

**AN ARCHAEOLOGICAL DESK-BASED ASSESSMENT:
A19/A189 MOOR FARM JUNCTION, CRAMLINGTON,
BLYTH VALLEY, NORTHUMBERLAND**

**An Archaeological Desk-Based Assessment:
A19/A189 Moor Farm Junction, Cramlington, Blyth Valley, Northumberland**

Central National Grid Reference: NZ 270 746

Site Code: CRA 09

**Commissioning Client:
Parsons Brinckerhoff Limited
Amber Court
William Armstrong Drive
Newcastle-upon-Tyne
Ne4 7YQ**

Tel: 0191 226 2109



**Contractor:
Pre-Construct Archaeology Limited
Northern Office
Unit N19a, Tursdale Business Park
Tursdale
Durham
DH6 5PG**

Tel: 0191 377 1111



**© Pre-Construct Archaeology Limited
March 2009**

This report is protected by copyright. The report and the information contained herein are and remain the sole property of Pre-Construct Archaeology Limited and are provided on a single site multi-user basis. If provided in paper form, the report may be utilised by a number of individuals within a location, but copying is prohibited under copyright. If provided in an electronic form, the report may be utilised in a shared server environment, but copying or installation onto more than one computer is prohibited under copyright and printing from electronic form is permitted for own, single location, use only. Multiple printing from electronic form for onward distribution is prohibited under copyright. Further distribution and uses of the report either in its entirety or part thereof in electronic form is prohibited without prior consent from Pre-Construct Archaeology Limited.

Pre-Construct Archaeology Limited has made every effort to ensure the accuracy of the content of this report. However, Pre-Construct Archaeology Limited cannot accept any liability in respect of, or resulting from, errors, inaccuracies or omissions herein contained.

CONTENTS

List of Figures and Plates

	<i>page</i>
1. NON-TECHNICAL SUMMARY	1
2. INTRODUCTION	3
3. AIMS AND OBJECTIVES	10
4. METHODS OF ASSESSMENT	12
5. GEOLOGY, TOPOGRAPHY AND DRAINAGE	13
6. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	15
7. POTENTIAL IMPACTS	39
8. CONCLUSIONS AND RECOMMENDATIONS	43
9. ACKNOWLEDGEMENTS AND CREDITS	45
10. BIBLIOGRAPHY AND SOURCES CONSULTED	46

Appendix A: Catalogue of HER Entries

Appendix B: Plates

List of Figures and Plates

	<i>page</i>
Figure 1 Site location	5
Figure 2 Site location; detail	6
Figure 3 HER entries	16
Figure 4 Armstrong, 1769	21
Figure 5 Fryer, 1820	22
Figure 6 Greenwood, 1828	23
Figure 7 Tithe map (composite), 1840 & 1841	24
Figure 8 Bell, 1847	25
Figure 9 Ordnance Survey 1st edition (6 inches to 1 mile), c. 1860	28
Figure 10 Ordnance Survey 1st edition, (25 inches to 1 mile), c. 1860	29
Figure 11 Ordnance Survey 2nd edition (6 inches to 1 mile), c. 1895	30
Figure 12 Ordnance Survey 3rd edition (6 inches to 1 mile), c. 1920	31
Figure 13 Ordnance Survey, 1960 (1:2,500), detailed extracts	35
Figure 14 Ordnance Survey, 1966 (1:10,500)	36
Figure 15 Ordnance Survey, 1985 (1:10,500)	37
Figure 16 Ordnance Survey, 2001 (1:10,500)	38
Location and direction of plates	<i>Appendix B</i>
Plate 1 Moor Farm Junction, exit to the A19 westbound, looking north-west	<i>Appendix B</i>
Plate 2 View from Moor Farm Junction along the A19, looking WNW	<i>Appendix B</i>
Plate 3 Moor Farm Junction, view across exits to the A19 and A1171 towards Church of St. John the Baptist, looking north	<i>Appendix B</i>
Plate 4 View from Moor Farm Junction along the A1171, looking south-west	<i>Appendix B</i>
Plate 5 Church of St. John the Baptist, from the B1505, looking north	<i>Appendix B</i>
Plate 6 Church of St. John the Baptist, south elevation, looking NNE	<i>Appendix B</i>
Plate 7 Culverting of Seaton Burn tributary, west of the A189, looking east	<i>Appendix B</i>
Plate 8 View from Moor Farm Junction along the A189, looking NNE	<i>Appendix B</i>

Plate 9	Exit to culvert of Seaton Burn tributary east of the A189, looking north-east	<i>Appendix B</i>
Plate 10	Site of Seghill Reservoir to the east of the A189, looking north-east	<i>Appendix B</i>
Plate 11	Arable field on the north-east side of Moor Farm Junction, looking north-west	<i>Appendix B</i>
Plate 12	Arable field on the south-east side of Moor Farm Junction, looking south	<i>Appendix B</i>
Plate 13	View from Mill Lane across allotment gardens and arable land towards Moor Farm Junction, looking north-west	<i>Appendix B</i>
Plate 14	View across arable land to the south of Mill Lane, looking north-west	<i>Appendix B</i>
Plate 15	View towards Moor Farm Junction from the A19 overpass of Mill Lane, looking north-west	<i>Appendix B</i>

1. NON-TECHNICAL SUMMARY

- 1.1 An archaeological desk-based assessment was undertaken ahead of a proposed scheme to improve the A19/A189 Moor Farm Junction, Cramlington, Northumberland. The work was undertaken February-March 2009 by Pre-Construct Archaeology Limited, having been commissioned by Parsons Brinckerhoff Limited.
- 1.2 The road junction is located at central National Grid Reference NZ 270 746 between the edge of Cramlington, to the north, and Annitsford, to the south, each at distance of approximately 0.2km. It comprises a roundabout feeding the A19 dual carriageway, running west to south-east, and the roughly north to south aligned A189, as well as serving local roads into Cramlington and Annitsford.
- 1.3 The road junction is bounded by open countryside to the north-east and south-east, with woodland and parkland to the north-west and a service area, with hotel and public house, to the south-west, this accessible from the roundabout. Beyond the service area and a new housing development to its west is mostly open countryside, extending southwards as far as Annitsford.
- 1.4 Several options are being considered for the road junction improvement scheme, two of which will require relocation of the roundabout and modifications to the associated road network. The study site took in the footprint of the relocated roundabout and the furthest extent of possible road network modifications, a total area of c. 23 hectares. Archaeological sites and other cultural heritage assets within a wider study area of approximately 1.5km radius around the study site were examined in detail.
- 1.5 The first main aim of the assessment was to establish the potential for sub-surface archaeological remains within the proposed development area in order to identify any likely impacts of the scheme upon the archaeological resource. Such impacts can be direct, such as disturbing or destroying sub-surface archaeological remains as a result of construction work or indirect, such as drying out of waterlogged remains. Secondly, the assessment considered impacts upon the settings of cultural heritage assets with statutory protection during both construction and operation.
- 1.6 The assessment has concluded that the potential for archaeological remains of the earlier prehistoric periods at the study site is **low**. However, the potential for later prehistoric remains is considered **moderate to high**. This is due to the preponderance of settlement sites of the Iron Age and late pre-Roman Iron Age across South East Northumberland and a number of potential sites of this period having been identified from air photographic evidence in the wider study area. One settlement site of the period, proved by previous excavation, is at Burradon, on the southern limit of the wider study area. Any archaeological remains of this period would be of **regional** importance.
- 1.7 The potential for Anglo-Saxon, medieval and post-medieval (non-industrial) archaeological remains is considered **low**, due to the relative lack of known activity of these eras at the study site and within the wider study area generally.

- 1.8 The potential for later post-medieval/early modern industrial era remains is **high**, this specifically due to the site of Seghill Reservoir on the north-eastern side of the existing roundabout; any remains of this feature would be of importance at a **local** or **regional** level. Colliery waggonways associated with West Cramlington and Dudley Collieries ran in close proximity to the study site during the 19th century but their locations are well documented and thus the potential for remains of these features upon the site is considered **negligible**.
- 1.9 The potential for modern era archaeological remains of significance at the study site is considered **low**.
- 1.10 There are two scheduled monuments and seven listed buildings (all Grade II) within the wider study area. The assessment has concluded that impacts upon the settings of, and views to and from, all but one of these cultural heritage assets with statutory protection would be **negligible**, due to the distances the sites/buildings lie from the study site. The remaining asset, the Grade II listed Church of St. John the Baptist in Annitsford, lies in close proximity to Moor Farm Junction but the assessment has also concluded that any impacts upon its setting, and views to and from, would also be **negligible**, primarily since the scheme involves redesign of existing transport infrastructure.

2. INTRODUCTION

2.1 General

- 2.1.1 This report describes the methods and results of an archaeological desk-based assessment (DBA) undertaken ahead of the proposed improvement scheme at the A19/A189 Moor Farm Junction, Cramlington, Northumberland. The DBA was commissioned by Parsons Brinckerhoff Limited (PB), on behalf of the Highways Agency, and undertaken February-March 2009 by Pre-Construct Archaeology Limited (PCA).
- 2.1.2 The road junction lies south of Cramlington, within the southern margin of the Borough of Blyth Valley, Northumberland, and north of Annitsford, in the Borough of North Tyneside, Tyne and Wear. It comprises a roundabout at the junction of the west to south-east A19 dual carriageway and the roughly north-south A189 dual carriageway, with local roads off the roundabout serving Cramlington, Annitsford and a service area on the south-west side of the junction.
- 2.1.3 Four possible options for the road junction improvement scheme are being considered. Two of these (Options C and E) are 'off-line' and would comprise 'grade separation'¹ of the A19 over a relocated roundabout, taking in land adjacent to the current layout. The other two options are on-line, one (Option F) comprising 'at grade' modifications of the existing junction, the other (Option G) comprising grade separation to carry the A19 over the existing roundabout. For the purposes of this assessment, the designated 'study site' (within the red-line boundary on Figure 2) takes in the proposed relocated roundabout footprint, as well as the extent of proposed road network modifications, in the two off-line options under consideration.
- 2.1.4 As elements of the two off-line options of the scheme have potential to impact directly upon sub-surface archaeological remains, an assessment of the potential for archaeological remains of all eras at the study site was considered necessary. The assessment has also had to consider potential impacts of the overall scheme upon the settings of, and views to and from, cultural heritage assets with statutory protection, both sites and standing buildings.
- 2.1.5 The requirement for the archaeological DBA was identified in a scoping report² for the Environmental Impact Assessment – Options Identification Stage (EIA – OIS) of the proposed road junction improvement scheme. The DBA was compiled following a visit to the study site and an examination of readily available documentary, cartographic and photographic sources. A 'wider study area' with a radius of 1.5km from the road junction was examined to establish the potential for archaeological remains at the site itself and to determine the impact on the settings of, and views to and from, cultural heritage assets with statutory protection. There may be a requirement for further stages of archaeological work in light of the findings of the DBA.
- 2.1.6 The **Online Access** to the Index of Archaeological Investigation**S** (OASIS) reference number for the project is: preconst1-56465.

¹ 'Grade separation' is the process of aligning a road junction of two or more routes at different heights so as not to disrupt the flow of traffic on either route at the point at which they intersect. An 'at-grade' junction is one where two or more routes meet at the same level (grade) - as is currently the situation at the A19/A189 Moor Farm Junction.

² PB 2009.

2.2 Site Location and Description

- 2.2.1 The study site is located at central National Grid Reference NZ 270 746 (Figure 1), on the southern margin of the Borough of Blyth Valley, Northumberland. Lying c. 8km west of the North Sea coast and c. 6km north of the River Tyne, the site lies within the southern part of the coastal plain of South East Northumberland, an area extensively worked for its coal reserves in the last two hundred years. It is notable for its varied urban and rural character, with mining towns and villages merging into the vast rural landscape further north.
- 2.2.2 The study site lies within mostly arable land, with some areas of woodland present, between the southern suburbs of Cramlington and the northern extent of the much smaller village of Annitsford, which lies just inside the boundary of the Borough of North Tyneside, Tyne and Wear. Housing in these settlements lies c. 0.2km to the north and south of the road junction at the centre of the study site. Approximately 1km to the east of the road junction, beyond arable land, is the village of Seghill.
- 2.2.3 The study site covers c. 23 hectares and comprises an irregularly shaped parcel of land with the existing at-grade roundabout at the A19/A189 Moor Farm Junction at its core (Figure 2). As described above, the study site boundary takes into account a proposed relocated roundabout footprint, which would encroach onto arable land overlooked by the elevated north-eastern side of the existing roundabout (Plate 11). Three sections of road corridor running off the roundabout comprise the remainder of the study site and these are described in the following paragraphs.
- 2.2.4 A stretch of the A19 dual carriageway c. 0.75km in length runs roughly westwards from Moor Farm Junction towards the A1 (Figure 2; Plates 1 and 2). As it extends away from the roundabout, the road is at natural ground level, but it is in-cutting along its westernmost portion. A strip of open land immediately to the south of this section of the A19 has recently been developed for housing, with an access road extending from the service area on the south-west side of the Moor Farm Junction roundabout. A local road, the A1171, joins the north-west side of the roundabout (Plates 3 and 4), and this runs to the north of and roughly parallel with the A19, feeding into the A1171/B1319 Dudley Lane Interchange, the north-south line of which delimits the western extent of the study site. Cramlington Moor Farm, a modernised version of a post-medieval farmstead, stands on the north side of the A1171.
- 2.2.5 In the two off-line scheme options, a roughly west-east corridor of woodland between the A1171 and the A19 would be affected by modifications to the road layout. This woodland is at its widest, c. 70m, to the west, narrowing to the east, to c. 20m or less, towards the roundabout (Plate 4). Also as a result of the proposed road modifications in the off-line scheme options, the south-westernmost portion of an area of managed woodland on the north-west side of the existing roundabout would be affected by realignment of the A1171, at the point at which where that road turns to the north, to become the B1505.

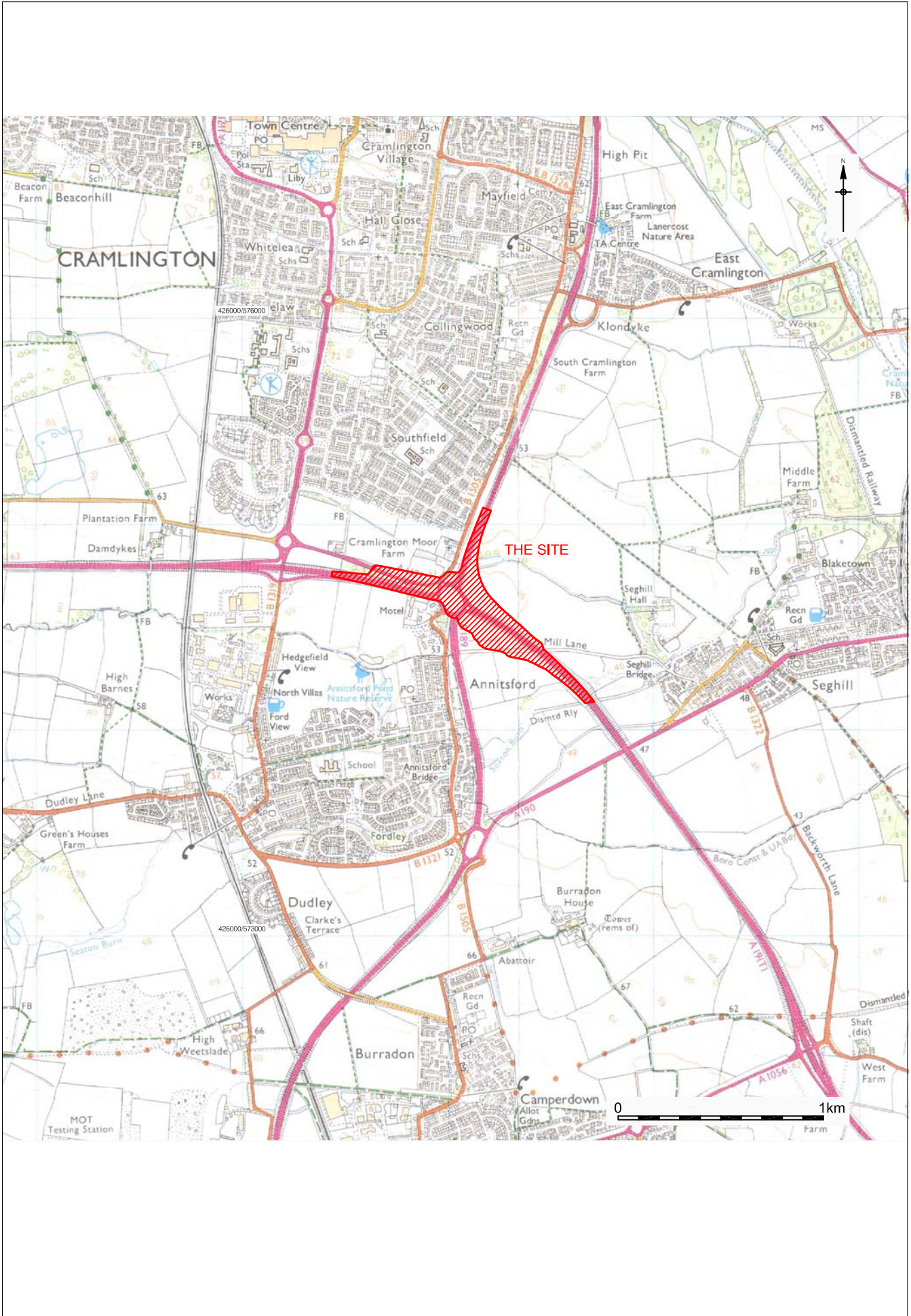


Figure 1. Site location
Scale 1:25,000

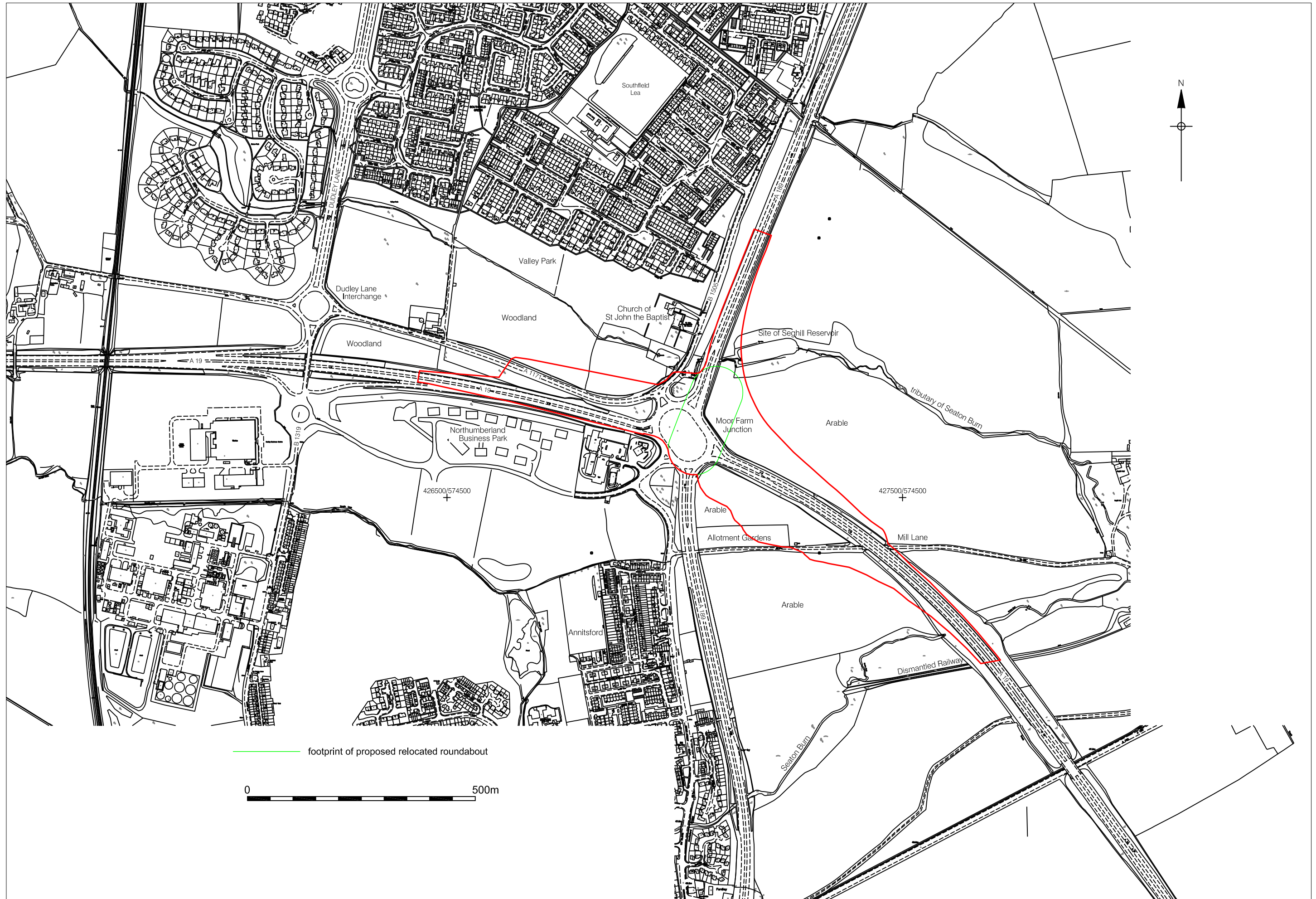


Figure 2. Site location; detail
Scale 1:7,500

- 2.2.6 A dual carriageway stretch of the A189 c. 0.5km in length runs roughly northwards from the roundabout (Plate 8). On the approach to the roundabout this road is embanked, overlooking land to the east and carried above the culverted course of a tributary of the Seaton Burn (Plate 9). This feature originally fed the now disused Seghill Reservoir, the site of which now lies in a narrow belt of unmanaged woodland to the east of the A189 (Plate 10).
- 2.2.7 To the west of and running parallel with the A189 is the B1505, a local road serving East Cramlington, with the aforementioned watercourse also culverted beneath it (Plate 7). On the west side of the B1505 stands the Church of St John the Baptist, an early 20th century building with graveyard on its southern and eastern sides. The church overlooks the aforementioned area of managed woodland (part of 'Valley Park') on the north-west side of the Moor Farm Junction roundabout.
- 2.2.8 The final section of road is a c. 0.75km dual carriageway stretch of the A19 running to the south-east of the roundabout (Plate 15) and elevated on an embankment above arable land throughout the study site. This carries the road above the west-east route of an unclassified road, Mill Lane, which connects Annitsford to Seghill and provides access to an area of allotment gardens on its north side. The easternmost end of these allotments and the adjacent arable land south of the A19 (Plates 12, 13 and 14) would be affected by the route of a new link road in one option (Option E) of the scheme.
- 2.2.9 Details of the existing layout at Moor Farm Junction are shown on Figure 2, with the proposed relocated roundabout footprint superimposed. Plates 1-15 (Appendix B) comprise a photographic summary of the main elements of the study site at the time of the assessment.

2.3 Planning Background

- 2.3.1 The aforementioned scoping report of the EIA - OIS for the road junction improvement scheme was prepared in accordance with the *Highways (Environmental Impact Assessment) Regulations (England and Wales) 2007*. Section 6 of the scoping report considered, in outline, impacts of the proposed scheme on cultural heritage assets and described how further works to be undertaken as part of the EIA - OIS would include detailed archaeological assessment, incorporating both desk-based research and walkover survey in the vicinity of the road junction.

Statutory Protection for Cultural Heritage Resources

- 2.3.2 Statutory protection for archaeological remains is principally enshrined in the *Ancient Monuments and Archaeological Areas Act 1979*, as amended by the *National Heritage Act 1983* and subsequent. Nationally important sites are listed in a schedule of monuments and are accorded statutory protection. Details of scheduling are held on the list maintained by the Department for Culture, Media and Sport (DCMS). For other components of the historic environment, the *Planning (Listed Buildings and Conservation Areas) Act 1990* amends the *Town and Country Planning Act 1971* and provides statutory protection to listed buildings and a control to preserve the character and appearance of conservation areas.

2.3.3 The study site does not lie within one of the six conservation areas in the Borough of Blyth Valley and there are no scheduled monuments, listed buildings or entries on English Heritage's Register of Battlefields or Register of Historic Parks and Gardens **within its boundaries**. The wider study area does, however, contain seven listed buildings (all at Grade II) and two scheduled monuments. The locations of the buildings and sites afforded statutory protection are shown on Figure 3, with discussion in Section 6 and additional details in Appendix A.

National Planning Policy Guidance and Legislation

2.3.4 *Planning Policy Guidance Note 15: 'Planning and the Historic Environment'* (PPG15)³ provides advice on dealing with conservation areas, listed buildings, World Heritage Sites, historic parks and gardens, historic battlefields and the wider landscape within the planning process. PPG15 sets out the principle of assessment of the archaeological implications of development proposals affecting buildings, given that they, as much as below-ground deposits, are witnesses to the past and, therefore, it is reasonable to expect similar safeguards for the archaeological evidence inherent in a building as for below-ground deposits.

2.3.5 *Planning Policy Guidance Note 16: 'Archaeology and Planning'* (PPG16)⁴ provides advice concerning the safeguarding of archaeological remains within the planning process. PPG16 is informed by the principle that archaeology represents a finite and non-renewable resource and that its conservation, either by preservation *in situ* or preservation by record (through archaeological excavation) should be the primary goal of archaeological resource management. Implicit in PPG16 is the process for determining archaeological risk on a development site through assessment. DBAs usually form a baseline consideration of the archaeological potential of a proposed development site.

2.3.6 The following legislation and national planning policy are also taken into account:

- *Planning Policy Statement 1: Delivering Sustainable Development 2005* (PPS1).⁵ This states that development plans should take into account the enhancement of built and archaeological heritage;
- *Highways (Environmental Impact Assessment) Regulations (England and Wales) 2007*.

Regional and Local Planning Guidance

2.3.7 The Local Plan of Blyth Valley Borough Council contained policies to deal with cultural heritage issues, namely *Policy E12 'Archaeology'* and *Policy E13 'Listed Buildings'*. However, with many of the Local Plan policies expired and the Borough Council due to be abolished in April 2009, with a single new council being formed for the whole of Northumberland, cultural heritage issues are now effectively covered by higher level guidance.

2.3.8 Within Northumberland, the *North East of England Plan Regional Spatial Strategy to 2021*,⁶ has now replaced all policies within the *Northumberland and National Park Joint Structure Plan First Alteration (February 2005)*. Within the Regional Spatial Strategy, 'Theme 3C: Conserving, Enhancing and Capitalising Upon the Region's Diverse Natural and Built Environment, Heritage and Culture' contains paragraph 3.128:

³ Department of the Environment and Department of National Heritage 1994.

⁴ Department of the Environment 1990.

⁵ Office of the Deputy Prime Minister 2005.

⁶ Government Office for the North East 2008.

An important principle is that strategies, plans and programmes should adopt an approach to the historic environment which is based upon:

- adequate identification and assessment of the assets;*
- consideration of the contribution these make to local character and diversity; and*
- assessment of the capacity of these assets to absorb change.*

2.3.9 Relevant extracts of *Policy 32 'Historic Environment'* of the Regional Spatial Strategy are included below:

32.1. Strategies, plans and programmes and planning proposals should seek to conserve and enhance the historic environment of the Region by:

- a. clearly identifying and assessing the significance of any heritage assets and their vulnerability to change;*
- b. using the process of characterisation to understand their contribution to the local environment and to identify options for their sensitive management;*
- d. seeking to preserve, in situ, archaeological sites of national importance and, where appropriate, other archaeological remains of regional and local importance;*

3. AIMS AND OBJECTIVES

3.1 The key objectives of any archaeological DBA are:

- to assess the impact of the proposed development upon the historic environment;
- to identify parts of the relevant study site for which further archaeological work may be appropriate;
- to assist in the formulation of recommendations for any further archaeological work.

3.2 In order to address the first objective, any DBA must first consider the character and extent of known or potential archaeological sites and cultural heritage assets that may be affected by the development proposal and then provide an evaluation of their importance. Any DBA should aim to assess the likely scale of impacts, both construction-related and operational, arising from the proposal under consideration. From this position, it should then be possible to outline appropriate mitigation measures to avoid, reduce or remedy adverse impacts on the historic environment, thereby addressing the second and third key objectives.

3.3 Certain criteria are used to determine the 'importance' of elements of the historic environment. These are set out in the following table:

Importance	Description
International	<ul style="list-style-type: none">• Archaeological sites or monuments of international importance, including World Heritage Sites.• Buildings of recognised international importance.
National	<ul style="list-style-type: none">• Ancient monuments scheduled under '<i>The Ancient Monuments and Archaeological Areas Act 1979</i>', or archaeological sites and remains of comparable quality, assessed with reference to the Secretary of State's non-statutory criteria (as set out in PPG16, Annex 4).• Grade I and II* Listed Buildings.• Other listed buildings which are shown to have exceptional qualities.• Conservation Areas containing very important buildings.• Undesignated structures of clear national importance.
Regional	<ul style="list-style-type: none">• Archaeological sites and remains which, while not of national importance, fulfil several of the Secretary of State's criteria and are important remains in their regional context.• Grade II Listed Buildings.• Unlisted historic buildings shown to have exceptional qualities.• Conservation Areas containing important buildings.• Historic townscape or built-up areas with historic integrity in their buildings or built settings.• Registered Historic Parks and Gardens and Battlefields

Local	<ul style="list-style-type: none"> • Archaeological sites and remains that are of low potential or minor importance. • Locally listed buildings. • Undesignated historic buildings of moderate quality. • Historic townscapes or built-up area of limited historic integrity in their buildings or built settings.
Negligible	<ul style="list-style-type: none"> • Areas in which investigative techniques have produced negative or minimal evidence for archaeological remains, or where previous large-scale disturbance or removal of deposits can be demonstrated. • Buildings of no architectural or historic interest or of an intrusive character
Unknown	<ul style="list-style-type: none"> • Archaeological sites or remains or historic buildings offering some hidden potential for archaeological or historic significance.

- 3.4 In the North East of England it is important to undertake any project with archaeological or cultural heritage issues with reference to the *North East Regional Research Framework for the Historical Environment (NERRF)*,⁷ a document that highlights the importance of research as a vital element of development-led work. In setting out key research priorities for all periods of the past, the NERRF allows all projects to be related to wider regional and national priorities for the study of archaeology and the historic environment.
- 3.5 Research priorities within the NERRF identified as being of immediate relevance to the Moor Farm Junction scheme are:
- Iron Age (I): Iii - Settlement; Iiii – Landscapes.
 - Roman (R): Ri - The Iron Age to Roman transition.
 - Post-medieval (PM): **PMii - Industrialisation.**
- 3.6 The results of the DBA will be used to make an informed decision on the necessity, or otherwise, for an archaeological mitigation strategy in relation to the proposed development.

⁷ Petts and Gerrard 2006.

4. METHODS OF ASSESSMENT

4.1 Research and Data Collection

4.1.1 The methodology employed during the research phase of the DBA comprised consultation of a variety of sources for data relating to the wider study area and its surroundings, including a map regression exercise and consultation of both the Northumberland Historic Environment Record (HER) (this can be interrogated remotely through the HER Officer) and the Tyne and Wear HER, the latter since the southernmost portion of the wider study area lies within the Borough of North Tyneside, part of Tyne and Wear.

4.1.2 While full details of all the material examined for the DBA are set out in Section 10, listed below are the principal sources of information which facilitated compilation of the DBA:

- Northumberland HER, County Hall, Morpeth – search requested 18 February 2009, results received (in electronic format) 19 February 2009;
- Northumberland Archives, Woodhorn, Queen Elizabeth II Country Park, Ashington – visited 19 February 2009;
- Newcastle City Library, Local Studies Section, Civic Centre, Barras Bridge, Newcastle – visited 20 February 2009;
- Tyne and Wear HER, West Chapel, Jesmond Old Cemetery, Jesmond Road, Newcastle – visited 20 February 2009;

4.2 Site Visit

4.2.1 The study site was visited on 6 March 2009 and subject to a walk-over taking in Moor Farm Junction and the main elements of the study site. A digital photographic record was compiled during the visit and a selection of images (Plates 1-15) forms Appendix B.

5. GEOLOGY, TOPOGRAPHY AND DRAINAGE

5.1 Geology

- 5.1.1 Information regarding the geology of the study site is largely taken from *Section 9 'Materials'* of the aforementioned scoping report of the EIA – OIS. The solid geology of the study site consists of Middle (Westphalian) Coal Measures of Carboniferous Age. These comprise an interbedded sequence of mudstones, siltstones, sandstones and coal. Geological maps indicate that such strata dip gently to the east and south-east.
- 5.1.2 Quaternary drift deposits mantle almost the entire district in which the study site lies and largely conceal the underlying Carboniferous rocks. The drift deposits comprise undifferentiated lodgement (glacial) till, described as stiff and very stiff, greyish to greyish brown silty, sandy or stony clay with thick sand lenses and partings of sand, gravel and silt. Localised deposits of alluvium have been noted where the tributary of the Seaton Burn is culverted below the A189 to the north of Moor Farm Junction. The drift deposits consist of head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium.

5.2 Topography

- 5.2.1 The site lies on the southern part of the coastal plain of South East Northumberland, the area between the north Pennines and the Northumberland coast, with the North Sea lying c. 8km to the east. The localised area of the study site is generally flat, at c. 50m OD. In broader view the land rises gradually westwards from the undulating coastal plain (at elevations of between 15 m OD and 100m OD) to the low hills to the west (these locally reaching 210m OD).

5.3 Drainage

- 5.3.1 Information regarding the drainage of the study site is largely taken from *Section 13 'Road drainage and the water environment'* of the aforementioned scoping report of the EIA – OIS. Drainage in the wider area is entirely eastwards to the North Sea, principally by way of the River Wansbeck in the north, and the River Blyth and River Pont in the central and southern parts of the district respectively.
- 5.3.2 The Seaton Burn is the nearest watercourse to the study site. Its SW-NE course remains evident to the south of Moor Farm Junction, despite modern era development of the former colliery village of Dudley and its neighbouring hamlet, Annitsford. The course of the burn is culverted below the A19 embankment towards the south-easternmost extent of the study site. As previously described, a minor, unnamed tributary of the Seaton Burn flows south-eastwards through Valley Park on the north-western side of Moor Farm Junction and is culverted below the B1505 and the A189 (Plates 7 and 9), c. 0.1km to the north of the roundabout. This watercourse originally fed the now disused Seghill Reservoir, the site of which lies to the east of the A189 (Plates 10 and 11).
- 5.3.3 Traces of the roughly west to east course of Sandy's Letch, a further former tributary of the Seaton Burn, are evident south of the A19 and north of Annitsford. There is now little or no trace of this feature beyond the Annitsford Pond Nature Reserve, which lies c. 0.5km to the south-west of Moor Farm Junction.

5.3.4 Other notable surface water features/ponds within the wider study area are:

- a small pond located adjacent to the small roundabout connecting the B1505 and A1171 to Moor Farm Junction;
- a large pond located to the east of Arcot Hall golf course and within the 'Arcot Hall Grassland and Ponds Site of Special Scientific Interest' (SSSI).

6. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

6.1 Introduction

- 6.1.1 In order to assess the archaeological potential of the study site and likely impacts upon cultural heritage assets, a programme of documentary and cartographic research was undertaken. The starting points for this research were the HERs maintained by the Northumberland County Conservation Team and the Tyne and Wear Specialist Conservation Team. A 'wider search area' of radius 1.5km from the study site was established, with the irregular shape of this area (Figure 3) taking into account the sections of road corridor to the west, south-east and north of the Moor Farm Junction roundabout.
- 6.1.2 All HER entries within the wider study area were examined and those of relevance were mapped. Figure 3 uses a numerical sequence of reference numbers for clarity, cross-referenced to the following text, with HER numbers listed in the table below the plot. These entries are discussed in summary below, in the period/era sub-sections, with further details appearing in the catalogue of HER entries forming Appendix A. HER information has been supplemented by data gathered from a variety of other sources, such as archaeological, documentary and cartographic.
- 6.1.3 The purpose of this study is not to set out a comprehensive history of land use in the area. The broad intention is only to predict and extrapolate likely archaeological conditions within the study site from finds and research in the vicinity. However, analysis of archaeological discoveries made nearby are important, as is an examination of existing historical and archaeological records relating to the site, since it is recognised that finds and sites entered onto the HER are at best a small and unrepresentative sample of the total buried heritage.
- 6.1.4 Time scales used in this section:

Prehistoric

Palaeolithic	450,000–12,000 BC
Mesolithic	12,000–4,000 BC
Neolithic	4,000–2,300 BC
Bronze Age	2,300–700 BC
Iron Age	700 BC–AD 43

Historic

Roman/Romano-British	AD 43–410
Anglo-Saxon	AD 410–1066
Medieval	AD 1066–1485
Post-medieval	AD 1486–AD 1830
Early Modern	AD 1830-AD 1939
Modern	AD 1940-present

6.2 Prehistoric

- 6.2.1 There are no HER entries for the various prehistoric eras within the boundaries of the study site.
- 6.2.2 The various minor watercourses in the vicinity of the site could have been a focus for various human activities during prehistory, if they were present at that time. The most substantial of these, Seaton Burn, is depicted on the earliest detailed mapping crossing the south-easternmost extent of the study site (*e.g.*, Figure 10). Its unnamed tributary is also depicted, flowing in from the north-west, to the north of Cramlington Moor Farm, and evidently culverted below the precursor of the B1505 as early as the mid 19th century (*e.g.*, Figure 10). There is some potential - assessed as **low** - for important palaeoenvironmental information to be contained within sub-surface deposits, such as alluvium and peat, along the course of each of these features.
- 6.2.3 The nearest known site of prehistoric date to the study site is the well-known settlement complex close to the former colliery village of Burradon (Figure 3, Ref. 2), on the southern margin of the wider study area. This was part-excavated in 1968-9 when the site, long suspected from air photographic evidence to be a homestead of Iron Age date, was threatened by construction of the A189 between Burradon and Annitsford.⁸ It is also worthy of note that some evidence of much earlier activity in the area was recovered during the excavation, in the form of a broken Neolithic axe head (Figure 3, Ref. 1). However, it was the evidence of Iron Age occupation for which this work was important. The excavation exposed a rectilinear ditched enclosure measuring *c.* 100m x *c.* 90m, with the perimeter ditch surviving to a width of *c.* 3m and depth of more than 1.20m. The remains of *c.* 10 roundhouses were recorded inside the enclosure and ceramic material recovered from these features indicated that occupation began as early as the 5th or 6th century BC, placing the site firmly in the Early Iron Age. Topographic factors had probably influenced the siting of the settlement, which occupied a slight natural ridge, at *c.* 67m OD, in the landscape. A quernstone of the same general period was found at Burradon Farm in the 1980s (Figure 3, Ref. 7).
- 6.2.4 This site at Burradon played a fundamental part in beginning to establish a pattern of Iron Age and late pre-Roman Iron Age settlement in the lowland areas of the coastal plain of South East Northumberland and is thus of no little relevance to the study site. A series of major archaeological excavations in recent years, for example at Dinnington (north of Newcastle Airport), at the Newcastle Great Park development (such as at West Brunton Farm, west of the A1) and, slightly further afield, at Pegswood Moor, near Morpeth, have been instrumental in revealing the landscape context of settlement sites of this era. This has been possible due to the far greater scale of archaeological operations mounted than was possible at Burradon, a technique which has demonstrated the importance of detailed archaeological investigation beyond the boundaries of settlements.
- 6.2.5 The wider study area contains several other sites where cropmark evidence identified on aerial photographs has identified potential settlements of the Iron Age or late pre-Roman Iron Age, and these are discussed in summary fashion below.

⁸ Jobey 1970.

- 6.2.6 To the north-east of Burradon House, in the south-eastern portion of the wider study area, is a cropmark site of such clarity that it has been afforded statutory protection as a scheduled monument (Figure 3, Ref. 3). Lying to the west of the A19 and close to the county boundary between Northumberland and Tyne and Wear, the site comprises a rectilinear double-ditched enclosure with curved corners and while no internal features have yet been identified, there is a distinct, terminally-defined, entrance in the eastern side.
- 6.2.7 Close to the scheduled site described above is a cropmark site of a single-ditched sub-rectilinear enclosure (Figure 3, Ref. 6). Slightly further to the south-east, close to the line of the A19, is another cropmark site (Figure 3, Ref. 4), this evidently a rectilinear enclosure, mostly single-ditched but with some evidence of a second ditch on its north side and with some evidence of internal features.
- 6.2.8 West of Annitsford, at High Barnes, in the western portion of the wider study area, is a cropmark site of a single-ditched, sub-rectilinear enclosure (Figure 3, Ref. 5). East of Moor Farm Junction, in the vicinity of the former colliery village of Seghill, there are further indications of later prehistoric activity through cropmark evidence. To the north-east of Seghill Hall, is a cropmark site (Figure 3, Ref. 8) comprising a rectangular ditched enclosure with slightly rounded corners and an entrance in the centre of the east side. In the same vicinity is another cropmark site (Figure 3, Ref. 9) of a possible single-ditched enclosure, although some doubts have been raised regarding the exact location of this feature.
- 6.2.9 To the east of Moor Farm Junction, within c. 0.4km of the study site, is a cropmark site interpreted as comprising a single-ditched enclosure with slightly rounded corners and an east-facing entrance (Figure 3, Ref. 10). Sited close to the unnamed tributary of Seaton Burn, the feature is generally comparable in terms of size and form with those identified at the likely late pre-Roman Iron Age settlement sites in the area. However, its location close to the watercourse, with the ground rising away from it to the north and south has been considered unusual for a native settlement. Since this location has also evidence of later occupation, in the form of the post-medieval Seghill Moor House, a likely post-medieval date for the feature must also be considered, as discussed further in due course.
- 6.2.10 In summary, the potential for earlier prehistoric remains at the study site is considered **low**, while for later prehistory, specifically the Iron Age and late pre-Roman Iron Age, the potential is considered **moderate to high** due to the considerable evidence, including excavated evidence from Burradon, from the wider study area which indicates widespread and relatively intensive settlement across this part of the South East Northumberland coastal plain.

6.3 Roman/Romano-British

- 6.3.1 There are no HER entries of the Roman period within the boundaries of the study site.

- 6.3.2 The aforementioned excavation by Jobey at Burradon, towards the southern extent of the wider study area, established an element of Romano-British occupation at that site (Figure 3, Ref. 11). The remains of a substantial post-built roundhouse structure, up to c. 12m diameter, lying within a rectangular enclosure, were recorded. This evidence was superimposed upon the earlier, Iron Age, settlement. The enclosure was ditch-defined, this up to 5m wide and surviving to a depth of more than 2.20m, with its internal bank 'ploughed-out'. The roundhouse was associated with a substantial drainage ditch, surviving to a width of c. 2m and a depth of c. 1m. A small assemblage of Romano-British pottery of late 1st and early 2nd century date was recovered from the site, this quantity considered not altogether unusual in the context of a Romano-British homestead settlement in the lowland intramural zone.
- 6.3.3 It is acknowledged that some or all of the previously discussed cropmark evidence, taken as being largely representative of a preponderance of rectilinear enclosure sites of later prehistory in South East Northumberland, may also represent continued occupation into the Romano-British period, as was demonstrated by the work of Jobey at Burradon. This theme has continued to be identified during most of the aforementioned large-scale open area archaeological excavations in South East Northumberland. A recurrent theme in such work is a notable lack of datable material after the Antonine period (late 2nd century AD) and it is not yet clear whether this implies general abandonment of settlements in this area at this time or decreased access to Roman cultural material, for whatever reason.⁹
- 6.3.4 In summary, the potential for Roman period archaeological remains at the study site is considered **low**.

6.4 Anglo-Saxon

- 6.4.1 No entries relating to Anglo-Saxon activity are recorded for the study site or within the wider study area in the HERs of Northumberland and Tyne and Wear. Neither is there any documentary evidence to suggest settlement or exploitation of the land in the vicinity of the study site during this era.
- 6.4.2 In summary, the potential for remains from the Anglo-Saxon period at the study site is considered **low**.

6.5 Medieval

- 6.5.1 There are no HER entries for the medieval period within the study site itself, but there are four within the wider study area.
- 6.5.2 To the east of the study site is the site of the deserted medieval village (DMV) of Seghill (Figure 3, Ref. 12), thought to have been located c. 1km directly east of Moor Farm Junction, close to where Seghill Hall now stands. In the southern part of the wider study area is the site of Burradon DMV (Figure 3, Ref. 14), which appears in a documentary reference before the 1160s.

⁹ Petts and Gerrard 2006, p.38.

- 6.5.3 Further south, beyond the limit of the wider study area, was the medieval settlement of West Backworth, the site of which has scheduled monument status. Just to the north of the wider study area is the historic core of Cramlington, a settlement that is recorded in documents from the 12th century. The villages of 'Cramlinton' and, to the south-east, 'Sighill' appear on John Speed's map of the region from 1610 (not reproduced herein). With this scatter of medieval settlements around the study area, it is possible that the study site itself was utilised for agricultural purposes during this period. It is of note, however, that there are no HER entries of the broad ridge and furrow earthworks, generally indicative of agriculture in the medieval period, within the wider study area.
- 6.5.4 Within the hamlet around Burradon House, in the southern part of the wider study area, stands Burradon Tower (Figure 3, Ref. 13), a ruinous three-storey tower house that has scheduled monument status. Tower houses were fortified homes widespread throughout Northumberland during the tumultuous late medieval and early post-medieval period. They were not large enough to be termed castles, which would also have a curtain wall; Burradon Tower is one of the most southerly of these structures. There is no firm date for its building but a mid-16th century date is generally assumed. No mention was made of this tower specifically in a survey of fortified buildings of the county in 1415. There is, however, mention made of a tower at 'Weetslade beside the sea'. However, since Weetslade abuts Burradon and is not a coastal location, it is possible that this was actually Burradon Tower.
- 6.5.5 The remaining HER entry for the medieval period in the wider study area is known only through documentary evidence, this being a possible chapel at North Weetslade (Figure 3, Ref. 15). A late 13th century document mentions an action involving the chaplain of North Weetslade and the site of this building is thought to lie possibly within the area now built over as Dudley.
- 6.5.6 An HER entry of unknown period of origin consists of an earthwork ditch and bank traceable for over 1km, (Figure 3, Ref. 65) running roughly north-eastwards from the northern extent of the study site. It survives in varying degrees of preservation along its length with segments of bank and ditch visible. The ditches vary in depth up to c. 1.2m and width up to c. 4m, while the associated banks are up to c. 0.5m high and up to c. 2.5m high. Greenwood's map of 1828 (Figure 6) shows the zig-zag course of what is probably this feature running towards a tributary of the Seaton Burn, which it then closely follows on its eastward course. The feature on the 1828 map may be the boundary between Cramlington and Seghill townships, and thus could be conceivably of medieval origin.
- 6.5.7 In summary, the potential for remains from the medieval period at the study site is considered **low**.

6.6 Post-medieval and Early Modern (including map regression)

- 6.6.1 More than 70% of the HER entries in the wider study area are for sites of post-medieval or early modern date, with more than half of these (c. 41% of the overall total) representing industrial activity in these eras. HER entries of 'non-industrial' post-medieval activity are considered first.

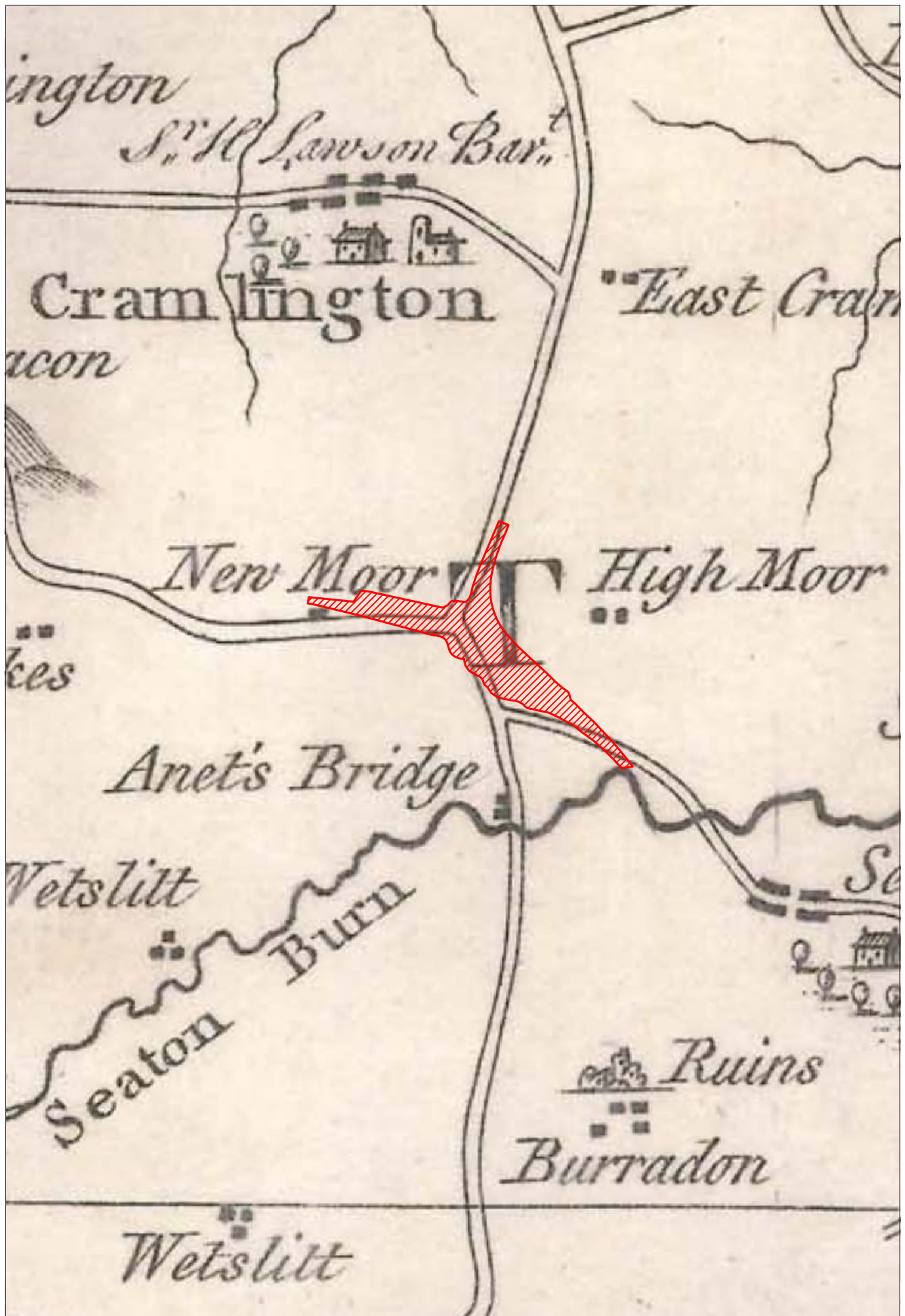


Figure 4. Armstrong, 1769
Approximate scale 1:20,000

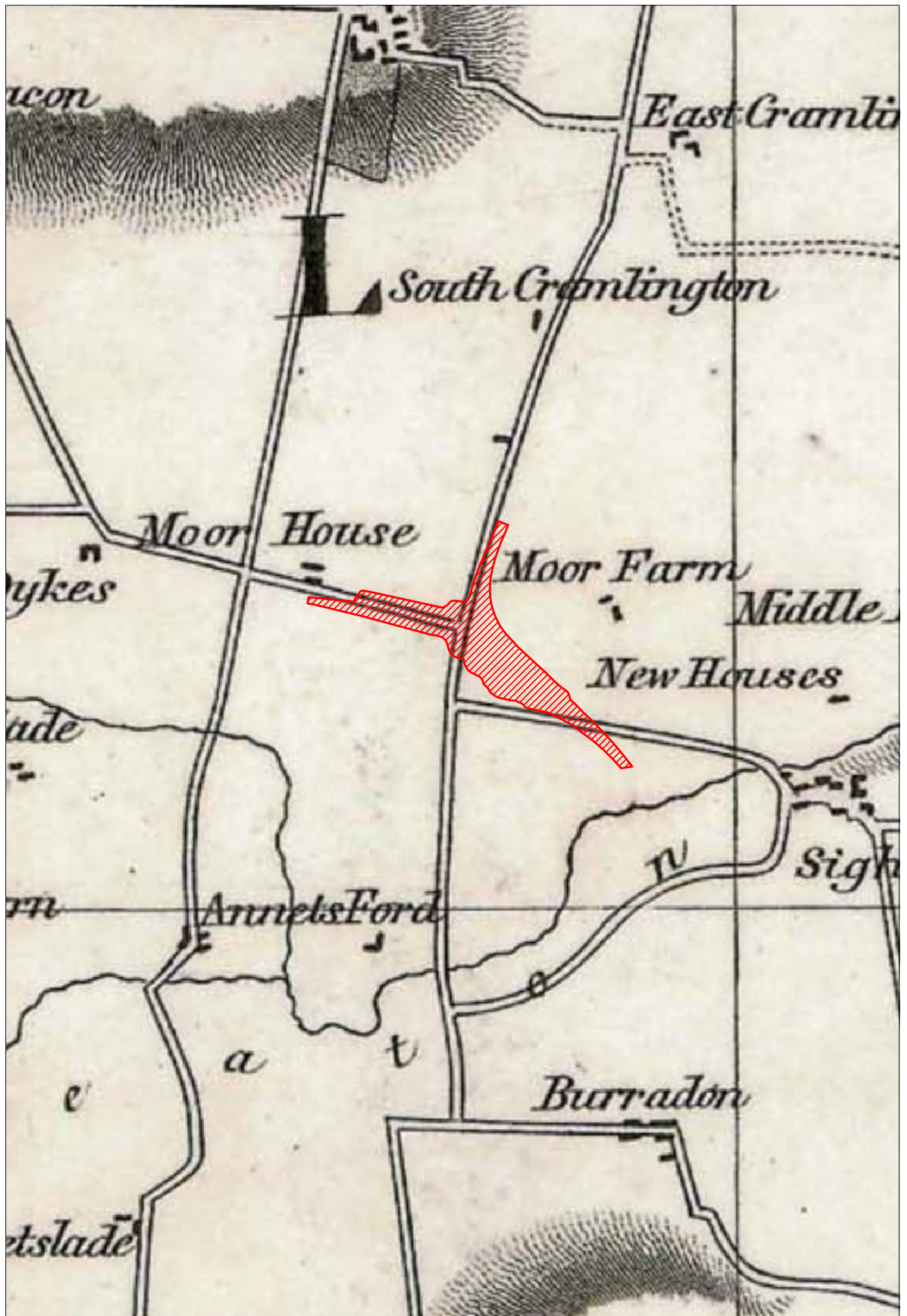


Figure 5. Fryer, 1820
Scale 1:20,000



Figure 6. Greenwood, 1828
Scale 1:20,000

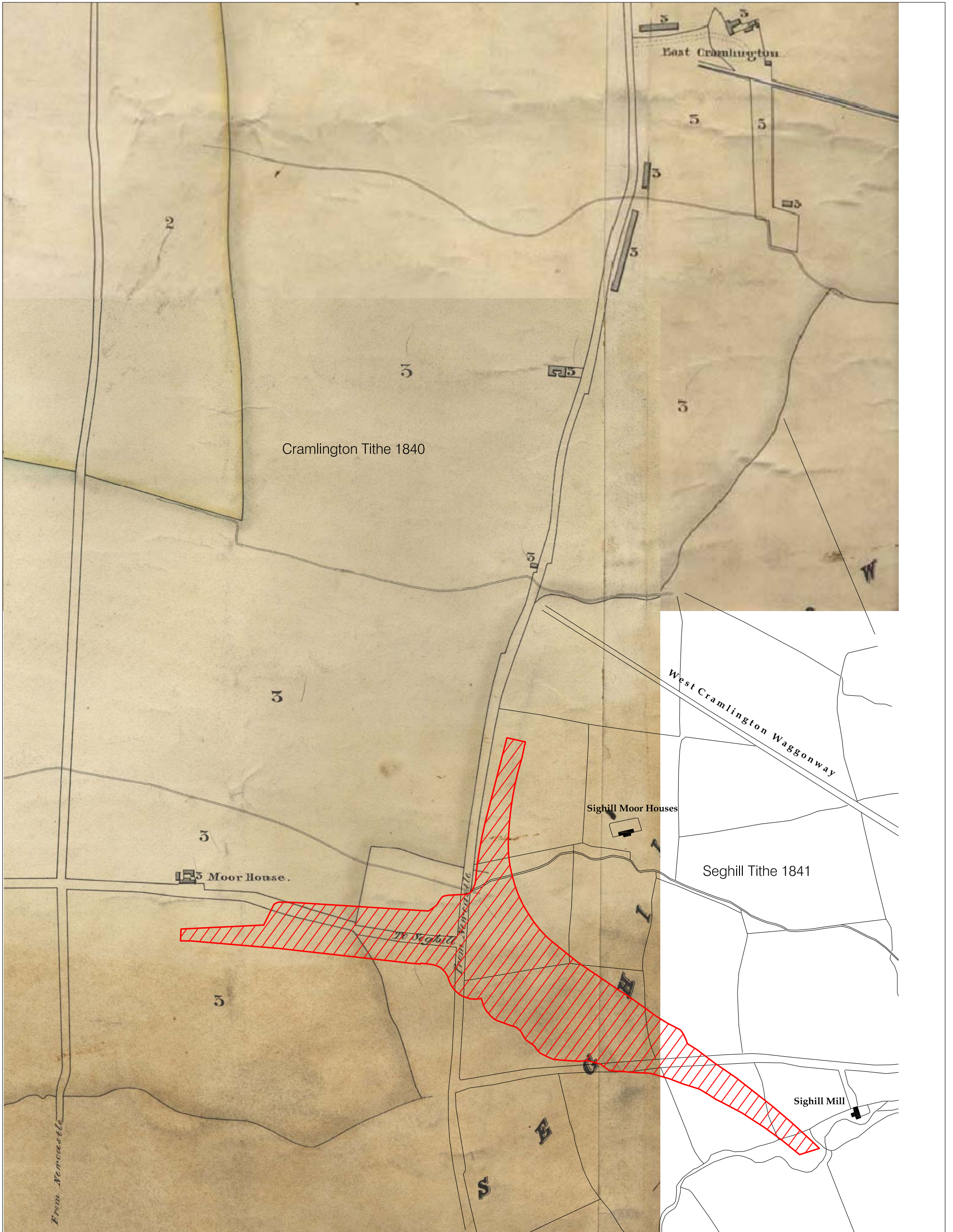


Figure 7. Tithe map (composite), 1840 & 1841
Approximate scale 1:7,500

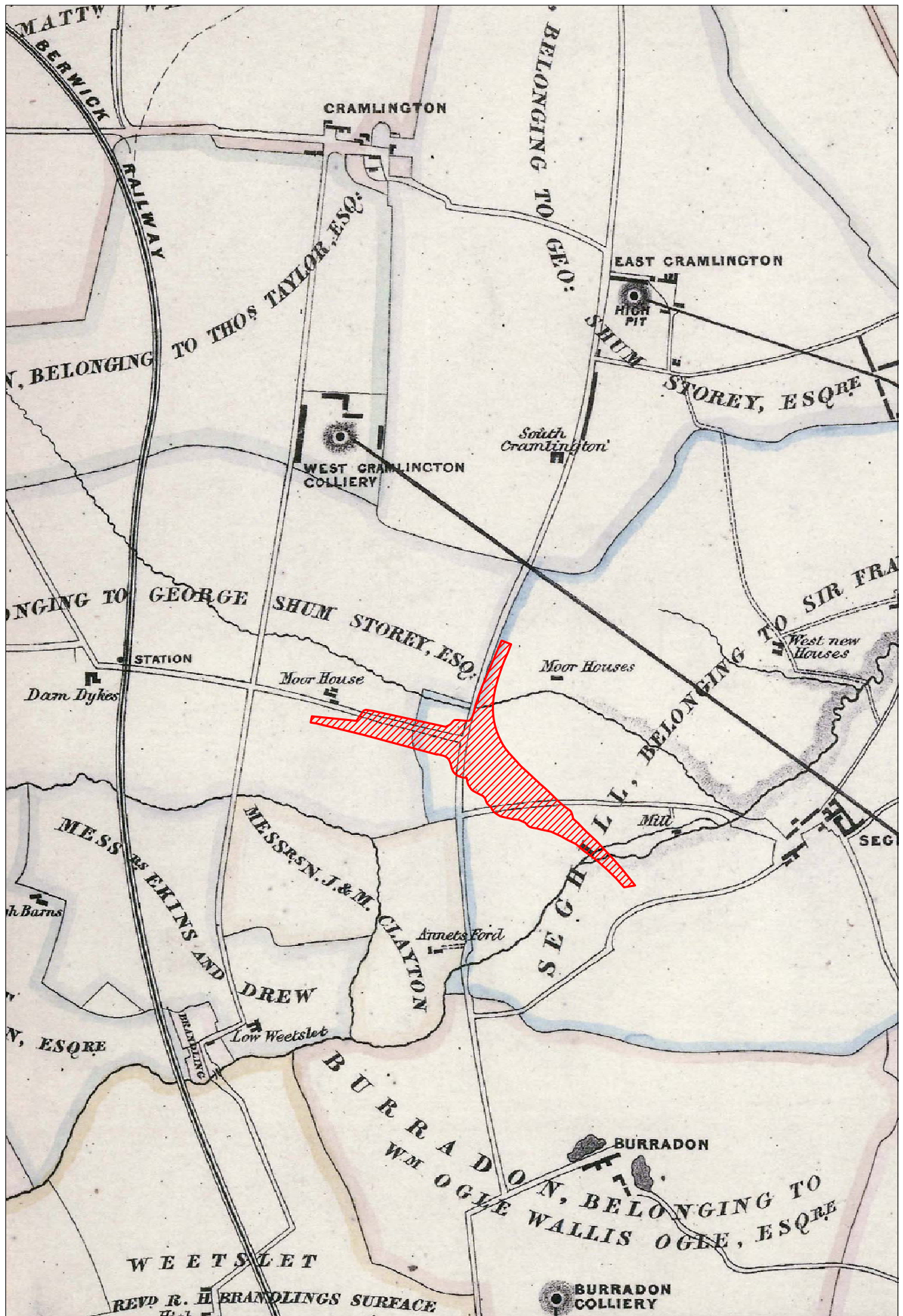


Figure 8. Bell, 1847
Scale 1:20,000

- 6.6.2 Post-medieval activity likely originating before early 19th century industrialisation of the region includes a cluster of HER entries in the vicinity of Seghill, to the south-east of Moor Farm Junction and within c. 1km of the roundabout. The first is Seghill Mill (Figure 3, Ref. 16), and its associated mill race (Figure 3, Ref. 30), which appear on Greenwood's map of 1828 and in detail on the Ordnance Survey 1st editions from the mid 19th century (Figures 9 and 10). This was a corn mill, built on the north side of the Seaton Burn and likely originated before the intense colliery-related industrialisation of the area. The roughly west-east course of the mill race, which canalised a meandering section of the burn on its north side, is crossed by the route of A19 at the south-eastern extent of the study site.
- 6.6.3 West Farm (Figure 3, Ref. 27), a farmstead of likely post-medieval origin, stood c. 0.4km to the north-east of Seghill Hall. It was demolished in the modern era and piles of rubble within hummocky, rapidly foresting scrubland mark its site. Other HER entries of the post-medieval period in the same broad vicinity comprise a well (Figure 3, Ref. 28) in Seghill and a ford (Figure 3, Ref. 29) of the Seaton Burn.
- 6.6.4 Other HER entries relate to probable post-medieval crossings of the Seaton Burn and its tributaries in the wider study area. The site of a former ford (Figure 3, Ref. 31) of a stream delineating what is now the county boundary lies within the southern portion of the wider study area. The culverted course of the tributary of the Seaton Burn below the B1505 and A189 on the north side of Moor Farm Junction has been discussed above, in terms of a consideration of the drainage of the study site. The Ordnance Survey 1st edition maps indicate that the precursor of the B1505 was carried over this watercourse on a bridge (Figure 3, Ref. 25) from at least as early as the mid 19th century (Figures 9 and 10). Sandy's Letch, one of the few named tributaries of the Seaton Burn, was forded (Figure 3, Ref. 24) at a location now on Dudley Lane, c. 0.3km to the south of the western extent of the study site; this crossing ('Sandy's Letch Ford' on Figure 9) was also of probable post-medieval or earlier origin.
- 6.6.5 Approximately 0.6km beyond the westernmost extent of the study site is Damdykes Farmhouse (Figure 3, Ref. 20), which is of late 17th or early 18th century date. In the post-medieval period the farmstead was located c. 2.5 km south-west of Cramlington village and c. 1km east of Arcot Hall, to which it formerly belonged. The house, its garden walls/railings/gate (Figure 3, Ref. 21), and an associated group of farm buildings (Figure 3, Ref. 22) form part of a Grade II listing.
- 6.6.6 The aforementioned cropmark site (Figure 3, Ref. 10) is thought more probably likely related to the site of Seghill Moor House,¹⁰ which overlooked the unnamed tributary of the Seaton Burn from the north. This farmstead is depicted as 'High Moor' on Armstrong's map of 1769 (Figure 4) and as 'Moor Farm' on Fryer's map of 1820 (Figure 5). It is named Seghill Moor House on Greenwood's map of 1828 (Figure 6) and 'Sighill [*sic*] Moor Houses' on the Seghill Tithe map (Figure 7), while Bell's map of the coalfields from 1847 names it 'Moor Houses' (Figure 8).

¹⁰ Seghill Moor House has no specific Northumberland HER entry and should be added, as a post-medieval period entry.

- 6.6.7 Seghill Moor House is shown in detail on the large-scale 1st edition Ordnance Survey map (Figure 10), this depicting a rectangular building with two sides of what may be a square enclosure on its north-western side; it is this feature which, potentially, has manifest itself as the cropmark enclosure previously described. A well (Figure 3, Ref. 26) for the dwelling appears on the small scale Ordnance Survey 1st edition map (Figure 9). Another farmstead of likely late post-medieval origin is Burradon House Farm (Figure 3, Ref. 32), this located in the southern portion of the wider study area.
- 6.6.8 Approximately 0.2km beyond the northernmost extent of the study site stood The Doctor Syntax Inn (Figure 3, Ref. 23), named after a famous racehorse which lived between 1811-1838. It is shown on the small-scale 1st edition Ordnance Survey map (Figure 9) and could date from c. 1830, when the racehorse was at the height of its fame. By the time of the 2nd edition in the 1890s, the building had been renamed the Bay Horse Inn (Figure 11), a public house which remains in place today on the west side of the B1505.¹¹ Much of the original structure appears to survive; it is in well-dressed, squared, random sandstone, with projecting ashlar quoins. It has a replacement slate roof and a later, brick extension to the west.
- 6.6.9 A 'non-industrial' HER entry from the late post-medieval/early modern period lies 0.9km east of Moor Farm Junction, on the north-west side of Seghill village, this being Seghill Hall (Figure 3, Ref. 17), a Grade II Listed Building dating from c. 1830. The overall complex comprises the house, a gate including screen walls and piers (Figure 3, Ref. 18) and a gate lodge (Figure 3, Ref. 19), all part of the Grade II listing.
- 6.6.10 The explosion of colliery-related activity in the region after the late 18th century resulted in rapid and substantial changes to the landscape in the wider study area and beyond. Cramlington and East Cramlington are depicted as mere hamlets on the Tithe map of Cramlington township from 1840 and the rural, agricultural nature of the area in which the study site lies is evident from the Cramlington/Seghill composite Tithe map (Figure 7). Bell's map of the coalfields from 1847 was demonstrates the main elements of industrialisation by that date (Figure 8). At the time of the Tithe apportionment (and Bell's map), land at the study site within Cramlington township was owned by George Shum Storey,¹² while land in Seghill was owned by Sir Francis Blake, from a long-established family of Northumbrian landowners.
- 6.6.11 Two collieries operated within c. 1km of the northern extent of the study site. The first was West Cramlington Colliery (Figure 3, Ref. 33), with its associated planned village, Cramlington Square (Figure 3, Ref. 40) which incorporated rows of terraced housing and associated facilities, *e.g.*, various chapels, The Blue Bell Inn and a Mechanics' Institute. There is no reference¹³ to a colliery in Cramlington earlier than 1832, while 1838 is the earliest reference to a working specifically at West Cramlington. North of the study site was Cramlington Terrace (Figure 3, Ref. 39), constructed along the west side of the precursor to the B1505, north of South Cramlington Farm (Figure 11), and representing the addition of workers' housing for the increased population of the local colliery villages in the industrial era.

¹¹ The building has no Northumberland HER entry and should be added, as an early modern era entry.

¹² George Shum of Surrey acquired land in Cramlington from Robert Storey, a Squire of Cramlington. Shum built Arcot Hall (now a golf club) to the west of the study site - he had been involved in the relief of *Arcot*, a fortified town in India, which is the source of the name. Shum married Storey's daughter in 1823 and thereafter changed his name to Shum-Storey.

¹³ In the on-line catalogue of the archives of the North of England Institute of Mining and Mechanical Engineers.

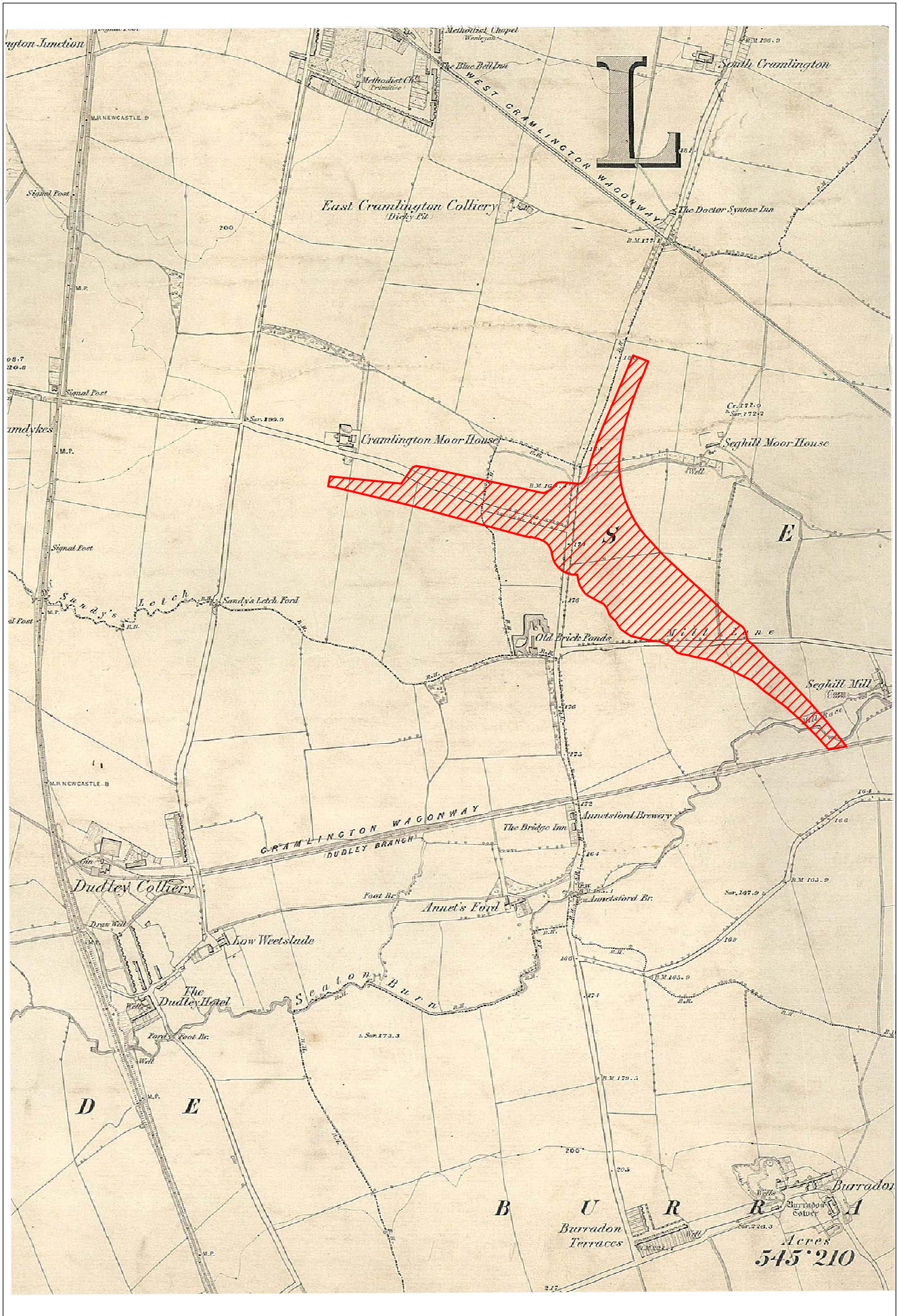


Figure 9. Ordnance Survey 1st edition, c. 1860
 (from 6 inches to 1 mile)
 Scale 1:12,500

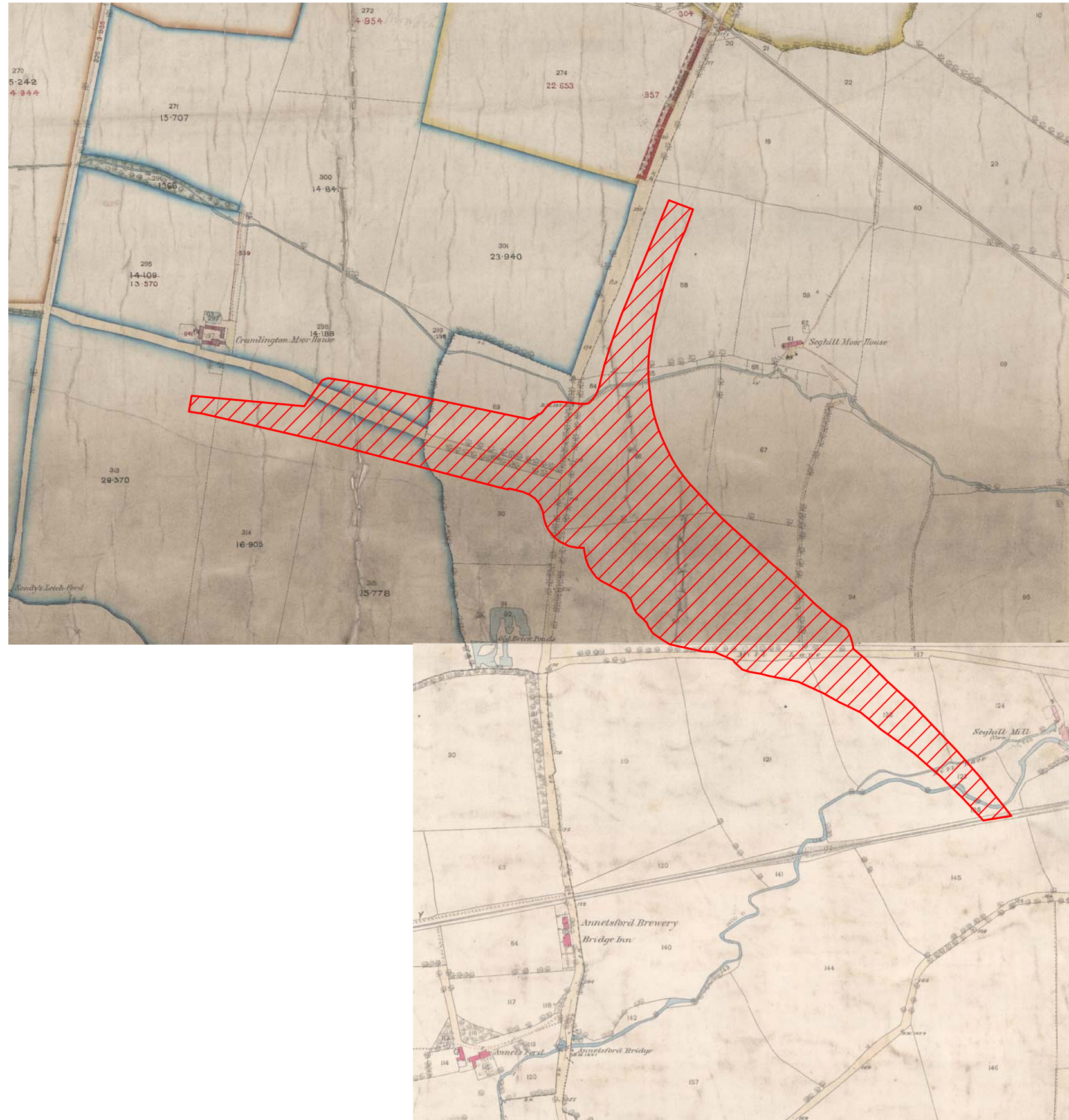


Figure 10. Ordnance Survey 1st edition, c. 1860
(from 25 inches to 1 mile)
Scale 1:7,500

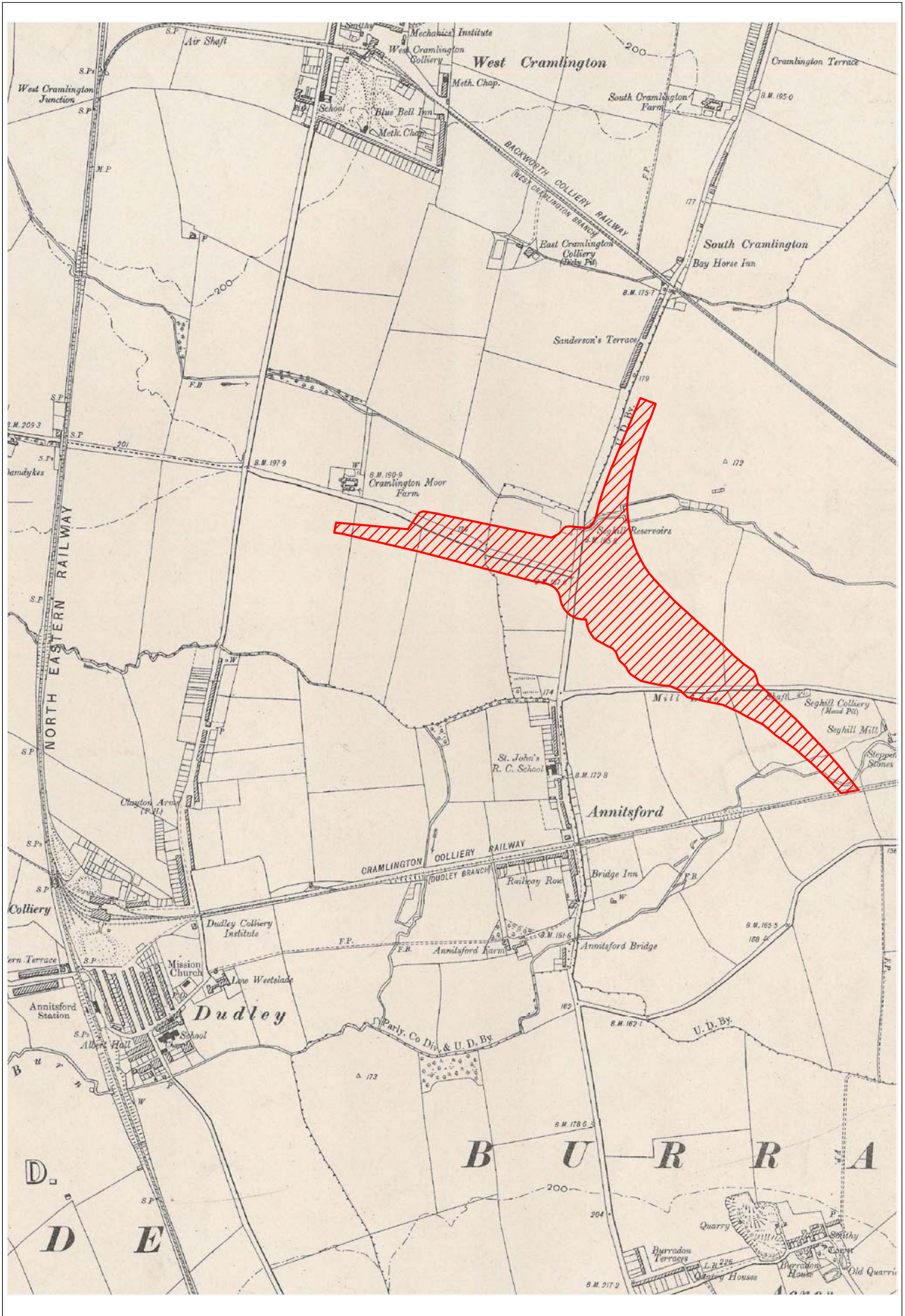


Figure 11. Ordnance Survey 2nd edition, c. 1895
 (from 6 inches to 1 mile)
 Scale 1:12,500

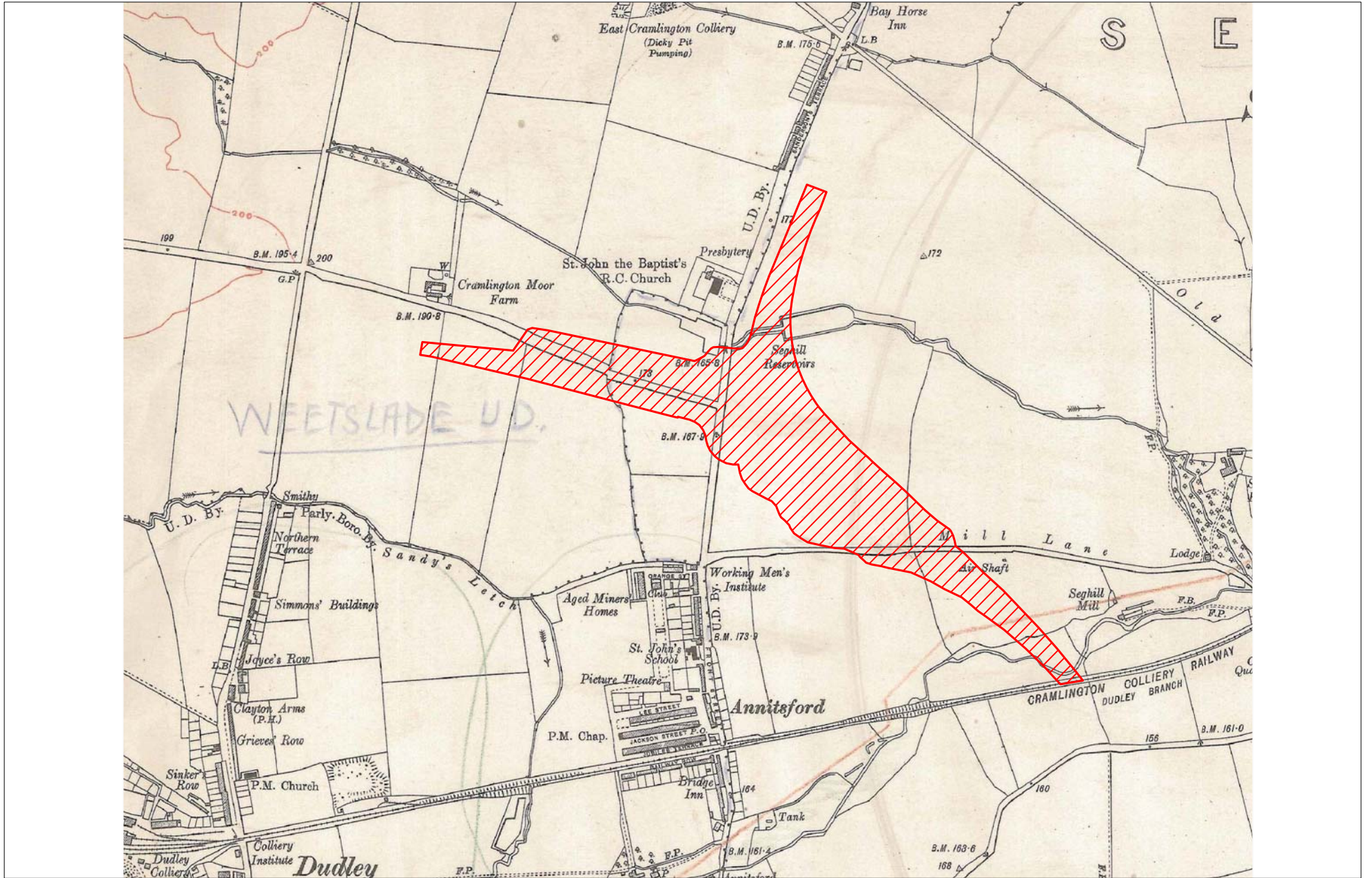


Figure 12. Ordnance Survey 3rd edition, c. 1920
(from 6 inches to 1 mile)
Scale 1:10,000

- 6.6.12 Closer to the study site than West Cramlington Colliery was Dicky Pit of East Cramlington Colliery (Figure 3, Ref. 34), depicted at its rather isolated location on the Ordnance Survey 1st edition map (Figure 9). The site of Dicky Pit now underlies the playing fields of Southlands Middle School in the Southfield suburb of Cramlington, c. 0.7km to the north-west of Moor Farm Junction, while the area formerly occupied by the pithead and workers' village of West Cramlington Colliery lies to the north-west of the school, an area now known as Alexandra Park and Southfield Green.
- 6.6.13 West Cramlington Colliery was served by West Cramlington Waggonway (Figure 3, Ref. 46), which ran to the north-west from Backworth Colliery, through Seghill, then to West Cramlington. Its route crossed the lines of the B1505 and A189 immediately to the north of the study site. To the west of the B1505, this route is preserved in the SE-NW line of a narrow road running through residential housing towards Cramlington town centre, while an earthwork in a narrow strip of woodland between the B1505 and the A189 potentially represents the waggonway. On the east side of the A189, the line of the waggonway is preserved within the route of a partly wood-lined footpath running to the south-east, to Seghill. The HER entry notes that a portion of the embankment of this feature survives as an earthwork north of Seghill. Where the waggonway route crossed the precursor to the B1505 was a level crossing (Figure 3, Ref. 43), just to the south of the aforementioned Dr. Syntax Inn (Figures 9, 10 and 11). The waggonway appears on the Seghill Tithe map of 1841 (but, interestingly, not on the Cramlington Tithe map of 1840) (Figure 7) and on Bell's plan of the coalfields in 1847 (Figure 8). Its precise date of origin is uncertain, but it was likely built around the same time as the earliest coal workings in Cramlington came into operation, thus approximately the 1830s.
- 6.6.14 Another waggonway known to have crossed the wider study area is Cramlington Waggonway (Dudley Branch) (Figure 3, Refs. 35 & 50). It is believed to have opened in 1823 and closed in 1898 (Figures 9 and 11) and at one time is recorded as being jointly owned by Cramlington and Backworth Collieries. By the 3rd edition Ordnance Survey it is annotated 'Cramlington Colliery Railway (Dudley Branch)' (Figure 12). The route served Dudley Colliery (Figure 3, Ref. 51) which was located c. 1.3km to the south-west of Moor Farm Junction. Dudley Colliery Institute (Figure 3, Ref. 57) appears on the Tyne and Wear HER in the same vicinity. The WSW-ENE line of the Cramlington Waggonway (Dudley Branch) defines the south-easternmost extent of the study site; at this location the A19 is carried along a substantial embankment, several metres higher than the natural ground level.
- 6.6.15 The North Eastern Railway was a significant industrial era feature running north-south through the western portion of the wider study area (Figures 9 and 11). There are five HER entries related to the route within the wider study area, three of these being signal posts: at West Cramlington Junction (Figure 3, Ref. 41); Damdykes (Figure 3, Ref. 45); and further south, close to Sandy's Letch (Figure 3, Ref. 44). The unnamed tributary of Seaton Burn was culverted (Figure 3, Ref. 42) through the railway embankment to the south-west of West Cramlington Colliery, while Annitsford Station, Dudley (Figure 3, Ref. 53) lies just within the south-westernmost limit of the wider study area. All these features are depicted on the Ordnance Survey 1st editions (some appearing on the extract of the 6 inches to 1 mile edition reproduced for Figure 9).

- 6.6.16 All the aforementioned historic villages in the wider study area contain HER entries relating to industrialisation of the former agricultural landscape. Seghill, to the east of the study site, has the site of two blacksmiths' premises (Figure 3, Refs. 36 and 48), the site of a Methodist Chapel (Figure 3, Ref. 47), this reflecting the needs of the expanding mid to late 19th century population following the installation of Seghill Colliery, and the site of a road bridge (Figure 3. Ref. 49), this depicted on the Ordnance Survey 1st edition. A later working of Seghill Colliery, Maud Pit, was located on the south side of Mill Lane immediately to the east of the study site; it was sunk after c.1860, first appearing on the 2nd edition Ordnance Survey (Figure 11).
- 6.6.17 The core elements of Seghill Colliery were steam-powered and a reservoir (Figure 3, Ref. 38) was built in the second half of the 19th century to serve the working and thus first appearing on the 2nd edition Ordnance Survey map (Figure 11). The reservoir was abandoned on electrification of the colliery, probably in the 1940s. It was fed by the unnamed tributary of Seaton Burn that is now culverted below the B1505 and the A189 to the north of the Moor Farm Junction roundabout (Plates 7 and 9). The site of the reservoir lies within a belt of unmanaged woodland skirting the watercourse on the east side of the A189 (Plate 10) and its westernmost extent lies within the study site.
- 6.6.18 To the south of the study site, the village of Burradon contains HER entries relating to industrial era activity, namely the site of several quarries (Figure 3, Refs. 54 and 56), the existing Burradon Quarry Houses (Figure 3, Ref. 59), the site of a blacksmiths' premises (Figure 3, Ref. 55), as well as the site of Burradon Colliery itself (Figure 3, Ref. 58), this on the very southern edge of the wider study area. To the north-west, the modern sprawl of Annitsford has two HER entries of the industrial era: the first is the site of brick ponds (Figure 3, Ref. 37) within the service area on the south-west side of the Moor Farm Junction roundabout - these are annotated as 'Old' on the Ordnance Survey 1st edition so were presumably abandoned by the 1860s; the second is Annetsford [*sic*] Brewery (Figure 3, Ref. 52), which is shown on the Ordnance Survey 1st edition.
- 6.6.19 Four HER entries within the study site represent standing or former 19th or early 20th century buildings. Approximately 200m to the north-west of Moor Farm Junction is the Church of St. John the Baptist (Figure 3, Ref. 60), a Roman Catholic church built in 1906 and thus first appearing on the 3rd edition Ordnance Survey map (Figure 12). A Grade II Listed Building, the church stands in its own grounds off the west side of the B1505 and is fairly well screened from the adjacent road network principally by the eastern end of the managed woodland within Valley Park (Plate 5). The remaining three HER entries lie within Dudley towards the south-western extent of the wider study area, these being: the former Weetslade Road School (Figure 3, Ref. 61); a First World War memorial (Figure 3, Ref. 62) on Market Street; the site of Dudley Hospital, built in 1923 and demolished in the 1980s.

6.6.20 In summary, the potential for non-industrial post-medieval and early modern era archaeological remains at the study site is considered **low**, due to the relatively precisely known locations of sites of this broad era. The potential for remains of the post-medieval and early modern industrial eras is considered **high**, specifically due to the site of Seghill Reservoir on the north-eastern side of the roundabout at Moor Farm Junction. Although colliery waggonways ran in close proximity to the study site, one on a SE-NW alignment to the north, the other on a WSW-ENE alignment to the south-east, these routes are precisely documented on mapping from the mid 19th century and thus the study site cannot be considered as having anything but **low** potential for archaeological remains of these specific features.

6.7 Modern

6.7.1 For the modern era there are no HER entries within the study site itself, although there is one entry within the wider study area, c. 1km to the south-west of Moor Farm Junction, this the gatehouse of Shasun Pharma Solutions in Sterling Place, Dudley.

6.7.2 Modern era editions of the Ordnance Survey map (Figures 13-16) show little variation to the study site until the 1985 edition, by which time the Moor Farm Junction of the A189 and the A19 was in place (Figure 15). The A189, as previously described, dates from the late 1960s. At the southern limit of the study site, the 1960 edition shows the former Cramlington Colliery Railway (Dudley Branch) annotated as 'Mineral Railway' while by the 1985 edition it is a 'Dismantled Railway'. The Mill Lane allotment gardens are in place on the 1960 edition and these features probably originated as part of the 'Dig for Victory' campaign during the Second World War.

6.7.3 In summary, the potential for modern era archaeological remains of significance at the study site is considered **low to negligible**.



Figure 13. Ordnance Survey, 1960
Scale 1:5,000

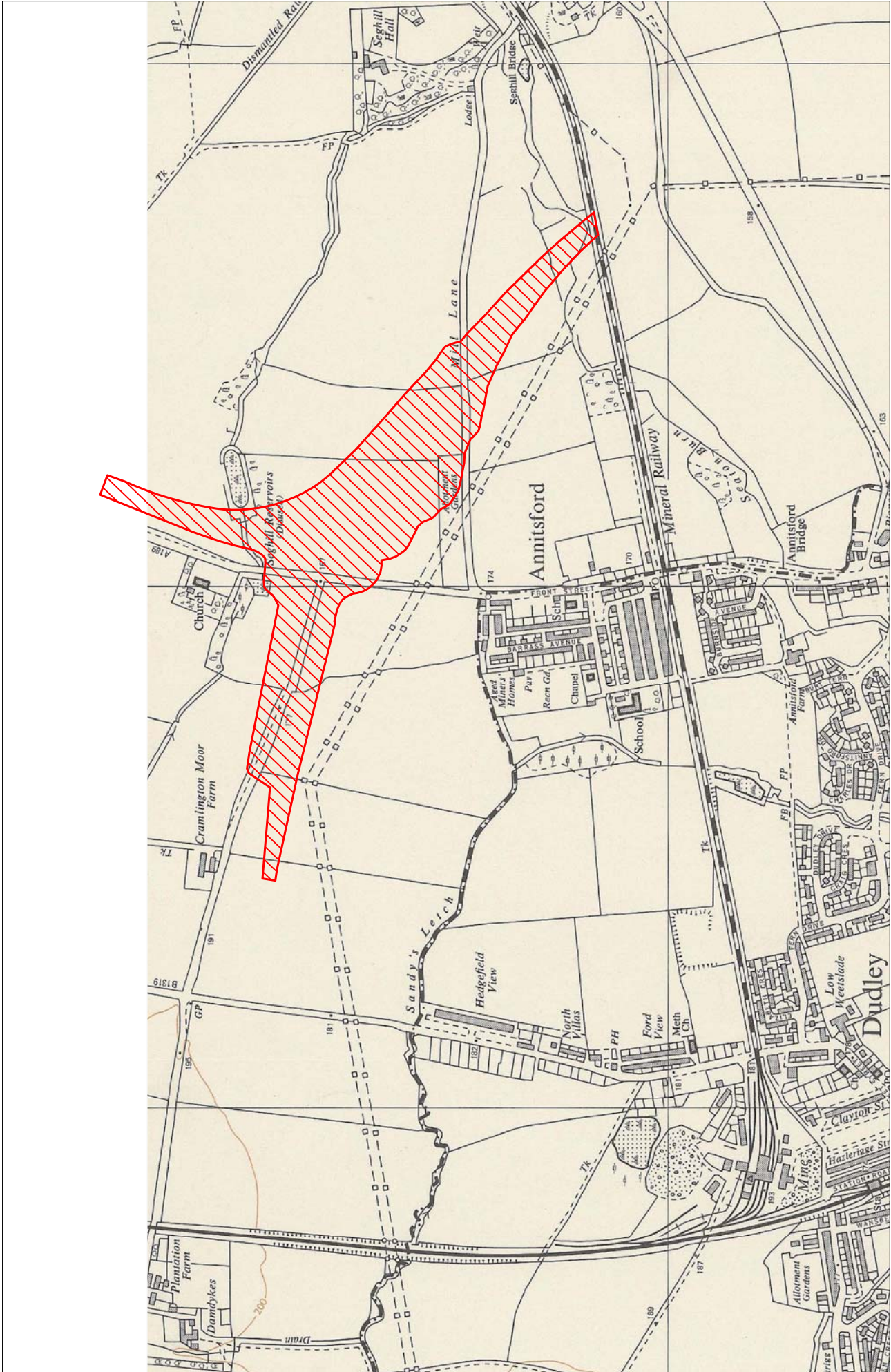


Figure 14. Ordnance Survey, 1966
Scale 1:10,000

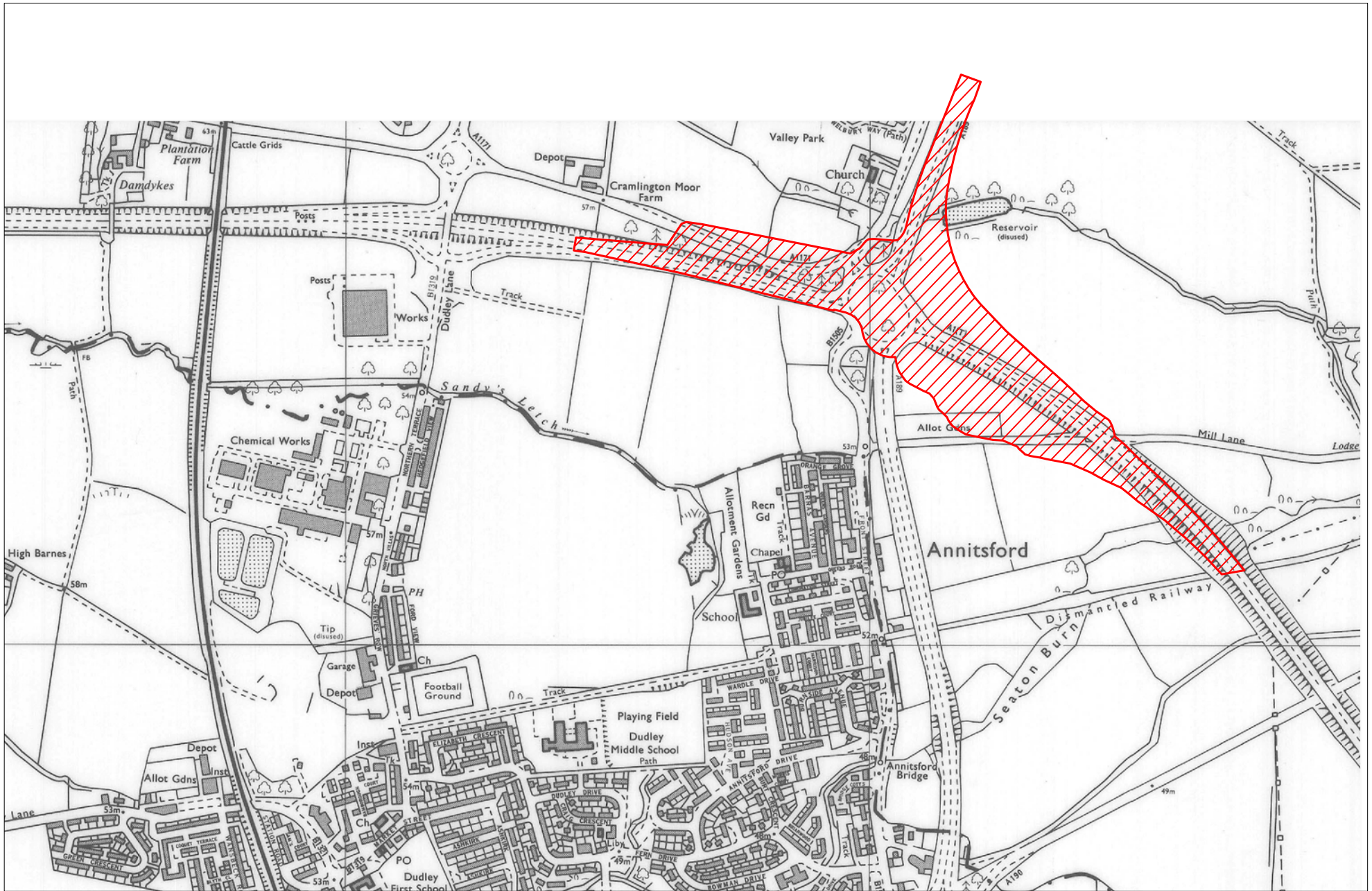


Figure 15. Ordnance Survey, 1985
Scale 1:10,000

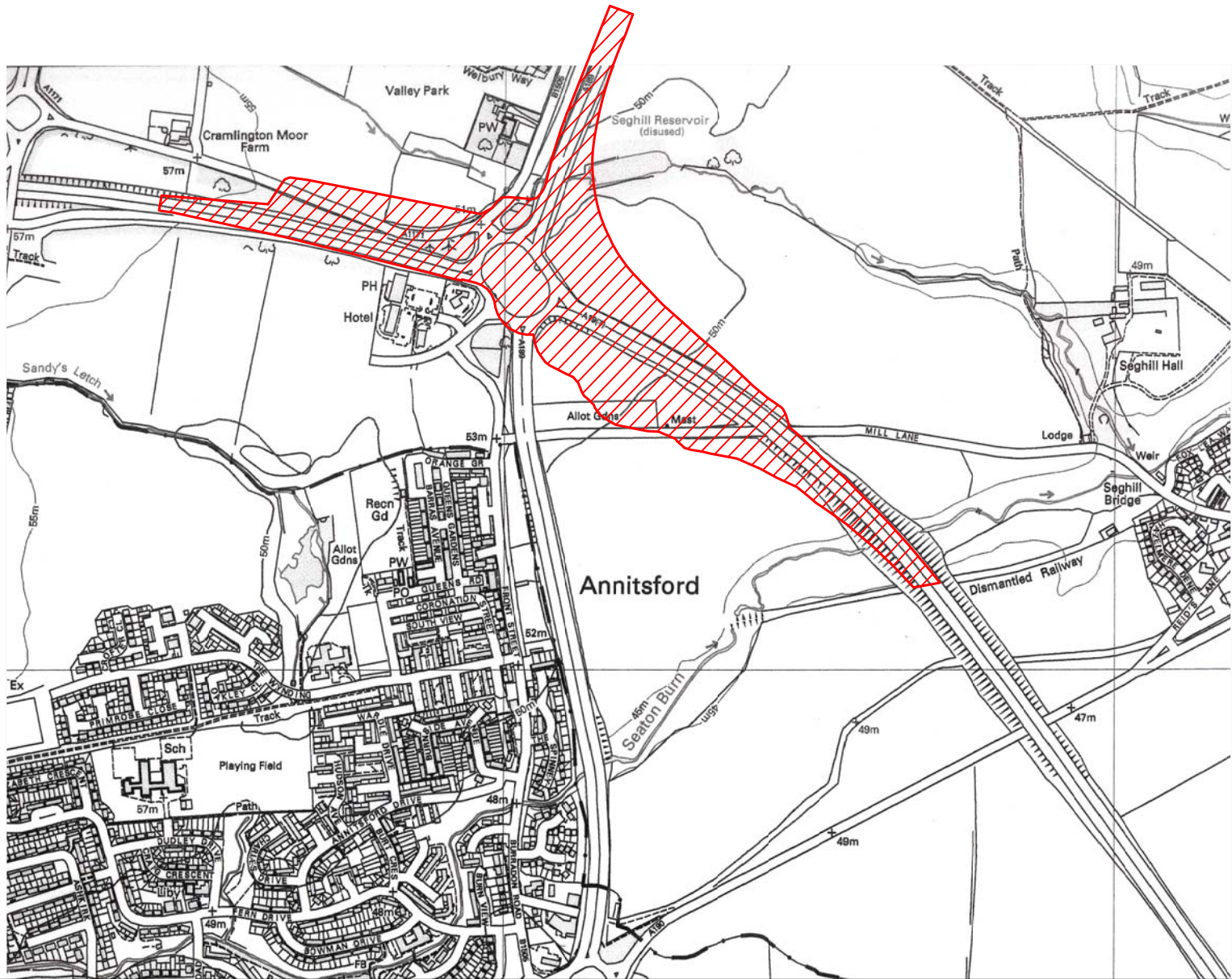


Figure 16. Ordnance Survey, 2001
Scale 1:10,000

7. POTENTIAL IMPACTS

7.1 Forms of Impact

- 7.1.1 Impacts upon archaeological and cultural heritage resources are, in general, predominantly **direct (primary) impacts**, that is involving a tangible physical impact caused at the time of the action, for example demolition of a historic building or removal of archaeological remains through construction activities. Since direct impacts almost inevitably result in the loss of elements of the resource, in cultural heritage terms, they are usually obvious or quantifiable and are almost always **permanent adverse impacts**.
- 7.1.2 There can, however, also be **indirect (secondary) impacts** upon archaeological and cultural heritage resources, which are usually induced changes resulting from direct impacts. While these generally occur later in time or in a different location and may not physically affect the resource, they can alter its setting or utility and such impacts can therefore also be **permanent adverse impacts**. Examples are construction of visually intrusive structures and the effects of noise and light pollution. However, in some cases, indirect impacts can physically affect the resource, such as contamination of buried remains as a result of accidental spillages of pollutants, alterations to hydrological regimes or alterations to the setting of a historic building. Where, for example, the setting of an archaeological monument or historic building is affected only for the duration of construction project activities, an indirect impact maybe considered a **temporary adverse impact**.
- 7.1.3 However, well-designed development can result in **permanent beneficial** impacts upon archaeological and cultural heritage resources. Examples of such beneficial impacts include: where there is an increase in knowledge resulting from the recording and analysis of archaeological sites and/or historic buildings; where the setting and amenity of an element of the historic environment is improved, such as, through the restoration of views; where there is an opportunity to inform and involve local business and residential communities regarding their historic environment.
- 7.1.4 Cumulative impacts of development schemes arise when the cumulative effect of multiple impacts produces a greater collective effect, such as on the 'group value' of individual resources or on the character of a wider historic landscape, or the degradation of a single resource as a result of multiple impacts. Thus such impacts can be either adverse or beneficial.

7.2 Assessing the Magnitude of Impacts

- 7.2.1 The determination of magnitude of impact is based upon an understanding of how and to what extent any proposed development would impact upon elements of the historic environment. The criteria used to determine the magnitude of impact are set out the table below:

Magnitude	Impact
High Adverse	<p>Complete removal of an archaeological site.</p> <p>Severe transformation of the setting or context of an archaeological monument or significant loss of key components in a monument group.</p> <p>Complete removal or transformation (e.g. desiccation or contamination) of palaeo-environmental deposits leading to complete loss of research knowledge.</p> <p>Complete destruction of a historic building or feature.</p> <p>Change to a historic building or feature resulting in a fundamental change in the resource and its historical context and setting.</p>
Medium Adverse	<p>Removal of a major part of an archaeological site and loss of research potential.</p> <p>Partial transformation of the setting or context of an archaeological site or partial loss of key components in a monument group.</p> <p>Partial removal or transformation of palaeo-environmental deposits leading to a loss of research knowledge.</p> <p>Introduction of significant noise or vibration levels to an archaeological monument leading to changes to amenity use or, accessibility or appreciation of an archaeological site.</p> <p>Diminished capacity for understanding or appreciation (context) of an archaeological site.</p> <p>Change to a historic building or feature resulting in an appreciable change in the resource and its historical context and setting.</p>
Low Adverse	<p>Removal of an archaeological site where a minor part of its total area is removed but that the site retains a significant research potential.</p> <p>Minor change to the setting of an archaeological monument.</p> <p>Minor removal of palaeoenvironmental deposits that form part of a wider surviving research resource.</p> <p>Change to a historic building or feature resulting in a small change in the resource and/or its historical context and setting.</p>
Negligible	<p>No observable change in the setting or context of, and no physical impact upon, an archaeological site, building or feature.</p> <p>No impact from changes in use, amenity or access.</p> <p>No real change in the ability to understand and appreciate the resource and its historical context and setting.</p>
Low Beneficial	<p>Some decrease in visual or noise intrusion on the setting of an archaeological site or monument or historic building.</p> <p>Improvement of the wider landscape setting of an archaeological site or monument or historic building.</p>
Medium Beneficial	<p>Significant reduction or removal of visual or noise intrusion or vibration levels resulting in improvement of the setting of an archaeological site or monument or historic building.</p> <p>Enhanced capacity for understanding or appreciation (context) of an archaeological site or monument or historic building.</p> <p>Improvement of an archaeological site or monument or historic building, its cultural heritage amenity, access to or use.</p>
High Beneficial	<p>Exceptional enhancement of an archaeological site or monument or historic building, its cultural heritage amenity, access to or use.</p>
Uncertain	<p>The magnitude of the impact cannot be predicted.</p>

7.3 Potential Impacts Considered

7.3.1 The following potential impacts upon the archaeological and cultural heritage resource of the study site are considered:

- Loss of, or damage to, archaeological sites and remains.
- Settings and views of and from upstanding remains, listed buildings, scheduled monuments and other archaeological sites affected.
- Changes to ground conditions as a result of changes to the drainage regime, which could affect archaeological or palaeoenvironmental remains.
- Loss of landscape features, structures and areas with historic and cultural associations.
- Other possible impacts, such as noise, vibration, compressions and other changed ground conditions.

7.3.2 *Loss of, or damage to, archaeological sites and remains*

7.3.2.1 General construction groundworks and overall landscaping for the off-line options of the road junction improvement scheme have potential to impact upon any buried archaeological remains at the study site, depending upon the nature and extent of the works. In summary, therefore, it is considered that the proposed scheme could threaten buried archaeological remains at the study site.

7.3.2.2 For all archaeological eras other than later prehistory and the early modern industrial era, the potential for remains is considered **low** so that the magnitude of impact is assessed as **negligible** or **uncertain** based on the criteria set out in the table in Section 7.2.

7.3.2.3 The potential for archaeological remains of later prehistory throughout the study site is considered **moderate to high**, due to the known and suspected presence of settlement remains of the Iron Age and late pre-Roman Iron Age in the wider study area. Areas of arable land or woodland to be affected by the proposed relocated roundabout or modifications of the road network have the greatest potential to contain such remains, which would be of **regional importance**. The magnitude of any impact on such remains is assessed as **medium adverse to low adverse** based on the criteria set out in the table in Section 7.2.

7.3.2.4 The potential for remains of early modern industrial era at the study site is also **high**, due to the known location of the site of Seghill Reservoir on the north-eastern side of the existing road junction roundabout. The westernmost end of the reservoir site may be affected by modifications of the road network on the north-east side of the relocated roundabout in the off-line options of the proposed scheme. Remains of the reservoir structure would be of **local to regional importance**. The magnitude of any impact on such remains is assessed as **low adverse** based on the criteria set out in the table in Section 7.2.

7.3.3 Settings and views of and from listed buildings, scheduled monuments, upstanding archaeological remains and any other archaeological sites affected

- 7.3.3.1 The wider study area contains two scheduled monuments, these being Burradon Tower, c. 1.6km to the south of Moor Farm Junction, and a probable late prehistoric settlement site identified by air photograph evidence north-east of Burradon House, c. 1.5km to the south-east of the junction. Both are considered sufficiently distant from the core of the study site to be discounted in terms of any potential impacts on setting and views to and from. The potential impacts in this respect are therefore assessed as **negligible**.
- 7.3.3.2 The wider study area contains seven listed buildings, all at Grade II, these being Seghill Hall and two associated structures, c. 0.9km to the east of Moor Farm Junction, Damdykes Farm and associated structures and a group of associated farm buildings c. 1.4km to the west of the junction, and the Church of St. John the Baptist at Annitsford, this c. 0.2km to the north-west of the junction and visible from it. All the listed buildings except the church are considered sufficiently distant from the core of the study site to be discounted in terms of any potential impacts on setting and views to and from. Potential impacts in this respect are therefore assessed as **negligible** for the buildings at Seghill Hall and Damdykes. Although visible from the roundabout, the church is fairly well screened by woodland to the south and, to a lesser extent, trees along the B1505 to its east. Since the proposed scheme involves relocation of an existing roundabout and redesign of an existing road network, the impact is assessed as **negligible**, in that there would be no observable change in the setting or context of, and no physical impact upon the building and no impact from changes in use, amenity or access.
- 7.3.3.3 In terms of affect the settings and views of and from other known archaeological sites in the vicinity of the study site, overall impacts are assessed as **negligible**.

7.3.4 Changes to ground conditions as a result of changes to the drainage regime, which could affect archaeological or palaeoenvironmental remains

- 7.3.4.1 Precise details of construction groundworks are not known at this stage. Some penetrative construction techniques can lead to degradation and ultimate destruction of sub-surface deposits, which can contain particularly significant archaeological, biological and palaeoenvironmental information.
- 7.3.4.2 In summary, any impact to the study site in this respect is considered **uncertain**.

7.3.5 Loss of landscape features, structures and areas with historic and cultural associations

- 7.3.5.1 One area with historic or cultural associations potentially impacted upon by the scheme is the group of allotment gardens off Mill Lane in Annitsford. Redesign of the road network on the south-east side of the junction in one option under consideration may impact upon the easternmost portion of the allotments. The impact is assessed as **low to medium adverse**.

7.3.6 Other possible impacts, such as noise, vibration, compressions and other changed ground conditions

- 7.3.6.1 Any construction programme - particularly preliminary groundworks - has a **temporary adverse impact**, in terms of noise and vibration, on the immediate environment of any site.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

- 8.1.1 The assessment concludes that the potential for archaeological remains of the earlier prehistoric periods at the study site is **low**. However, the potential for later prehistoric remains is considered **moderate to high** due to the preponderance of settlement sites of the Iron Age and late pre-Roman Iron Age across South East Northumberland and, importantly, the number of potential sites of this period identified from air photographic evidence in the wider study area. One certain settlement site of the period, as proved by previous excavation, is at Burradon, on the southern limit of the wider study area. Any archaeological remains of this period would be of **regional** importance.
- 8.1.2 The potential for Anglo-Saxon, medieval and post-medieval archaeological remains is considered **low**, due to the relative lack of known activity of these eras at the study site and within the wider study area generally.
- 8.1.3 The potential for later post-medieval/early modern industrial era remains is **high**, this specifically due to the site of Seghill Reservoir on the north-eastern side of the existing roundabout; any remains of this feature would be of importance at a **local** or **regional** level. Colliery waggonways associated with West Cramlington and Dudley Collieries ran in close proximity to the study site in the mid to late 19th centuries, but their locations are well documented and thus the potential for remains of these features upon the site is considered **negligible**.
- 8.1.4 The potential for modern era archaeological remains of significance at the study site is considered **low**.
- 8.1.5 The study site does not lie within a conservation area. There are two scheduled monuments and seven listed buildings (all Grade II) within the wider study area. The assessment concludes that impacts upon the settings of, and views to and from, all but one of these cultural heritage assets with statutory protection would be **negligible**, due to the distances the sites/buildings lie from the study site. The remaining asset, the Grade II listed Church of St. John the Baptist in Annitsford, lies in close proximity to Moor Farm Junction but the assessment also concludes that impacts upon its setting, and views to and from, would be **negligible**, primarily since the scheme involves redesign of an existing transport arrangement.

8.2 Recommendations

- 8.2.1 Where archaeological remains, as identified or predicted by desk-based assessment, are likely to be encountered at a proposed development site, strategies must be formulated to deal with them.
- 8.2.2 With regard to planning applications, PPG16 states that, where preliminary research suggests survival of archaeological remains:

"...it is reasonable for the planning authority to request the prospective developer to arrange for an archaeological field evaluation to be carried out before any decision on the planning application is taken".

and continues:

*“Evaluations of this kind help to define the character and extent of the archaeological remains that exist in the area of a proposed development, and thus indicate the weight, which ought to be attached to their preservation. They also provide information useful for identifying potential options for minimising or avoiding damage. On this basis, an informed and reasonable planning decision can be taken.”*¹⁴

- 8.2.3 Given that this assessment concludes that there is **moderate** to **high** potential for **regionally important** archaeological remains of later prehistory within previously undisturbed areas of the study site and **high** potential for **locally** or **regionally** important early modern industrial era remains at one specific location, it would be in line with PPG16 to undertake an archaeological field evaluation at the site. The aim of any field evaluation is always to provide information of sufficient quality and detail that reasoned and informed decisions may be made with regard to the preservation, or not, of buried archaeological material.
- 8.2.4 Field evaluation can comprise one or more of the following procedures:
- surface artefact collection ('fieldwalking');
 - geophysical survey;
 - test-pitting/trial trenching.
- 8.2.5 In this instance, surface artefact collection would be a useful procedure in the parts of the study site under arable cultivation. 'Fieldwalking' is only of use across recently ploughed, harrowed or drilled fields, preferably after a period of weathering has taken place. Geophysical survey could also a suitable method for determining whether or not archaeological remains were present in the arable fields.
- 8.2.6 Trial trenching would be the most appropriate invasive method of archaeological field evaluation to establish the extent of survival of remains of the early modern era reservoir. It is recommended that such a technique be employed for this purpose and it is anticipated that the structure will survive in a relatively good state of preservation. Trial trenching could also be undertaken subsequent to fieldwalking and/or geophysical survey in the open fields at the site if the results of those preliminary forms of evaluation provided good evidence for the presence of sub-surface archaeological remains.
- 8.2.7 Decisions regarding the requirement for and scope of any archaeological evaluation at the site would be made by the Northumberland County Conservation Team, which, using the results of this DBA as a baseline, will advise the LPA accordingly.

¹⁴ Department of the Environment 1990, paragraph 21.

9. ACKNOWLEDGEMENTS AND CREDITS

Acknowledgements

Pre-Construct Archaeology Limited would like to thank Parsons Brinckerhoff for commissioning the desk-based assessment. The roles of Charlotte Peacock and Delyth Toghill of PB are gratefully acknowledged.

The assistance of Liz Williams, HER Officer in the Northumberland Conservation Team, and Jennifer Morrison, Archaeology Officer in the Tyne and Wear Specialist Conservation Team, is gratefully acknowledged.

PCA Credits

Research: Amy Roberts and Robin Taylor-Wilson

Report: Amy Roberts and Robin Taylor-Wilson

Illustrations: Adrian Bailey

10. BIBLIOGRAPHY AND SOURCES CONSULTED

Bibliography

Department of the Environment, 1990. *Planning Policy Guidance Note 16: 'Archaeology and Planning'*, HMSO.

Department of the Environment and Department of Natural Heritage, 1994. *Planning Policy Guidance Note 15: 'Planning and the Historic Environment'*, HMSO.

Government Office for the North East, 2008. *The North East of England Plan. Regional Spatial Strategy to 2021*, TSO.

Jobey, G., 1970. 'An Iron Age Settlement and Homestead at Burradon, Northumberland', *Archaeologia Aeliana*, 4th Series, Volume XLVIII, 51-95.

Office of the Deputy Prime Minister, 2005. *Planning Policy Statement 1: Delivering Sustainable Development*, HMSO.

Parsons Brinckerhoff, 2009. *A19/A189 Moor Farm Junction Improvement. Environmental Scoping and Methodology Report*, PB unpublished, for the Highways Agency.

Petts, D. and Gerrard, C., 2006. *Shared Visions: North East Regional Research Framework for the Historical Environment*, County Durham Books.

Sources for Maps and Documentary Evidence

Northumberland Historic Environment Record

Maintained by the Northumberland County Conservation Team, the HER was interrogated remotely through the HER Officer. A search was requested of a given radius around a NGR at the centre of Moor Farm Junction roundabout and the results, with plot, were sent by email in electronic format. A simplified version of the HER is available on-line at the *Keys to the Past* website (www.keystothepast.info). This facility also allows historic Ordnance Survey maps to be examined.

Tyne and Wear Historic Environment Record

Maintained by the Tyne and Wear Specialist Conservation Team (part of the Historic Environment Section of Newcastle City Council), the HER takes the form of paper mapping cross-referenced with indexed files containing paper entries ordered numerically. Relevant entries were photocopied during a pre-arranged appointment with the Archaeology Officer. A simplified version of the HER is available on-line at the *Sitelines* website (www.twsitelines.info/). This facility also allows historic Ordnance Survey maps to be examined.

Northumberland Collections Service, Woodhorn, Queen Elizabeth II Country Park, Ashington, Northumberland

Ahead of the visit to the collections Service, the on-line catalogue (www.northumberland.gov.uk/catalogue) was searched for possible sources of relevant information and mapping of the study site. An extract of the 'Plan of Seghill Township in the Parish of Earsdon June 1841' (the Seghill Tithe map) was obtained by this means. During the visit, paper copies of the following historical maps were examined during the visit to the Collections Service and digital copies (supplied on CD) of relevant extracts were obtained:

'Map of the County of Northumberland, England', Lieutenant Andrew Armstrong and Son, 1769.

'Map of the County of Northumberland', John Fryer and Sons, Newcastle, 1820.

'Map of the County of Northumberland', Christopher Greenwood, 1828.

'Plan of Cramlington Township in the Parish of Cramlington June 1840' (the Cramlington Tithe map). The apportionment tables (*'Apportionment of the Rent Charges in lieu of Tithes....'*) were also examined for information relating to land use, ownership and occupancy.

'Plan of part of the Newcastle coal district in the County of Northumberland.....', John Thomas William Bell, 1847.

Ordnance Survey, 1st edition (6" and 25" to 1 mile), c. 1860.

Ordnance Survey, 1st edition (25" to 1 mile), c. 1860.

Ordnance Survey, 2nd edition (6" to 1 mile), c. 1895.

Ordnance Survey, 3rd edition (6" to 1 mile), c. 1920.

Newcastle City Library, Local Studies Section

The City Library, Local Studies Section was visited (this facility was being temporarily housed at Newcastle Civic Centre, during rebuilding of the City Library). Various modern era Ordnance Survey map editions were available for examination. Paper copies of extracts of the following were obtained:

Ordnance Survey, 1960 edition (1:2,500)

Ordnance Survey, 1966 edition (1:10,000)

Ordnance Survey, 1985 edition (1:10,000)

Ordnance Survey, 2001 edition (1:10,000)

Other Online Sources

In addition to those online sources mentioned above, the following websites were consulted for this assessment:

Archaeology Data Service (National Monuments Record) website: <http://ads.ahds.ac.uk/>

Communities and Local Government website: www.communities.gov.uk/corporate/. This was consulted for national planning policy regarding the historic environment.

Durham Mining Museum website: www.dmm.org.uk. This was consulted for information about the collieries in the vicinity of the study site: West Cramlington, Seghill, Burradon, etc.

MAGIC website: www.magic.gov.uk/website/magic/. MAGIC is a partnership project involving six government organisations including English Heritage and Natural England. The website is essentially an interactive map collecting information on key environmental schemes and designations. The facility providing the location, extent and details of scheduled monuments in the wider study area was utilised.

Natural England website: www.naturalengland.org.uk/. This incorporates information compiled for the 'Countryside Quality Counts' project, including information on geology, topography and landuse for the various landscape character areas in North East England.

North East Assembly website: www.northeastassembly.gov.uk. This was consulted for regional planning policy regarding heritage.

North of England Institute of Mining and Mechanical Engineers website: www.mininginstitute.org.uk. An online catalogue lists all material in the Institute library, including several 'Special Collections' of coal-mining related documents.

The Northumberland Communities website: <http://communities.northumberland.gov.uk/>. A project developed by the Northumberland Archives Service of Northumberland County Council, as part of a regional consortium 'Sense of Place North East'. It has allowed a range sources relating to the history of 76 Northumberland communities to be digitised, and includes maps, plans, estate, court, church and school records, photographs and oral history recordings. This material is intended to provide a base for studying the County's history. Digital images of other mapping, including John Speed's map of the region from 1610, were examined.

Pictures in Print website: www.dur.ac.uk/picturesinprint/. Consulted for its catalogue, with viewable images, of printed maps and topographical prints of the Tyneside area before 1860. Some showed the wider study area but were at insufficient scale to be worthy of inclusion.

Planning Portal website: www.planningportal.gov.uk. This was consulted for information regarding local planning policy relating to archaeology and the historic built environment.

APPENDIX A
CATALOGUE OF HER ENTRIES

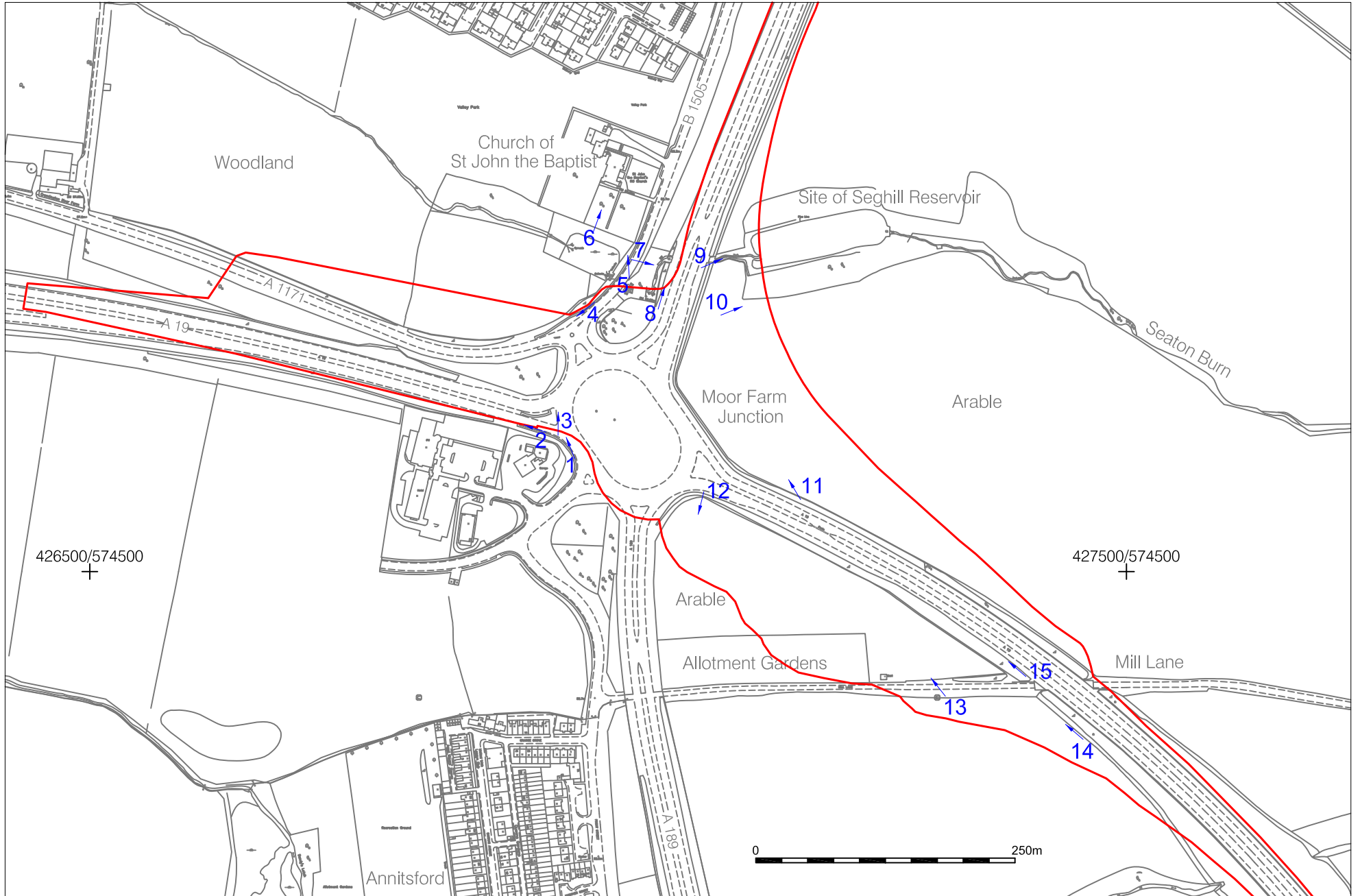
Ref. No.	HER ID	HER No.	NGR	Description	Period	Notes
1	T&W	307	NZ 269 729	Find (Axe)	Prehistoric	Broken Neolithic axe head. 65mm in length. Rare find of an axe-head of this period in south-east Northumberland. Recovered by excavation from an Romano-British settlement enclosure ditch (SMR 306) and presumably a stray.
2	T&W	305	NZ 269 729	Settlement (Burradon)	Prehistoric	Part of a late prehistoric and Romano-British settlement complex at Burradon. The earliest known element is an Iron Age rectilinear ditched enclosure - 'the Burradon enclosure' - part-excavated in 1968-9 ahead of construction of the A189. The enclosure was 99m in length and 89m wide, while the perimeter ditch was 3m wide and 1.25m deep, with an internal bank. Inside were 8-11 roundhouses with drip gullies. Occupation may have begun as early as the 5th/6th century BC. The surviving portion remains as a cropmark.
3	T&W	177	NZ 2798 7339	Enclosure	Prehistoric/Romano-British	Cropmark - at the county boundary north-east of Burradon House - showing a rectilinear double-ditched enclosure. Terminally-defined E-facing entrance. The line of the ditch on the north side is partly obscured. A Scheduled Ancient Monument (TW8: Enclosure 540m NE of Burradon House).
4	T&W	758	NZ 2839 7311	Enclosure	Prehistoric/Romano-British	Cropmark showing a rectilinear enclosure close to the A19 east of Burradon. Mostly single-ditched but with traces of a second ditch on the north side. Interior has two small circular features and a further similar-sized feature lies outside the enclosure to the north. Overall the enclosure measures a minimum of c. 60m by 45m with the circular markings being c. 15m in diameter.
5	T&W	4832	NZ 2555 7412	Enclosure	Prehistoric/Romano-British	Cropmark west of Annitsford shows single-ditched sub-rectilinear enclosure.
6	T&W	4833	NZ 2811 7333	Enclosure	Prehistoric/Romano-British	Cropmark depicts single-ditched sub-rectilinear enclosure. Adjacent to the scheduled site (T&W HER 177) north-east of Burradon Farm Cottages.
7	T&W	5441	NZ 276 730	Find (Quern)	Prehistoric/Romano-British	Beehive quern (Iron Age/Romano-British) found in a garden at Burradon Farm by D. Heslop in May 1997.
8	N	11482	NZ 2810 7505	Enclosure	Prehistoric/Romano-British	Cropmark - north-west of West Farm, Seghill - depicts a rectangular ditched enclosure with slightly rounded corners. Measures c. 60m x 45m, with an entrance in the centre of the east side. No internal features visible.
9	N	11518	NZ 282 748	Enclosure	Prehistoric/Romano-British	Cropmark north of Seghill of rectilinear single-ditched enclosure. Up to c. 0.4 hectares in size with large postholes either side of an entrance. No internal structures evident. Some doubt has been cast on the location of this site.
10	N	11519	NZ 274 748	Enclosure	Prehistoric/Romano-British	Cropmark showing square enclosure north of an unnamed tributary of Seaton Burn and east of the site of Seghill Reservoir. Potentially late prehistoric/Romano-British, although Seghill Moor House, of probable 19th c. origin, stood in this area. The house is depicted on Greenwood's map of 1828 and what appears to be two-sides of an associated rectilinear enclosure is depicted on its north side on the 1st edition Ordnance Survey. It may be these boundaries which appear as cropmarks. Therefore, a post-medieval date is equally likely.
11	T&W	306	NZ 269 729	Settlement (Burradon)	Romano-British	Further element of the late prehistoric and Romano-British settlement complex at Burradon. Rectilinear ditched enclosure - the Romano-British element - was also part-excavated in 1968-9. Within a ditch, up to 5m wide and 2.25m deep, along with an internal bank, was a single central roundhouse up to 12m diameter, inside a substantial drainage ditch, 2m wide and 1m deep. Pottery suggests 2nd century AD occupation. The surviving portion remains as a cropmark.
12	N	11520	NZ 280 746	Village (Seghill DMV)	Medieval	Seghill deserted medieval village. Located in the vicinity of Seghill Hall, on the north-west side of the modern settlement.
13	T&W	312	NZ 2763 7303	Tower House (Burradon)	Medieval	Burradon Tower is one of the most southerly towers in Northumberland. Currently ruined, it is not securely dated. Of three storeys, it has been much altered. A Scheduled Ancient Monument (TW32054: Burradon Tower, Burradon Farm).
14	T&W	495	NZ 276 731	Village (Burradon DMV)	Medieval	Burradon village appears in a documentary reference pre-1162. The shape of the village in the medieval period is unclear and it always appears to have been a relatively small settlement based on documentary references to taxpayers. It is thought that the area of the village must have been built over at least twice.
15	T&W	787	NZ 262 737	Chapel	Medieval	A chapel at North Weetslade is evidenced by some documentary evidence of the late 13th c. which mentions the chaplain of North Weetslade.
16	N	11528	NZ 2778 7428	Mill (Seghill)	Post-medieval	Seghill Mill and its associated mill race (Ref. 30: NZ 2745 7418 to NZ 2798 7431). Shown on the 1st edition Ordnance Survey.

17	N	13897	NZ 27995 74543	House (Seghill Hall)	Post-medieval	Seghill Hall was built c. 1830 and then extended and remodelled internally in 1908. A Grade II Listed Building.
18	N	13898	NZ 27964 74371	Gate (Seghill Hall)	Post-medieval	Entrance screen and piers, c.1830, of Seghill Hall. Squared stone with tooled dressings. Square piers with moulded pyramidal caps, linked by flat-coped quadrant walls to similar but smaller end piers with plainer caps. A Grade II Listed Building.
19	N	13899	NZ 27951 74375	Gate Lodge (Seghill Hall)	Post-medieval	Gate lodge, c. 1830, at Seghill Hall. The rear and right extensions are not of special interest. A Grade II Listed Building.
20	N	13935	NZ 25587 74909	Farmhouse (Damdykes)	Post-medieval	Damdykes Farmhouse is of late 17th or early 18th c. date. Lies north of the in-cutting A19 south-west of Cramlington and east of Arcot Hall, to which it formerly belonged. Remodelled and enlarged to rear in the early 19th c. The farm buildings include work of two or more early-mid 19th century phases, but have seen relatively little alteration since. The house, its garden walls and railings, and the attached group of farm buildings are Grade II Listed Buildings.
21	N	13936	NZ 25587 74900	Structures (Damdykes Farm)	Post-medieval	Wall, rails and gate to south of Damdykes Farmhouse. A Grade II Listed Building.
22	N	13937	NZ 25558 74918	Farm Buildings (Damdykes Farm)	Post-medieval	Probable late 18th c. farm buildings around a foldyard to north and west of Damdykes Farmhouse. An extension to the south range is dated 1833 with the initials 'MSS'. The north and west ranges formerly dated by 1863 with initials 'SHSS'. Formerly part of the Shum-Storey estate based at Arcot Hall. A Grade II Listed Building.
23	N	19284	NZ 27248 75432	Inn	Post-medieval	Site of The Doctor Syntax Inn. The inn was named after the famous racehorse (1811-1838). Depicted on the 1st edition Ordnance Survey but by the 2nd edition was named The Bay Horse Inn.
24	N	19436	NZ 26149 74480	Ford	Post-medieval	Ford across Sandy's Letch, north of Dudley. Shown on the 1st edition Ordnance Survey.
25	N	19437	NZ 27031 74770	Bridge	Post-medieval	Bridge carrying road across the unnamed tributary of Seaton Burn, north of Annitsford. Shown on the 1st edition Ordnance Survey.
26	N	19438	NZ 27241 74801	Well	Post-medieval	Well near Seghill Moor House. Shown on the 1st edition Ordnance Survey.
27	N	19442	NZ 28233 74944	Farm	Post-medieval	Farmstead known as 'West Farm'. Now demolished, it survives as piles of rubble within hummocky, rapidly afforesting scrub-land, though foundations and floors may survive sub-surface.
28	N	19456	NZ 28158 74261	Well	Post-medieval	Well in Seghill. Shown on the 1st edition Ordnance Survey.
29	N	19457	NZ 28054 74313	Ford	Post-medieval	Ford across Seaton Burn. Shown on the 1st edition Ordnance Survey.
30	N	19459	NZ 27468 74175 NZ 27779 74271	Mill Race	Post-medieval	Mill race for Seghill Mill (Ref. 16). Canalised section of Seaton Burn. Shown on the 1st edition Ordnance Survey.
31	N	19460	NZ 27763 73434	Ford	Post-medieval	Ford across a burn which now delineates the county boundary. Depicted on the 1st edition Ordnance Survey.
32	T&W	5672	NZ 2759 7302	Farm	Post-medieval	Burradon House Farm. The plan of the buildings today is that which had developed by the end of the 19th c., within a site that had been used as a farm since at least 1804. However, most of the buildings now present are the result of major changes in the second half of the 19th century. Most of these buildings have survived.
33	N	11505	NZ 2655 7585	Colliery (West Cramlington)	Post-medieval/early modern (industrial)	West Cramlington Colliery. Dates from the first half of the 19th c., probably the 1830s. The overall complex - with workers' village, mechanics' institute and methodist chapel - is shown on the 1st edition Ordnance Survey.
34	N	11508	NZ 2689 7544	Colliery (East Cramlington)	Post-medieval/early modern (industrial)	Dicky Pit of East Cramlington Colliery. Depicted on the 1st edition Ordnance Survey.
35	N	11527	NZ 2705 7400 NZ 2945 7420	Waggonway (Cramlington/Dudley)	Post-medieval/early modern (industrial)	Cramlington Waggonway (Dudley Branch). This opened 1823 and closed 1898. At some point was jointly owned by Cramlington and Backworth Collieries. Shown on the 1st edition Ordnance Survey.
36	N	11529	NZ 281 742	Blacksmiths'	Post-medieval/early modern (industrial)	Blacksmiths' workshop near Seghill Bridge, depicted on the 1st edition Ordnance Survey.
37	N	11530	NZ 2691 7440	Brick Ponds	Post-medieval/early modern (industrial)	Annitsford Brick Ponds. These were noted in a general review of clay-based manufacturing sites in the NE of England. Depicted on the 1st edition Ordnance Survey but noted as 'Old' so presumably inactive/in-filled by then.

38	N	11531	NZ 2720 7482	Reservoir	Post-medieval/early modern (industrial)	Reservoir built north of Annitsford in the second half of the 19th c. to serve the steam-powered Seghill Colliery. Abandoned on electrification of the colliery, probably c. 1940s. At the west end no structural features are evident and only the basic outline of the reservoir can be seen until a few metres from the dam wall at the east end. Here, support walls emerge and slope up to c. 0.5m high, with three or four courses visible above the level of a small pool. The side walls of the reservoir are visible for c. 4m along the south side and c. 3m along the north; they are built using dressed stone. The reservoir measures c. 10m wide at the east end. The dam wall is partially collapsed and also constructed of dressed stone. East of the dam is a stone-lined channel c. 3.8m wide. The interior of the reservoir is filled with silt. Some collapse has occurred around the dam structure.
39	N	19278	NZ 27474 75942	House	Post-medieval/early modern (industrial)	Site of Cramlington Terrace, South Cramlington. Single lengthy row of terraced housing at South Cramlington facing a road with individual plots of land directly opposite.
40	N	19279	NZ 26555 75906	Workers' Village	Post-medieval/early modern (industrial)	Site of Cramlington Square, Cramlington. The pit village of West Cramlington Colliery was arranged centrally with rows of terraced housing making up three sides of a 'square', with individual plots on the inner sides. There are specifically named buildings, such as the Wesleyan Chapel and The Blue Bell Inn. The complex is shown on the 1st edition Ordnance Survey. The whole area is now Alexandra Park and Southfield Green.
41	N	19282	NZ 25837 75821	Railway Signal	Post-medieval/early modern (industrial)	Signal post on railway line of NER at West Cramlington Junction. Depicted on the 1st edition Ordnance Survey.
42	N	19283	NZ 25805 75394	Culvert	Post-medieval/early modern (industrial)	Culvert in an embankment of the NER line south-west of Cramlington, carried a tributary of Seaton Burn through the embankment. Shown on the 1st edition Ordnance Survey.
43	N	19285	NZ 27254 75371	Level Crossing	Post-medieval/early modern (industrial)	Level crossing for the West Cramlington Waggonway near The Doctor Syntax Inn. Depicted on the 1st edition Ordnance Survey.
44	N	19434	NZ 25737 74611	Railway Signal	Post-medieval/early modern (industrial)	Signal post on NER line near Sandy's Letch. Depicted on the 1st edition Ordnance Survey.
45	N	19435	NZ 25770 74993	Railway Signal	Post-medieval/early modern (industrial)	Signal post on NER line at Damdykes. Depicted on the 1st edition Ordnance Survey.
46	N	19441	NZ 28328 74545	Waggonway (West Cramlington)	Post-medieval/early modern (industrial)	Route of the West Cramlington Waggonway. Depicted on the 1st edition Ordnance Survey. At the NGR given a portion of the embankment survives.
47	N	19454	NZ 28428 74300	Church	Post-medieval/early modern (industrial)	Methodist chapel depicted on the 1st edition Ordnance Survey.
48	N	19455	NZ 28182 74220	Blacksmiths	Post-medieval/early modern (industrial)	Smithy at Seghill depicted on the 1st edition Ordnance Survey.
49	N	19458	NZ 27991 74316	Bridge	Post-medieval/early modern (industrial)	Site of road bridge, specifically annotated 'Seghill Bridge' on the 1st edition Ordnance Survey.
50	T&W	1060	NZ 2585 7383	Waggonway (Cramlington/Dudley)	Post-medieval/early modern (industrial)	Cramlington Waggonway (Dudley Branch) (see Ref. 35). On the 2nd edition Ordnance Survey the route had been extended to the north-west to join the NER at NZ 2574 7397.
51	T&W	1061	NZ 2588 7383	Colliery (Dudley)	Post-medieval/early modern (industrial)	Dudley Colliery opened in 1854 and closed 1977. The 1st edition Ordnance Survey shows a 'Gin' while the 2nd edition shows expansion of the colliery buildings and spoil heaps.
52	T&W	1062	NZ 2701 7396	Brewery	Post-medieval/early modern (industrial)	'Annetsford Brewery' is depicted on the 1st edition Ordnance Survey.
53	T&W	1072	NZ 2585 7360	Railway Station	Post-medieval/early modern (industrial)	Annitsford Station, Dudley.
54	T&W	1073	NZ 2746 7308	Quarry	Post-medieval/early modern (industrial)	Quarry at Burradon - depicted on the 1st edition Ordnance Survey.
55	T&W	1074	NZ 2763 7306	Blacksmiths	Post-medieval/early modern (industrial)	Smithy at Burradon - depicted on the 2nd edition Ordnance Survey.
56	T&W	1075	NZ 2766 7297	Quarry	Post-medieval/early modern (industrial)	Two quarries in Burradon - depicted 'Old' on the 2nd edition Ordnance Survey.

57	T&W	1076	NZ 2609 7380	Colliery Institute	Post-medieval/early modern (industrial)	Dudley Colliery Institute.
58	T&W	1079	NZ 2740 7252	Colliery (Burradon)	Post-medieval/early modern (industrial)	Burradon Colliery - as depicted on 1st edition Ordnance Survey - included two brick fields and a clay pit. The colliery was served by a waggonway (HER 1080). The 2nd edition shows expansion of colliery buildings, spoil heaps and internal waggonway system. Burradon Colliery opened in 1820 and closed in 1975.
59	T&W	6073	NZ 2731 7297	Housing	Post-medieval/early modern (industrial)	Burradon Quarry Houses - depicted on the 2nd edition Ordnance Survey.
60	N	13927	NZ 27006 74890	Church	Early Modern	Church of St John the Baptist, Annitsford. A Roman Catholic Church, built in 1906 and said to be modelled on Ostend Cathedral. It was built on a concrete raft to counteract mining subsidence. A Grade II Listed Building.
61	T&W	6070	NZ 2603 7353	School	Early Modern	Weetslade Road School in Dudley is depicted on the 2nd edition Ordnance Survey. It is now Dudley People's Centre.
62	T&W	9474	NZ 260 735	War Memorial	Early Modern	This war memorial stands in a front garden on Market Street, Dudley. It is a marble statue of a woman, unveiled in September 1923 but moved slightly from its original location so as not to block an entrance. Erected in honoured memory of the men who fell in the Great War.
63	T&W	11249	NZ 261 736	Hospital	Early Modern	Dudley Hospital was opened in September 1923 by Dr. J. Wishart of Newcastle. It consisted of a two bed ward, a one bed ward and nurses quarters. It was brick built with stone lintels and sills, sash windows and a slate roof. Demolished c. 1986 to make way for a new doctor's surgery.
64	T&W	9380	NZ 260 743	Building	Modern	Gatehouse to a chemical works, designed by Ryder and Yates; at Shasun Pharma Solutions, Sterling Place, Dudley. Noted for its striking geometry.
65	N	11513	NZ 2831 7585 NZ 2732 7533	Earthwork	Unknown	A continuous earthwork in various combinations of ditch and/or bank traced for over 1km between NZ 2732 7533 and NZ2831 7585. It survives to varying degrees of preservation along its length. The north-east part of the boundary comprises a ditch c. 1.5m wide by 0.75m deep, enclosed by earth banks c. 0.4m high by c. 1.5m wide. At the centre of this northern section the ditch has increased to c. 3m-4m wide by c. 1.2m deep with banks up to 2m wide and 0.5m high. The central section of the boundary survives as a low bank c. 0.4m high by c. 1m wide. Further south it develops into a ditch enclosed by hedge lines, with no appreciable bank. It reverts to a bank up to 1m high by 2.5m wide and follows the watercourse west to the present A189. Greenwood's map of 1828 shows it following a tributary of the Seaton Burn to the east of Cramlington before taking a zig-zag course to the south-west towards another tributary which it crosses before meeting the road running up to South Cramlington. Later maps depict a similar course. This boundary may be medieval in origin, probably having once divided Cramlington and Seghill townships. There is a slight possibility that it is of even greater antiquity.
66	T&W	798	NZ 2635 7429 NZ 2665 7400	Cropmark	Unknown	Cropmark depicts a linear feature. Potentially part of a modern gas pipeline rather than archaeology.

APPENDIX B
PLATES



Location and direction of plates
Scale 1:5,000



Plate 1. Moor Farm Junction, exit to the A19 westbound, looking north-west.



Plate 2. View from Moor Farm Junction along the A19, looking WNW.



Plate 3. Moor Farm Junction, view across exits to the A19 and A1171 towards Church of St. John the Baptist, looking north.



Plate 4. View from Moor Farm Junction along the A1171, looking south-west.



Plate 5. Church of St. John the Baptist, from the B1505, looking north.



Plate 6. Church of St. John the Baptist, south elevation, looking NNE.



Plate 7. Culverting of Seaton Burn tributary, west of the A189, looking east.



Plate 8. View from Moor Farm Junction along the A189, looking NNE.



Plate 9. Exit to culvert of Seaton Burn tributary, east of the A189, looking north-east.



Plate 10. Site of Seghill Reservoir to the east of the A189, looking north-east.



Plate 11. Arable field on the north-east side of Moor Farm Junction, looking north-west.



Plate 12. Arable field on the south-east side of Moor Farm Junction, looking south.



Plate 13. View from Mill Lane across allotment gardens and arable land towards Moor Farm Junction, looking north-west.



Plate 14. View across arable land to the south of Mill Lane, looking north-west.



Plate 15. View towards Moor Farm Junction from the A19 overpass of Mill Lane, looking north-west.