11	64	
Grey post girdle	-	-	6	64	
Coal	-	-	1	64	
Bed of ironstone	-	-	2	64	

(Continued)

NZ36NE / 19

NDC Northumbrian Drilling Contractors
Stephenson Terrace, Wylam
Northumberland

BOREHOLE No. 1
SHEET No. 1 of 1
REPORT No. 131/N/195

CONTRACT KING STREET, SOUTH SHIELDS.

Daily Progress		Samples and In-Situ Tests		Ground Level			DESCRIPTION OF STRATA
Date	Ground Water	Levels B.G.L.	Type	Key	Depth	Reduced Level	
12.5.76							MADE GROUND BGS REGISTRATION NO NZ 36 NE / 190 / PAGE NO. 1
		1.00	B				Bricks, timber, concrete sl with steel bars. (Old foundations between 2. 3.10 metres in firm grey br clay.)
		2.80	J				
		3.00	U		3.10		
		4.00	J				Firm to stiff mottled grey brown yellow sandy CLAY, sl laminated with coal, shale large sandstone boulders.
		4.40	J				
4.95m	Nil	4.95	N(100)*		4.95		End of Borehole.

REMARKS

Borehole terminated due to larger boulder.
* No. of blows for 12mm penetration only.

FORM 3

Code: U = Undisturbed Sample; B = Large Bulk Sample; J = Jar Sample; N ( ) = Standard Penetration Test / Cone Penetration Test; ▽ = Groundwater first encountered; GW = Groundwater Sample

NZ36NE / 19

NDC Northumbrian Drilling Contractors
Stephenson Terrace, Wylam
Northumberland

BOREHOLE No. 1B
SHEET No. 1 of 1
REPORT No. 131/N/19

CONTRACT KING STREET, SOUTH SHIELDS.

Daily Progress		Samples and In-Situ Tests		Ground Level			DESCRIPTION OF STRATA
Date	Ground Water	Levels B.G.L.	Type	Key	Depth	Reduced Level	
13.5.76							MADE GROUND
							Bricks, timber beams, concr slabs with steel bars. (Old foundations)
							BGS REGISTRATION NO. NZ 36 NE / 190 / PAGE NO. 2
		3.15	J		3.10		
		3.20	U				Stiff mottled yellow grey brown sandy CLAY slightly laminated, with coal, shale and sandstone boulders.
		4.20	J				
		4.45	U				
4.9m	Nil	4.90	N(100)*		4.90		
							End of Borehole.

REMARKS

Borehole terminated due to large boulder.
* No. of blows for 6mm penetration only.

FORM 3

Code: U = Undisturbed Sample; B = Large Bulk Sample; J = Jar Sample; N ( ) = Standard Penetration Test / Cone Penetration Test; ▽ = Groundwater first encountered; GW = Groundwater Sample

JOB NO. OAP 4914 CF66

FIG NO.

MADE BY S.B./ N.L./ K.P. / C

DATE MAY

FOUNDATION ENGINEERING LIMITED
TYNESIDE METROPOLITAN RAILWAY
Section : SOUTH SHIELDS
RECORD OF BOREHOLE NO. BA 2

Sheet 1 of 2.

DAILY PROGRESS	DEPTH TO WATER	DEPTHS OF CASING	SAMPLES DEPTH FROM	SAMPLES DEPTH TO	SAMPLES TYPE	LEGEND	DEPTH	REDUCED LEVEL	DESCRIPTION OF STRATA
	m	m	m	m			m	m	Ground Level 9.78 m.O.D.
30.7.74							0.00	9.78	
			0.30		B D				Loose black ash and fine, medium and coarse angular gravel of brick and concrete.
		0.75	0.90	1.20	S (7)				(MADE GROUND)
					D S				
			1.30		B D				
							1.50	8.28	
		1.40	1.65	1.95	S (5)				
					D S				
			2.00		B D				Soft dark grey to black, sandy, silty CLAY and fine, medium and coarse, subangular to angular gravel.
		2.20	2.40	2.70	S (5)				
					D S				(MADE GROUND)
			2.75		B D				
		3.00	3.15	3.45	S (5)				
					D S				
			3.50		B D				
							3.75	6.03	Loose brown, fine and medium sand, black ash wi
		3.75	3.90	4.20	S (9)				subangular to angular gravel.
					D S				(MADE GROUND)
			4.30		B D		4.30	5.48	Soft, grey-brown, sandy clay, ash and fine medi
		4.50	4.65	4.95	S (7)		4.50	5.28	(MADE GROUND)
					D S				Soft to firm, dark grey-brown, silty, sandy cla
			4.85		B D				with angular, fine and medium gravel and white chemical waste.
		4.80	5.00	5.45	U 102				(MADE GROUND)
							5.30	4.48	
			5.45		D				Soft to firm, brown and grey, mottled, slightly laminated, silty CLAY.
		4.80	5.65	5.95	S (7)				
					D S				(UPPER BOULDER CLAY)
			6.25		B D		6.35	3.43	
		6.20	6.50	6.95	U 102				Medium dense, brown and yellow, fine and medium grained SAND with a little grey-brown, sandy, silty clay.
			7.00		D				
		6.20	7.35	7.65	S (26)				(SAND & GRAVEL)
					D S				
							7.60	2.18	
		8.00	8.15	8.45	S (22)				Medium dense to dense, brown, fine, medium and coarse grained SAND and subangular to angular fine, medium and coarse gravel, cobbles and boulders.
			8.50		B D				
		8.75	8.90	9.20	S (23)				
					D S				
			9.30		B D				(SAND & GRAVEL)
		9.50	9.65	9.95	S (30)				
					D S				

REMARKS

No seepages noted.

Water added to assist boring.

TYPE OF BORING
Shell & Auger

DIAMETER OF BOR
200 mm to
..... mm to
..... mm to

CASING TUBES
200 mm to
..... mm to
..... mm to

JOB NO. OAP 4914 CF66

FIG NO.

MADE BY S.B./ N.L./ K.P. / C

DATE MAY

FOUNDATION ENGINEERING LIMITED
TYNESIDE METROPOLITAN RAILWAY
Section : SOUTH SHIELDS
RECORD OF BOREHOLE NO. BA 2

Sheet 2 of 2

DAILY PROGRESS	DEPTH TO WATER	DEPTHS OF CASING	SAMPLES DEPTH FROM	SAMPLES DEPTH TO	SAMPLES TYPE	LEGEND	DEPTH	REDUCED LEVEL	DESCRIPTION OF STRATA
	m	m	m	m			m	m	Ground Level 9.78 m.O.D.
			10.00		B D		10.10	-0.32	
		9.50	10.50	10.95	U 102				
			10.95		D				Stiff, dark grey, silty, sandy CLAY with some subangular to angular, fine, medium and coarse gravel.
		10.20	11.25	11.55	S (32)				
					D S				
		10.20	11.90	12.20	S (36)				(LOWER BOULDER CLAY)
					D S				
	10.00	10.20	12.65	12.95	S (35)				
					D S				
						END	13.00	-3.22	

REMARKS

TYPE OF BORING
Shell & Auger

DIAMETER OF BOR
200 mm to
.....mm to.
.....mm to.

CASING TUBES
200 mm to
.....mm to.
.....mm to.

JOB NO. OAP 4914 CF6

FIG NO.

MADE BY S.B./ N.L./ K.P. /

DATE MAY

FOUNDATION ENGINEERING LIMITED
TYNESIDE METROPOLITAN RAILWAY
Section : SOUTH SHIELDS.
RECORD OF BOREHOLE NO. BA 3 Sheet 1 of 2.

DAILY PROGRESS	DEPTH TO WATER	DEPTHS OF CASING	SAMPLES DEPTH FROM	SAMPLES DEPTH TO	SAMPLES TYPE	LEGEND	DEPTH	REDUCED LEVEL	DESCRIPTION OF STRATA
	m	m	m	m			m	m	Ground Level 11.70 m.O.D.
25.7.74							0.00	11.70	
		0.70	0.85	1.15	S (5)				
					D S				Loose, black ash, brick, clinkers and concrete with a little soft sandy clay and silty clay.
			1.20		B D				
		1.20	1.60	1.90	S (6)				(MADE GROUND)
					D S				
			2.00		B D				
		2.00	2.35	2.65	S (5)				
					*				
			2.70		B D				
		2.95	3.10	3.40	S (5)				
					D S				
			3.45		B D		3.40	8.30	
		3.70	3.85	4.15	S (10)				
					D S				
			4.20		B D				
		4.20	4.60	4.90	S (15)				
					*				
			4.95		B D				
		5.20	5.35	5.65	S (16)				Medium dense, dark grey-brown, clayey, fine and medium sand with some subangular to angular gravel and traces of white chemical waste.
					D S				
			5.80		B D				(MADE GROUND)
		5.80	6.10	6.40	S (21)				
					D S				
			6.60		B D				
		6.70	6.85	7.15	S (22)				
					D S				
			7.20		B D				
		7.40	7.60	7.90	S (12)				
					*				
			7.95		B D				
		8.20	8.35	8.65	S (9)				
					D S				
	+		8.70		B D				
							8.80	2.90	
		8.60	9.10	9.40	S (23)				Firm to stiff, dark grey and brown, silty, sandy with a little subangular to angular gravel.
					D S				
			9.45		B D				(UPPER BOULDER CLAY)
							9.70	2.00	

REMARKS

Seepages noted at 8.80 m and 17.90 m.
Chisel used at 17.20 m.
Standpipe installed at 12.90 m.

TYPE OF BORING
Shell & Auger

DIAMETER OF BORI
200 mm to 10
150 mm to 19
..... mm to ..

CASING TUBES
200 mm to 9
150 mm to 16
..... mm to ..

JOB NO. OAP 4914 CF66

FIG NO.

MADE BY S.B./ N.L./ K.P. / (

DATE MA'

FOUNDATION ENGINEERING LIMITED
TYNESIDE METROPOLITAN RAILWAY
Section : SOUTH SHIELDS
RECORD OF BOREHOLE NO. BA 3 Sheet 2 of 2.

DAILY PROGRESS	DEPTH TO WATER	DEPTHS OF CASING	SAMPLES DEPTH FROM	SAMPLES DEPTH TO	SAMPLES TYPE	LEGEND	DEPTH	REDUCED LEVEL	DESCRIPTION OF STRATA
	m	m	m	m			m	m	Ground Level 11.70 m.O.D.
26.7.74	1.40	9.20	10.35	10.65	S (11)				
		10.95	11.10	11.40	S (9)				Medium dense, brown and yellow-brown clayey, si medium and coarse grained SAND, with a little subangular gravel.
		11.70	11.85	12.15	S (10)				
			12.20		B D				(SAND & GRAVEL)
		12.45	12.60	12.90	S (23)				
					W		12.90	-1.20	
		13.00	13.20	13.50	U 102				
		13.00	13.75	13.98	S (48)				Stiff to hard, dark grey, silty, sandy CLAY wi subangular to angular, fine gravel, cobbles an a trace of boulders.
		14.70	14.85	15.08	S (48)				
			15.40		B D				
		15.20	15.75	16.05	S (37)				(LOWER BOULDER CLAY)
		16.00	16.35	16.65	S (38)				
			16.70		B D				
		16.00	16.95	17.10	S (100)				
		16.00	17.85	17.93	S (120)				
							18.00	-6.30	
		16.00	18.60	18.64	S (120)				Hard dark grey-brown, silty CLAY with occasic silt and sand partings with a little subangular angular, fine gravel.
		16.00	19.20	19.35	S (98)		19.30	-7.60	(LOWER BOULDER CLAY)
						END			

REMARKS

TYPE OF BORING
Shell & Auger

DIAMETER OF BO
200 mm to
150 mm to
..... mm to

CASING TUBES
200 mm to
150 mm to
..... mm to

...UNTY COUNCIL OF DURHAM — HIGHWAYS LABORATORY — BOREHOLE RECORD

...EME ...TH SHIELDS FIRE STATION — BOREHOLE No. 1

BORING STARTED 30 [illegible] 76 / BORING FINISHED 2 [illegible] 76 | TYPE 150mm Percussive. CASING 7·000m | GROUND LEVEL (AOD) — | NAT. GRID REF.

DESCRIPTION	DEPTH m	THICKNESS m	WATER LEVELS m	SAMPLES RANGE m	SAMPLES TYPE	NATURAL M/C %	PASSING No.36 SIEVE %	INDEX PROPERTIES OVEN DRIED SOIL L.L. %	P.L. %	P.I. %	TYPE	NOTES
...ND, CONCRETE & BRICK FRAGMENTS	1·300	1·300		0·000 to 1·300	D,MC	30						Ch. page 3
...Y – DARK GREY-BROWN WITH ...AGMENTS OF WEATHERED ...ONE & TRACES OF LIGHT ... PLASTIC CLAY	3·000	1·700	∇ 2·800 S.A.	1·330 to 1·810 2·000 to 3·000	U4 D,MC	26 29		44 36	22 21	22 15	CI CI	T. page 8 Ce. page 4 Ch. page 3
...ARK BLUE-GREY ...Y PLASTIC ...	4·400	1·400	2·430m ∇ 10mins Δ 2·940 ∇ 3·700	3·750 3·000 to 4·400 3·300	W D MC	 56		52	23	29	CH	Ch page 3
GRAVEL – LIGHT BROWN WET	6·200	1·800	S.A. 3·000m ∇ 10mins Δ 3·700 ∇ 4·400	5·000 to 6·000	D							SPT page 7 SPT Page 7
...Y – DARK GREY, STIFF, STONY. WITH OCCASIONAL SAND PARTINGS TOWARDS THE BASE.			S.A. 3·100m ∇ 10mins Δ 4·400	6·310 to 6·710 6·300	U4 MC	10 11		32	15	17	CL	T. page 9 Ce. page 5
				6·710 to 7·500	D,MC	12		31	15	16	CL	
				8·000 to 9·000	D,MC	13		28	15	13	CL	
				9·300	MC	11						
	10·100	3·900		9·600 to 10·100	U4	11		29	14	15	CL	T. page 10 Oe. page 6
... BACKFILLED FROM 10·100m ...ND LEVEL WITH SAND & CLAY.	Stopped	hole										
... WAS CHISELLED & WATER ...ED BETWEEN 7m & 9m ...T BORING OPERATIONS												

DUNELM DRILLING CO.

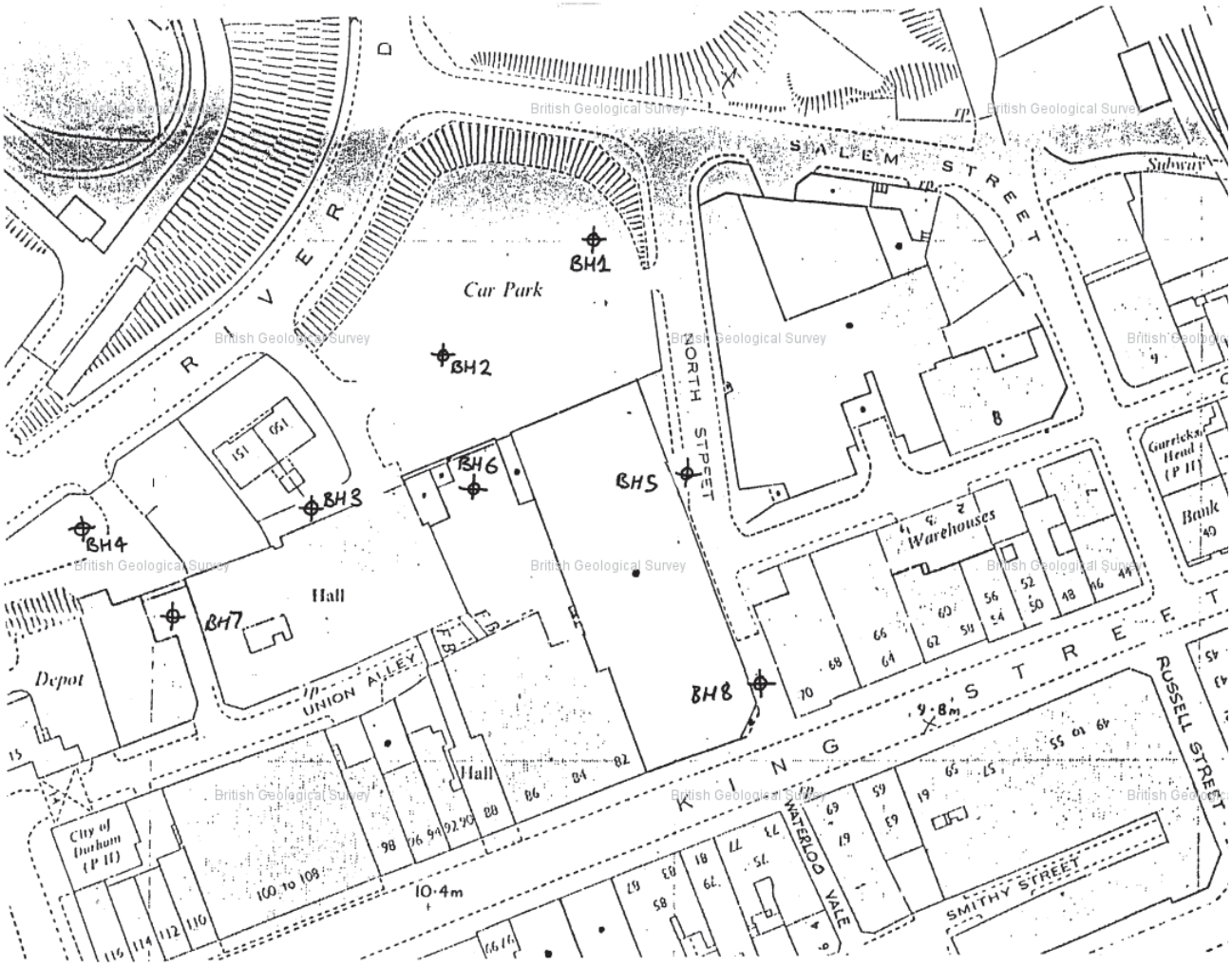
BOREHOLE RECORD

Contract No. C4163 Client PATRICK PARSONS & ASSOCIATES

Ground Level ..... Location KING STREET – SOUTH SHIELDS

Date OCT '89 BOREHOLE No. BH8

Depth	Thick-ness	Legend	Description of Strata	Type of Sample	C kN/m²	M %	Ø	De Kg
	0·50		PAVEMENT OVERLYING DOLOMITE SUBBASE					
0·50								
	2·50		LOOSE TO MEDIUM DENSE STONE, ASH URBAN RUBBLE & CLAY FILL	P 1·50				
3·00								
	0·80		MEDIUM DENSE CLAY & BRICK FILL					
3·80								
	0·40		SOFT MOIST BROWN SAND					
4·20				U 4·50	244·0	11·5	–	22
			STIFF DARK BROWN STONY BOULDER CLAY	U 6·00	278·0	12·0	–	22
	5·80							
				U 8·00	211·0	11·0	–	22
				U 9·50	192·5	15·0	–	22
10·00								


RIVER
Car Park
BH1
BH2
BH3
BH4
BH5
BH6
BH7
BH8
NORTH STREET
SALEM STREET
Subway
Warehouses
Hall
Depot
UNION ALLEY
KINGSTREET
RUSSELL STREET
SMITHY STREET
WATERLOO VALE
City of Durham (P H)
Garrick's Head (P H)
Bank
9·8m
10·4m
British Geological Survey

Shafts Index Shafts
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

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Forums
What's new
Donate via JustTextGiving
Mining
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St. Hilda's Colliery

Church Pit

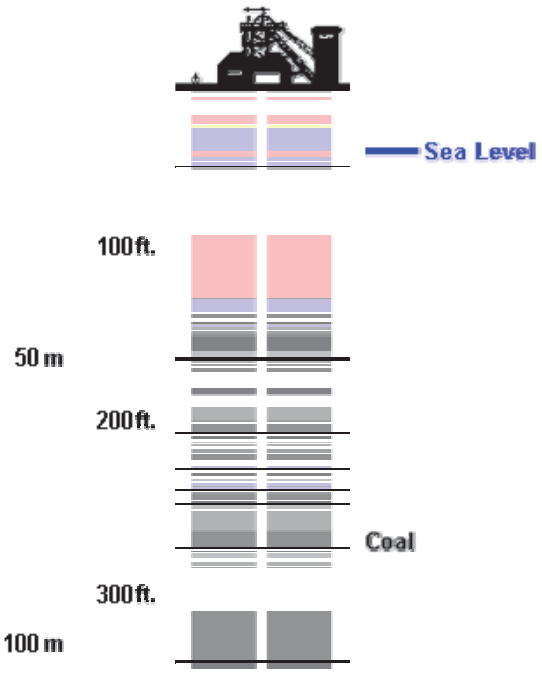
Strata sunk through in the Church or New Engine Pit, Manor Wallsend, now called St. Hilda Colliery, June, 1825

Shaft Details

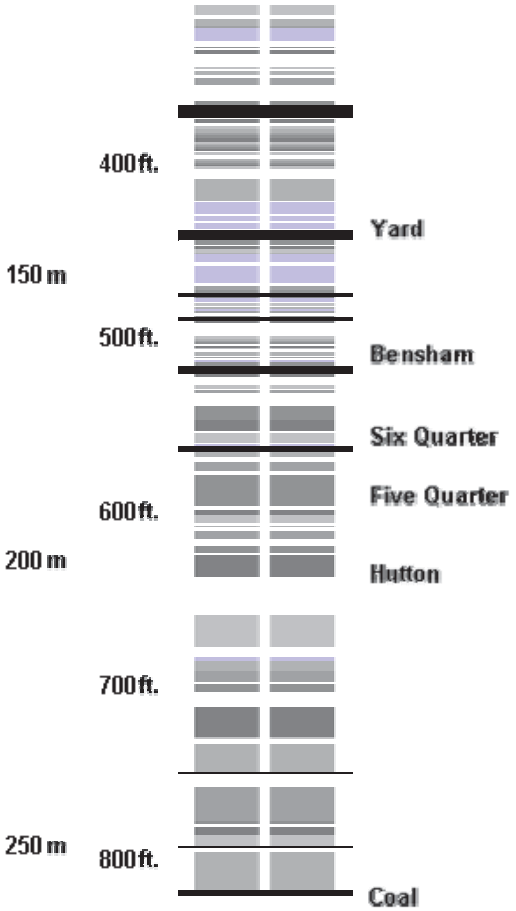
Sunk: Jun 1825

Approximate surface level 12.19m above sea (Ordnance datum)

Switch to measurements in: feet & inches, or fathoms, feet & inches



Geology encountered	Thickness m.	Depth m.
Soil	0.30	0.30
Red clay	1.22	1.52
Brown clay, scared with sand	4.27	5.79
Sand, with water	0.61	6.40
Blue stony clay	4.11	10.52
Blue metal	0.30	10.82
Brown metal	0.81	11.63
Blue metal	0.56	12.19
Blue metal	0.10	12.29
Post girdles	0.08	12.37
Blue metal	0.58	12.95
Black parting	0.05	13.00
Blue metal stone	0.43	13.44
COAL, regularly stratified	0.18	13.61



Thill	0.30	13.92
Brown post	22.33	36.24
Soft brown metal	0.25	36.50
Black *coaly*, partings	0.18	36.68
Soft blue metal	1.68	38.35
Blue metal	0.53	38.89
Black metal	0.84	39.75
Post girdles	1.32	41.07
Grey metal, mixed with post girdles	0.43	41.50
Post girdles	0.10	41.60
Blue metal	0.36	41.96
Post girdle	0.05	42.01
Grey metal, mixed with post	0.20	42.21
Post girdle	0.94	43.15
Grey metal	0.28	43.46
Post girdle	0.10	43.56
Grey metal, with scares of thin post girdles	2.34	45.90
Black stone	1.22	47.12
COAL	0.74	47.85
COAL	0.10	
Black band	0.05	
COAL	0.10	
Black band	0.08	
COAL	0.41	
Thill	0.25	48.11
Post girdles	0.69	48.82
Grey metal, mixed with post	0.99	49.81
Grey metal stone girdles	3.89	53.69
Post girdles	0.41	54.10
Grey metal	4.39	58.49
Grey metal, mixed with post	0.18	58.67
Black stone	1.83	60.50
COAL	0.18	60.68
Thill	0.99	61.69
Post girdle	0.74	62.43
Grey metal, mixed with post	0.66	63.09
Post girdles and water	1.14	64.23
Grey metal	0.15	64.41
Post girdle	1.19	65.61
Blue metal girdles	1.45	67.05
COAL	0.20	67.26
Thill	0.84	68.09
Grey scamy post	0.81	68.91
Blue metal	0.86	69.77
Grey metal partings	0.05	69.82

Black stone	0.41	70.23
Blue metal	0.36	70.58
COAL	0.25	70.84
Thill stone	0.48	71.32
Grey metal, mixed with post and a little water	0.99	72.31
Grey metal	0.53	72.84
COAL	0.28	73.12
Thill stone	0.53	73.66
Grey post	3.78	77.44
Grey metal, mixed with post	0.71	78.15
Grey metal	2.31	80.46
COAL - Metal Coal Seam	0.38	80.85
Thill	0.74	81.58
Grey post girdle	0.89	82.47
Grey metal, mixed with post	1.42	83.89
White post girdle	0.10	83.99
Grey metal, mixed with post	0.28	84.27
White post, with water	16.28	100.55
COAL	0.53	101.09
Thill	0.91	102.00
Grey post girdles	0.10	102.10
* Grey and black metal and metal stone	2.74	104.85
* Black stone	1.88	106.73
* COAL, stony	0.05	106.78
* Soft grey metal in leader of trouble	0.05	106.83
* Thill	0.46	107.29
* Blue metal	2.36	109.65
* Scamy post girdles	1.22	110.87
* Grey metal, with post girdles	0.97	111.83
* Grey post	2.82	114.65
Grey metal	0.81	115.46
Grey metal, with post	1.80	117.27
Grey post girdle	0.15	117.42
COAL	0.03	117.44
Bed of ironstone	0.05	117.50
Grey metal	3.78	121.28
COAL - Yard Seam	2.18	123.46
COAL	0.38	
Black metal band	0.08	
COAL	0.25	
Grey metal band	0.13	

COAL	0.15	
Grey metal band	0.25	
COAL	0.94	
Thill	0.91	124.38
Black grey metal, with scares of post	0.91	125.29
Post girdles	0.91	126.21
Grey metal, with post	0.46	126.66
Post girdles, with whin	0.61	127.27
Grey metal, with post	0.66	127.93
Post girdles	0.18	128.11
Grey metal, with post	0.15	128.26
Post girdles	0.10	128.37
Grey metal, with post	0.18	128.54
Post girdles	0.25	128.80
Grey metal, with post	0.36	129.15
Post girdles	0.10	129.26
Black stone, with a ¾ inch scare of *coal* at bottom	0.20	129.46
Dark grey thill stone, mixed with stone	0.58	130.04
Whin and white post	1.12	131.16
Grey metal, with post	0.43	131.59
White post girdle	0.36	131.95
Grey and black metal	0.41	132.35
Bed of ironstone	0.05	132.40
Black metal	0.30	132.71
Grey metal, with beds of ironstone, which go over only part of the pit	5.69	138.40
Bed of ironstone all over the pit	0.08	138.48
Dark blue metal	1.22	139.69
Ironstone	0.05	139.75
Dark blue metal	0.81	140.56
Ironstone	0.10	140.66
Dark blue and grey metal	1.35	142.01
Black metal, with scares of *coal*	0.61	142.62
Grey and blue metal	0.79	143.40
Black metal	0.05	143.45
Hard blue metal	0.20	143.66
Black metal	0.05	143.71

COAL - Bensham Seam	1.73	145.43
COAL	0.94	
Splint	0.08	
COAL	0.71	
Grey metal	0.48	145.92
Post girdle	0.89	146.81
Grey metal	0.58	147.39
Post girdle	0.03	147.42
Grey metal	0.25	147.67
Blue metal	0.51	148.18
Post girdle	0.10	148.28
Blue metal	0.69	148.97
Post girdle	0.13	149.09
Blue metal	3.53	152.62
Dark grey metal	1.22	153.84
Black metal, with scares of *coal*	0.48	154.32
COAL	0.56	154.88
Thill	0.38	155.26
Post girdle	0.13	155.39
Blue metal, with scares of post	0.20	155.59
Post girdle	0.15	155.75
Blue metal, with scares of post	0.23	155.98
Post girdle	0.61	156.58
Blue metal	0.08	156.66
Post girdle	0.10	156.76
Blue metal	0.08	156.84
Post girdle	0.63	157.47
Blue metal	0.18	157.65
Post girdle	0.33	157.98
Dark grey metal	1.07	159.05
COAL - Six-Quarter Seam	0.76	159.81
COAL, splint	0.76	
White girdle	0.41	160.22
Blue metal	0.05	160.27
Ironstone	0.10	160.37
Post girdle, with scares of metal	2.90	163.26
Whin girdle	0.13	163.39
Grey metal	0.30	163.70
Post girdle	0.25	163.95
Grey metal	0.46	164.41
Post girdle	0.13	164.53
Grey metal	0.13	164.66
Post girdle, with scares of metal	0.69	165.35
White post girdle	0.38	165.73
White post girdle, with scares of metal	1.30	167.02
Grey metal	0.10	167.13
Post girdle	0.43	167.56
Blue metal	0.61	168.17

Black metal	0.79	168.95
COAL - Five-Quarter Seam	1.35	170.30
COAL	0.15	
Black band	0.05	
COAL	0.51	
Splint	0.30	
COAL	0.33	
Thill stone	0.58	170.88
Grey metal	2.24	173.12
White post girdle	0.25	173.37
Grey metal post	0.28	173.65
White post	4.78	178.43
White post girdles, with metal partings	1.83	180.26
Grey metal	2.01	182.26
Splint	0.15	182.42
Blue metal	0.56	182.97
COAL - Hutton Seam	1.02	183.99
COAL	0.61	
Black band	0.10	
COAL	0.28	
Splint	0.03	
Thill	1.07	185.06
Thill stone	2.44	187.50
Grey metal, with scares of post	6.02	193.51
Post, with scares of metal	1.50	195.01
Grey metal, with scares of post	1.57	196.59
Grey post girdle	0.58	197.17
Grey metal, with scares of post	2.03	199.20
White post	2.54	201.74
Grey metal, with scares of post	4.22	205.96
Grey post	12.09	218.05
Blue and black metal (the bottom of this bed joining the hole of the Stone Drift)	2.39	220.44
Grey metal	1.83	222.27
Post girdle	0.15	222.42
Grey metal, mixed with post	1.83	224.25
Grey metal, mixed with post, very hard	1.78	226.03
White post	7.90	233.92
Grey metal, mixed with post	0.38	234.31
White post	5.79	240.10
COAL - Supposed Harvey Seam	0.46	240.55

COAL	0.23	
Black band	0.13	
COAL	0.10	
Grey metal, with scares of post	8.18	248.73
Thill stone	0.61	249.34
Grey metal, with scares of post	1.75	251.09
Grey metal, with scares of post and post girdles	2.13	253.23
COAL	0.33	253.56
Sump :—	0.00	253.56
Grey post	7.31	260.87
COAL	1.04	261.91
Thill	0.00	261.91
* The pit passes through the fissure of the 58-Fathoms Dyke at this place, and all the strata are measured as they occurred on the South or rise side of the pit, between these two points	0.00	261.91

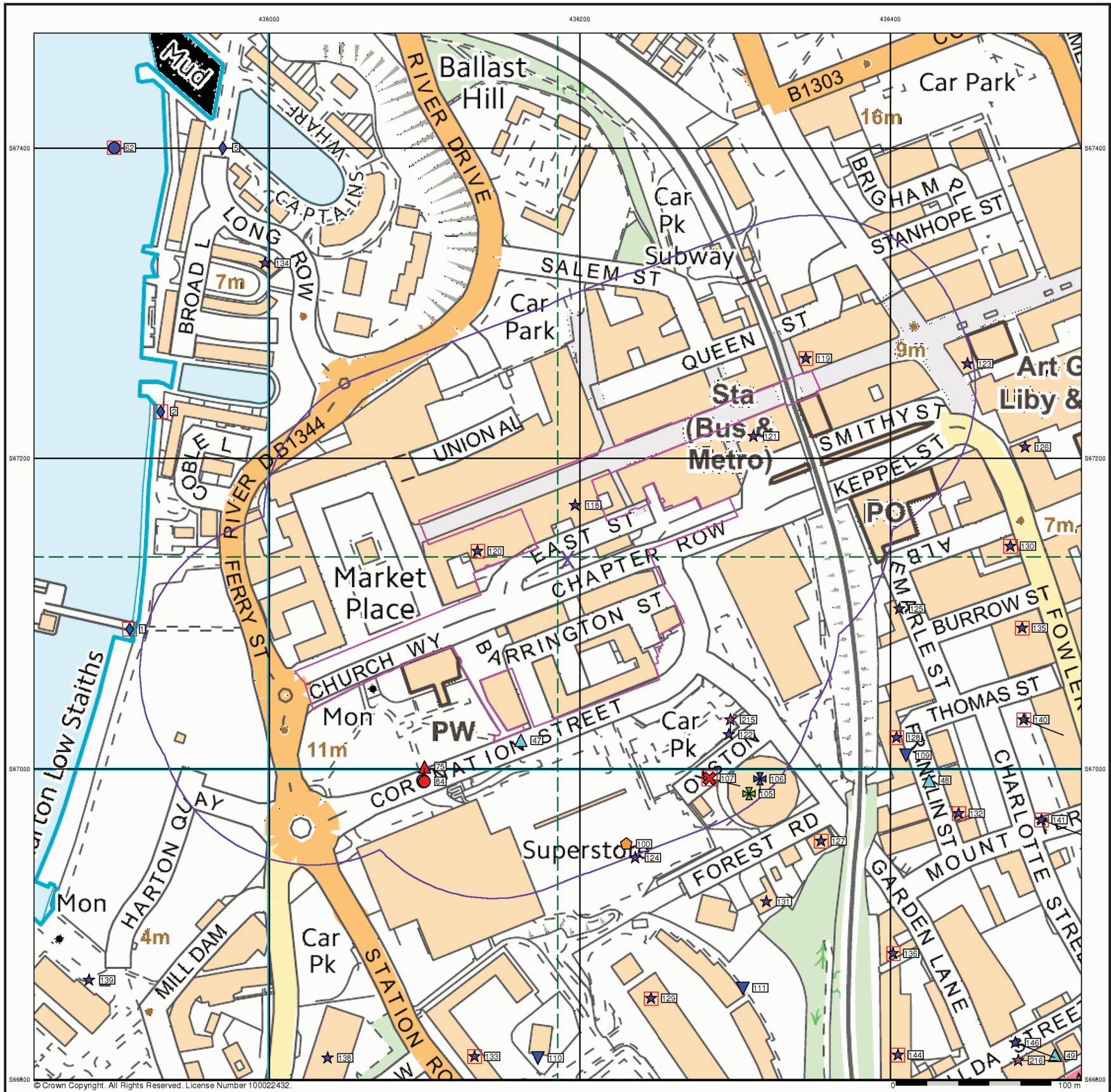
Source: *An Account of the strata of Northumberland & Durham as proved by Borings & Sinkings, Volume L-R, published by the North of England Institute of Mining & Mechanical Engineers, 1887*

Go to ... original entry for sinking/boring number 1317 in "*An Account of the strata of Northumberland & Durham as proved by Borings & Sinkings, Volume L-R, published by the North of England Institute of Mining & Mechanical Engineers, 1887*"

Go to ... main page for St. Hilda's Colliery

Appendix E

Envirocheck Report – Area 1



consulting engineers

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

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

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

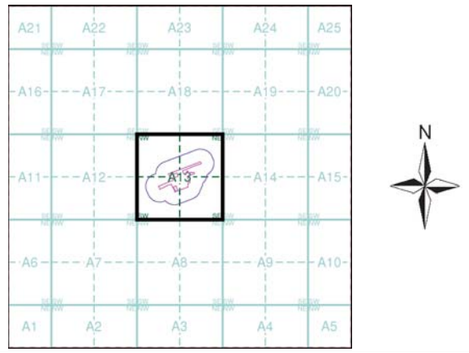
Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

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

Site Sensitivity Map - Segment A13



Order Details

Order Number:	65066322_1_1
Customer Ref:	15504
National Grid Reference:	436190, 567130
Slice:	A
Site Area (Ha):	2.24

Site Details

AREA 1, South Shields, South Tyneside

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

consulting engineers

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
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- Enforcement or Prohibition Notice
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- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
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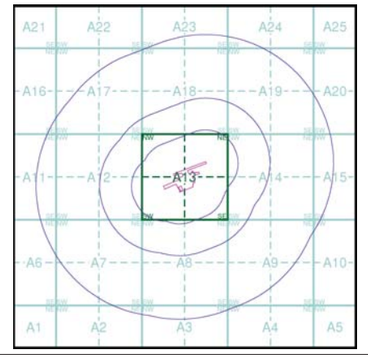
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

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

Site Sensitivity Map - Slice A



Order Details

Order Number:	65066322_1_1
Customer Ref:	15504
National Grid Reference:	436190, 567130
Slice:	A
Site Area (Ha):	2.24
Search Buffer (m):	1000

Site Details

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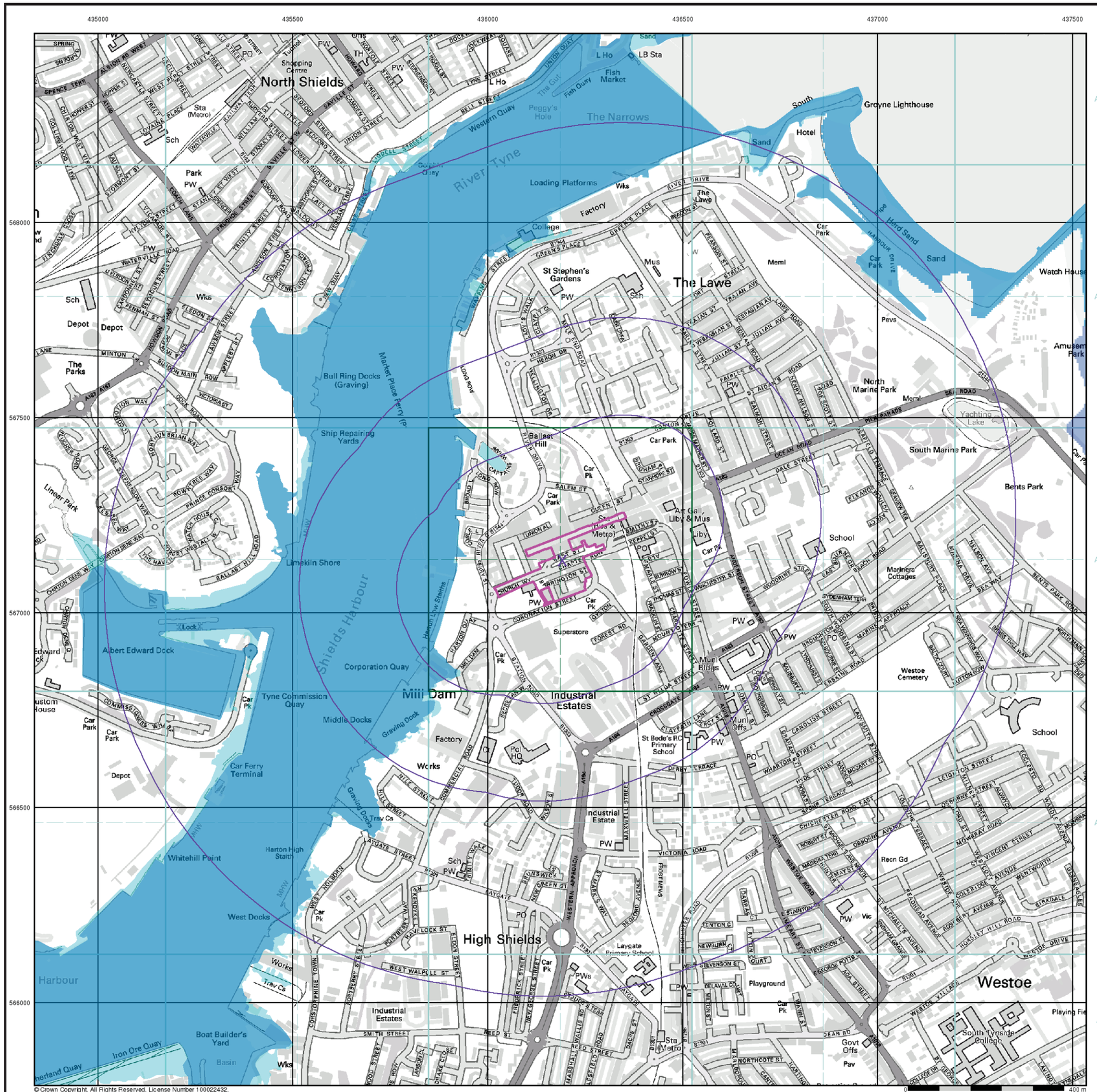


consulting engineers

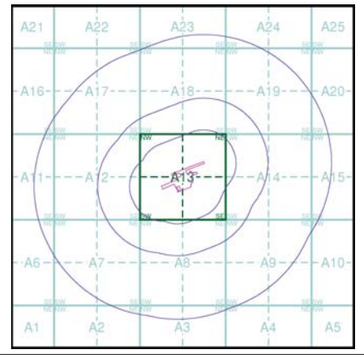
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



Order Details

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Customer Ref:	15504
National Grid Reference:	436190, 567130
Slice:	A
Site Area (Ha):	2.24
Search Buffer (m):	1000

Site Details

AREA 1, South Shields, South Tyneside

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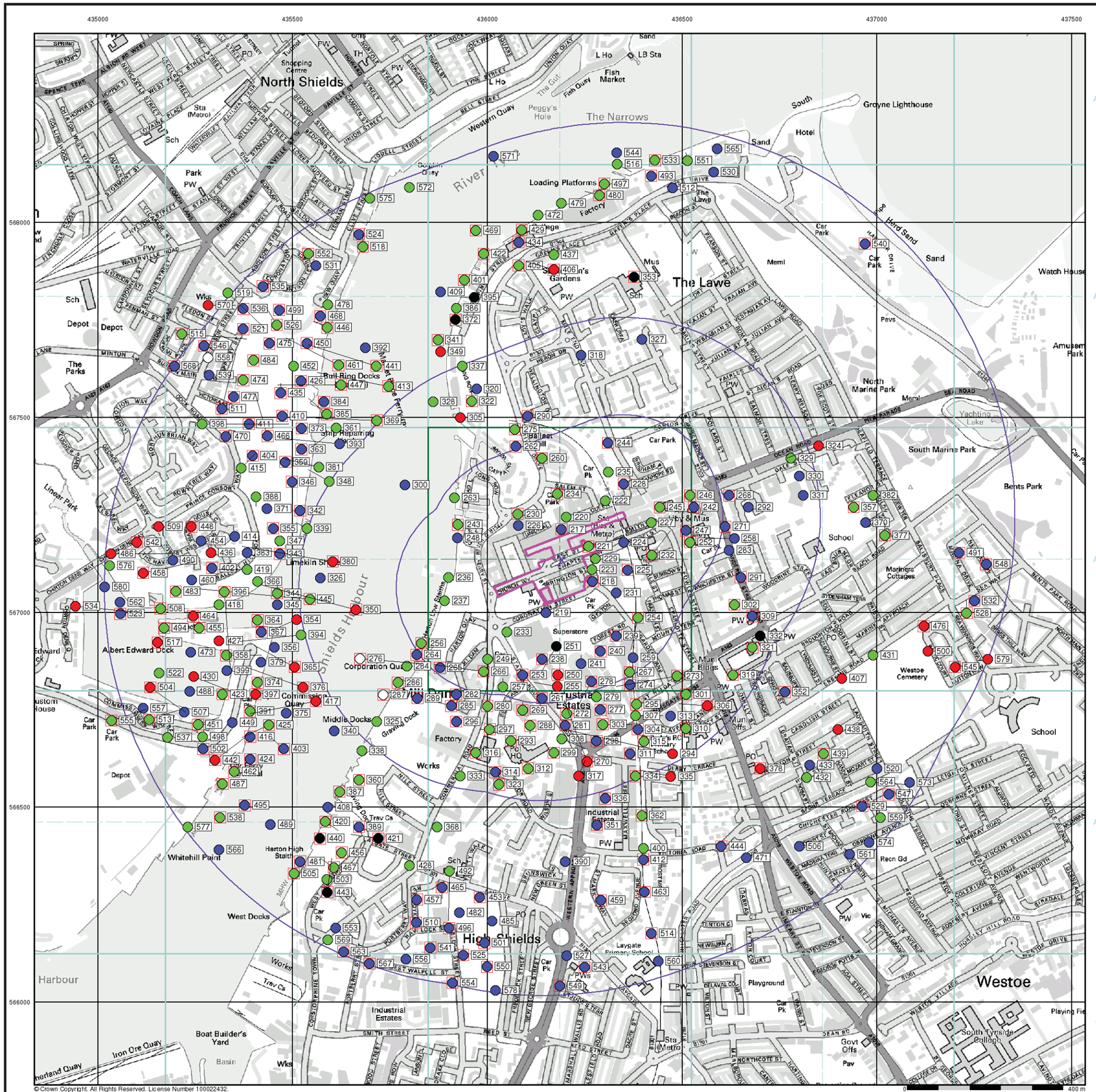


consulting engineers

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

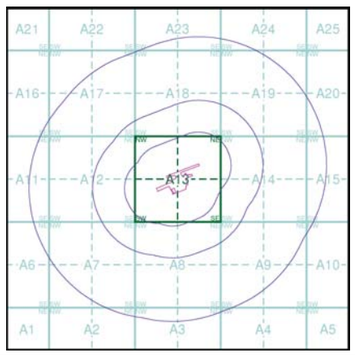
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



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General

- ⬠ Specified Site
- ⬠ Specified Buffer(s)
- X Bearing Reference Point
- ▯ Map ID

Detailed River Network Data

━ Primary River	━ Extended Culvert (greater than 50m)
━ Secondary River	━ Underground River (inferred)
━ Tertiary River	━ Underground River (local knowledge)
━ Canal	━ Downstream of High Water Mark
╌ Canal Tunnel	╌ Downstream of Seaward Extension
━ Undefined River	╌ Not assigned River feature
╌ Lake/Reservoir	
╌ Offline Drainage Feature	

Contours (height in metres)

Standard Contour	105	MLW Mean Low Water
Master Contour	100 95	MHW Mean High Water
Spot Height	·167.3	

EA/NRW Detailed River Network Map - Slice A

Order Details

Order Number:	65066322_1_1
Customer Ref:	15504
National Grid Reference:	436190, 567130
Slice:	A
Site Area (Ha):	2.24
Search Buffer (m):	1000

Site Details

AREA 1, South Shields, South Tyneside

Landmark Information Group

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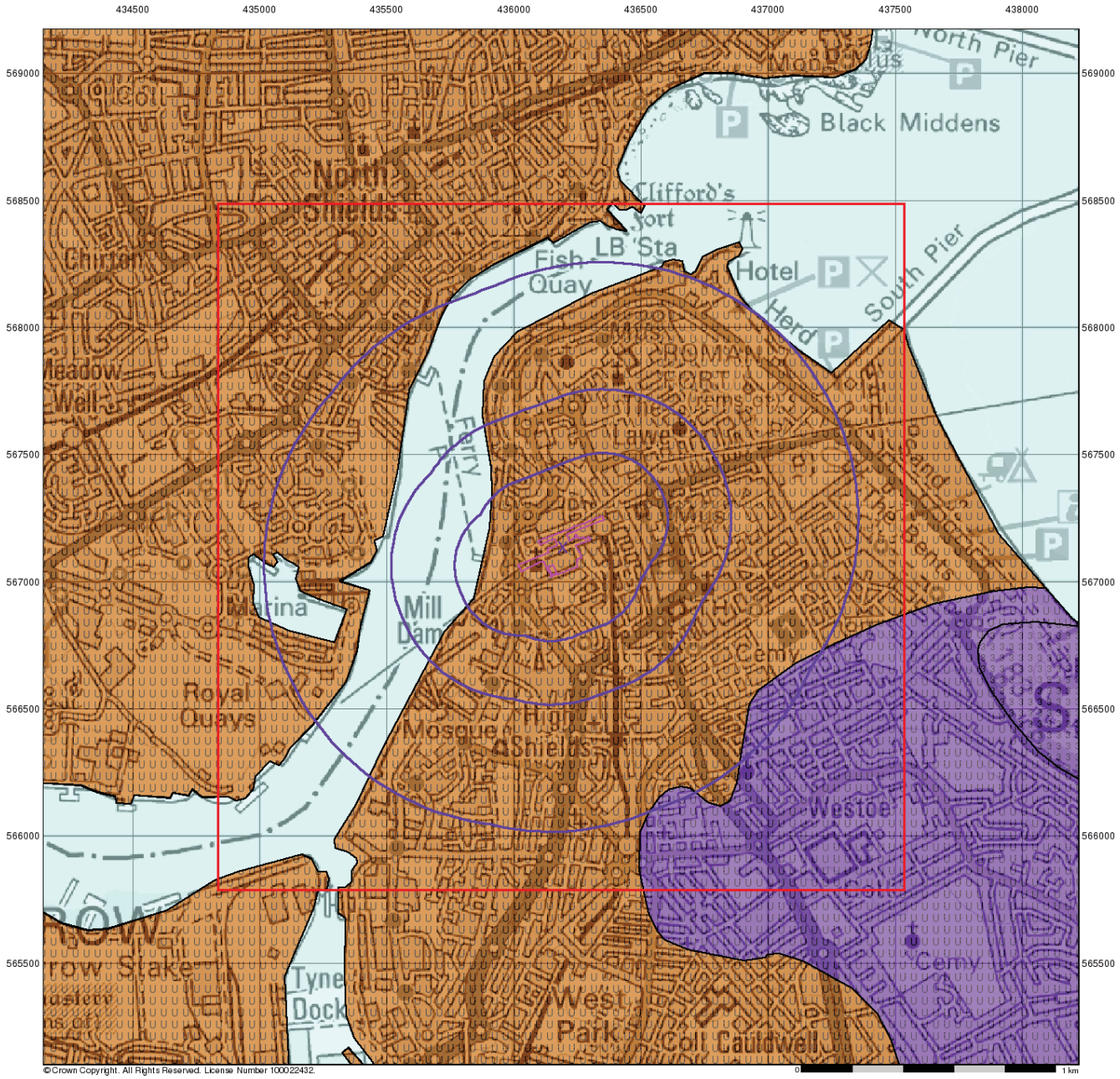

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Groundwater Vulnerability

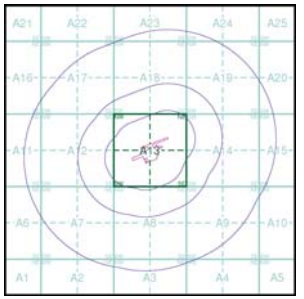
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



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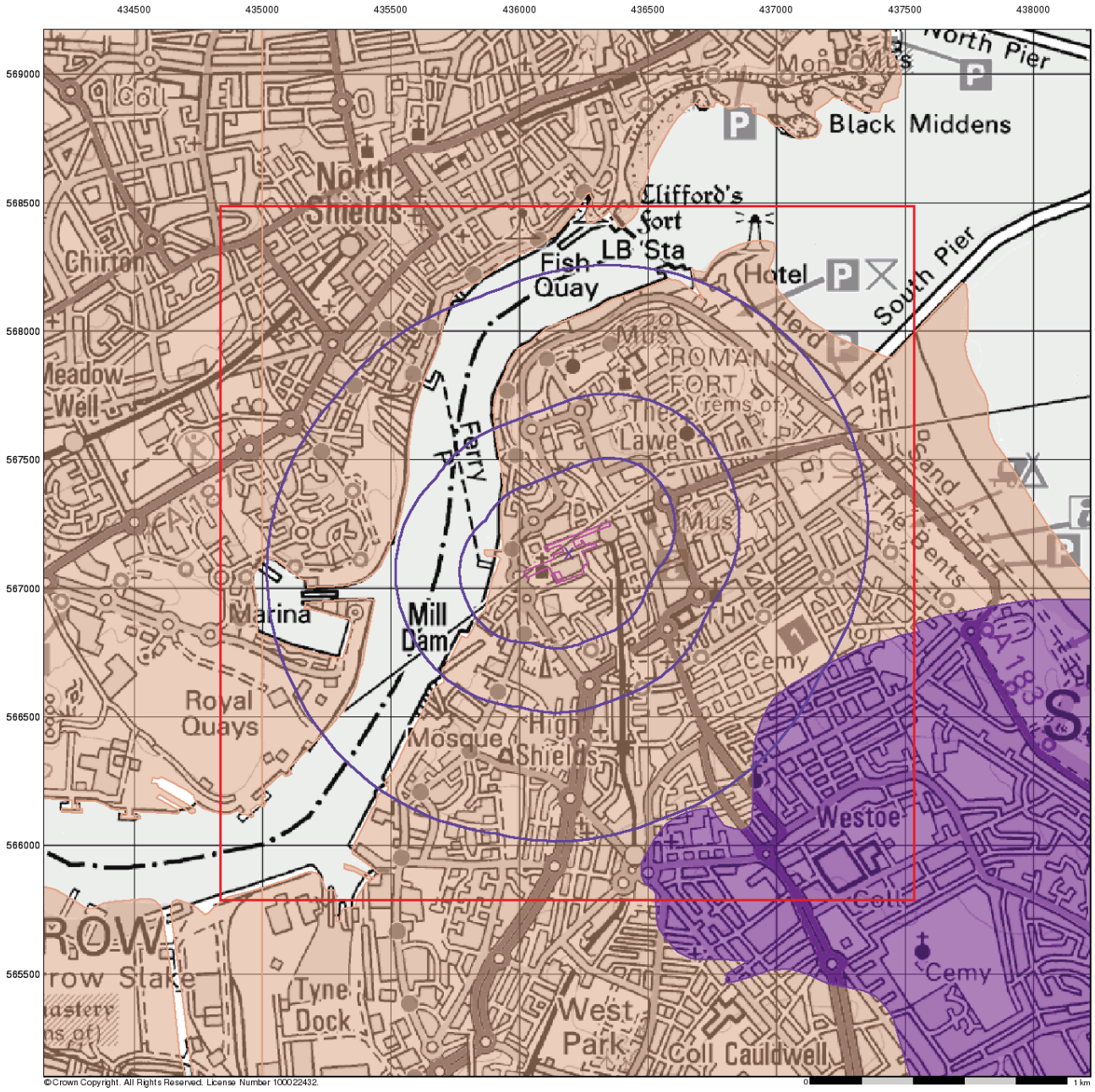

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Bedrock Aquifer Designation

General

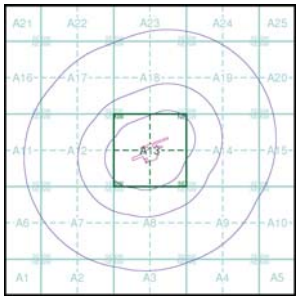
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



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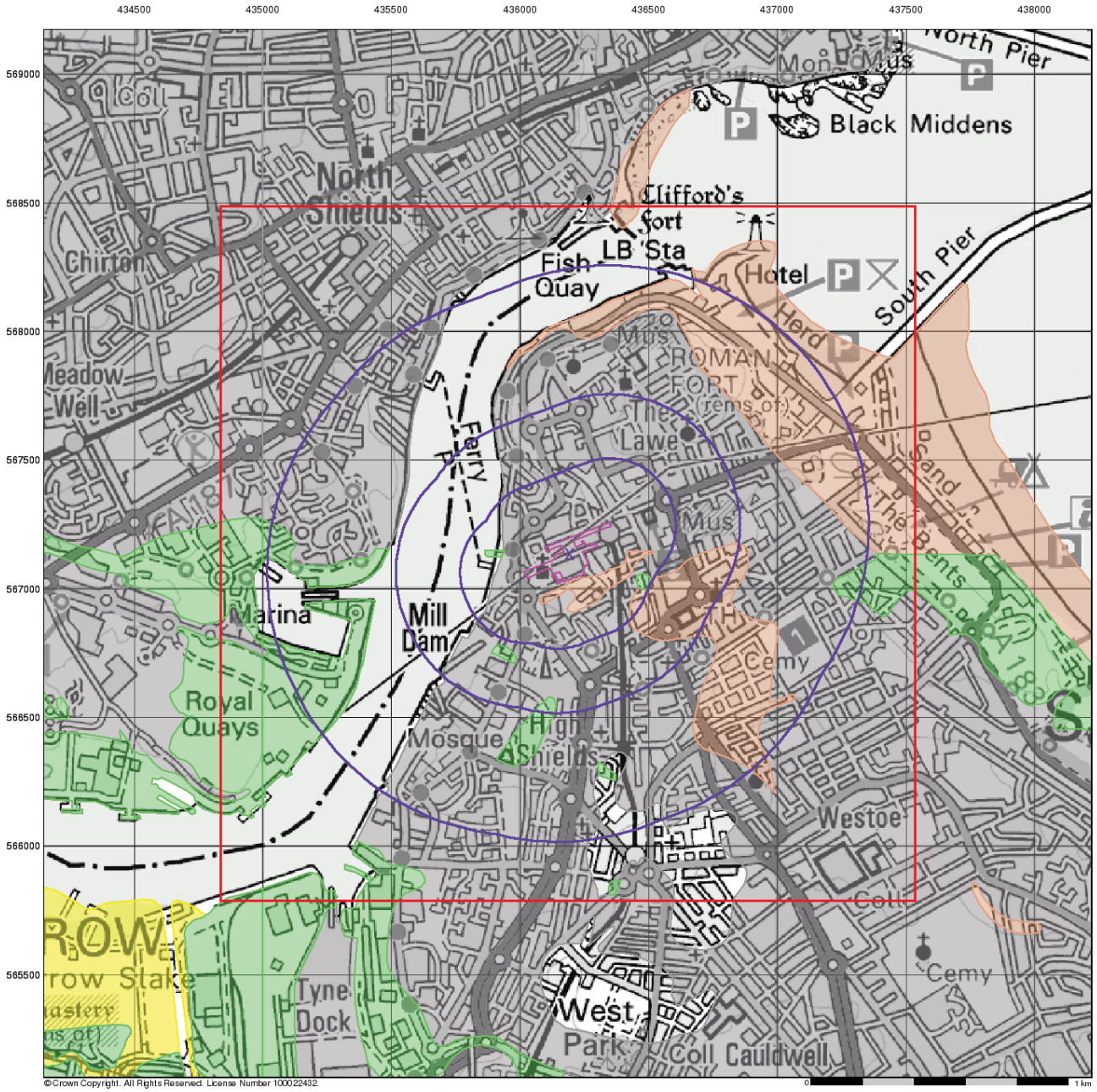

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Superficial Aquifer Designation

General

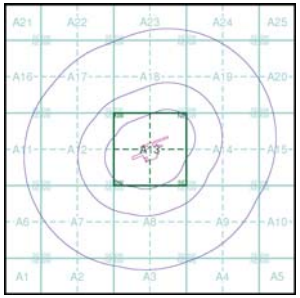
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



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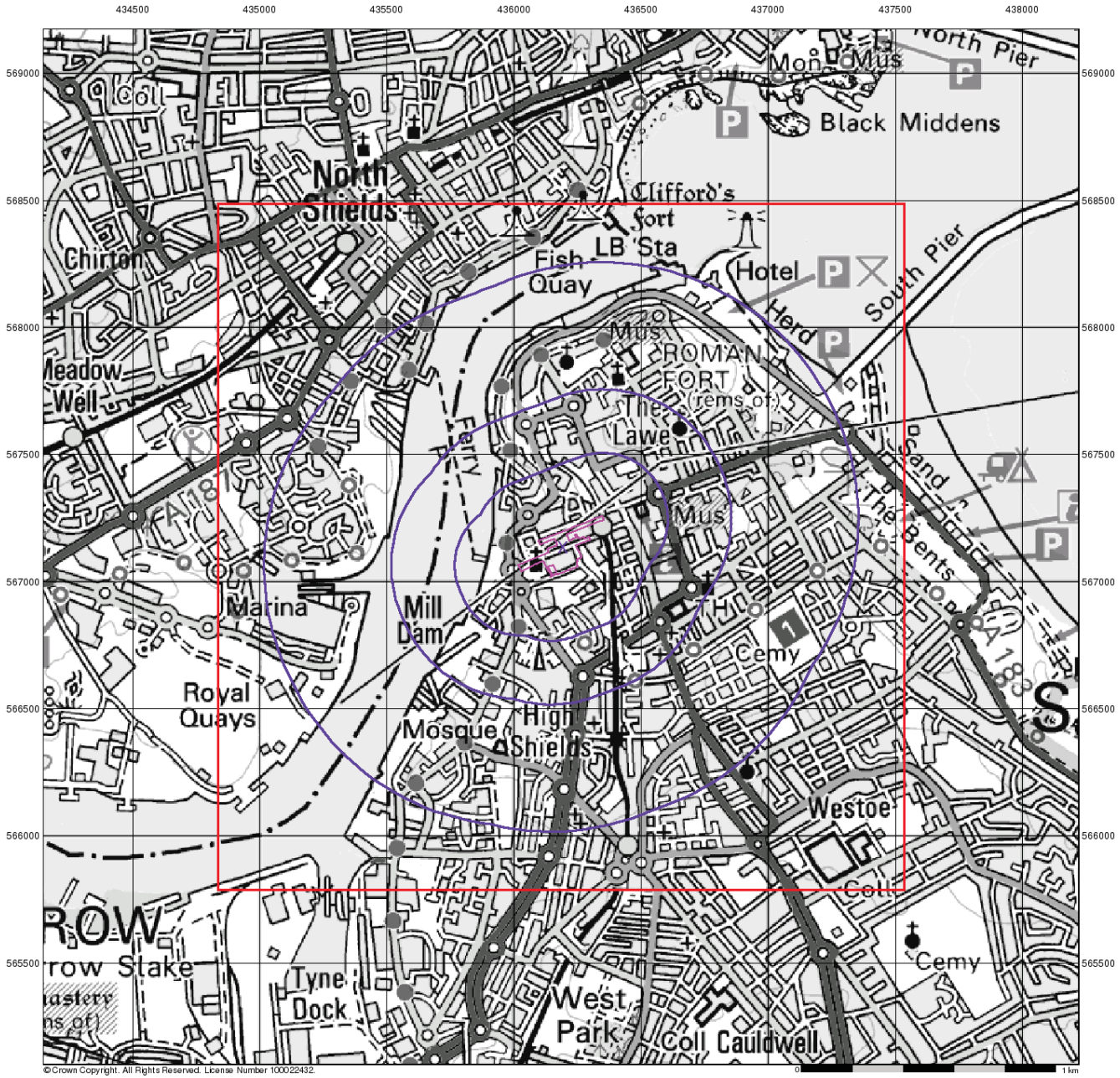

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Source Protection Zones

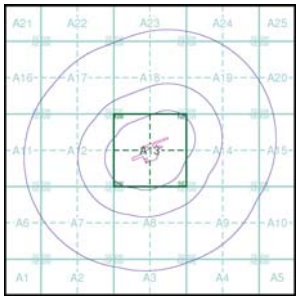
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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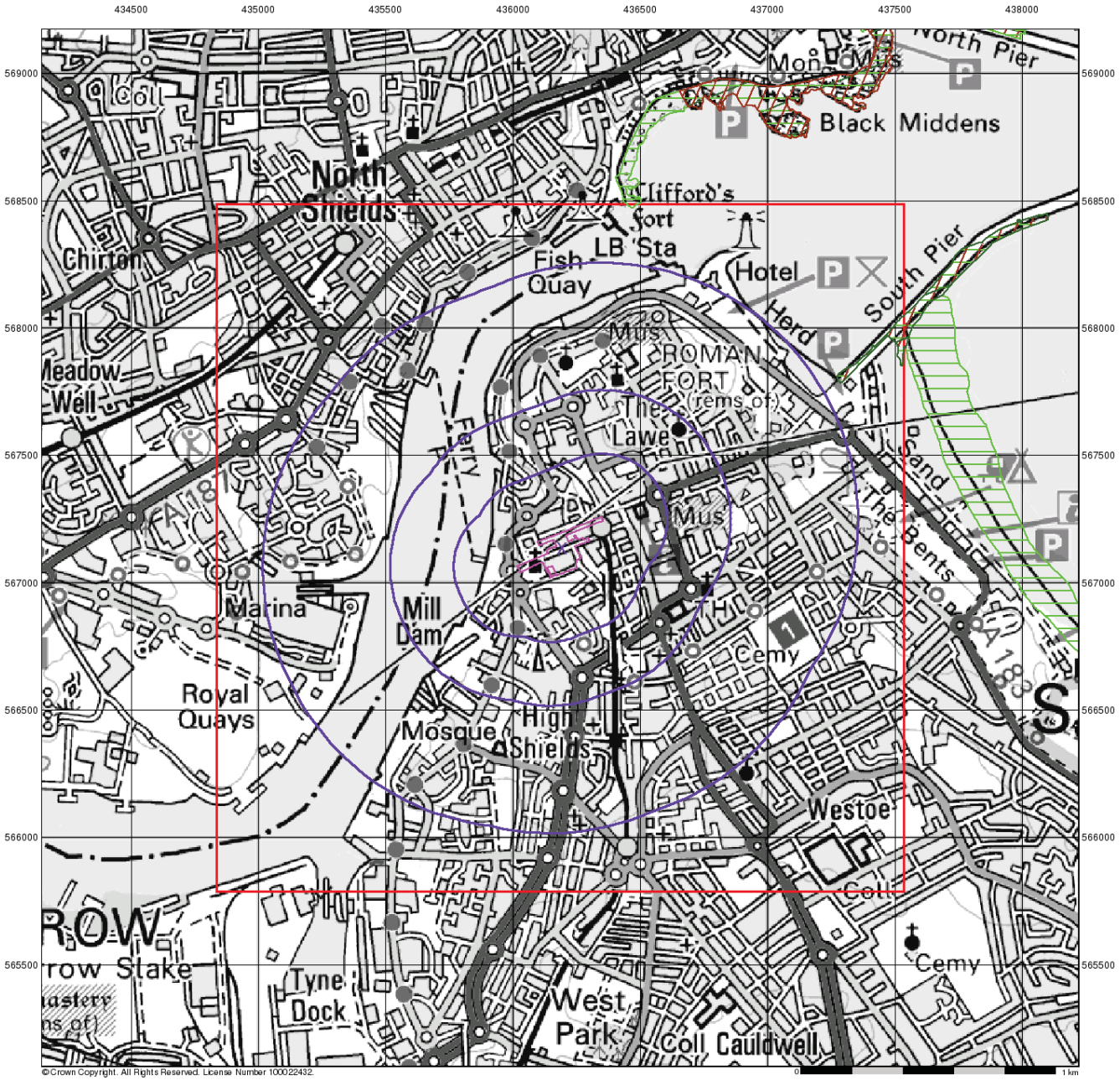

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Sensitive Land Uses

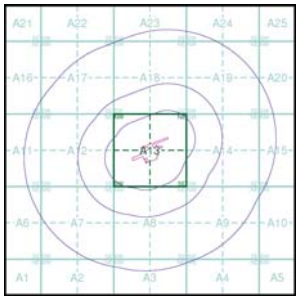
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

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
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area

Site Sensitivity Context Map - Slice A



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