ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT

EAST MIDLANDS INTERMODAL PARK

August 2014

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Shepherd
Ingenuity Applied

Goodman

East Midlands Intermodal Park
Strategic Rail Freight Interchange

South Derbyshire District

Environmental Impact Assessment
Scoping Report

Prepared on behalf of Goodman Shepherd

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1.0 INTRODUCTION

1.1 This Environmental Impact Assessment (EIA) Scoping Report has been prepared in respect of the proposed Strategic Rail Freight Interchange (SRFI) known as the East Midlands Intermodal Park in South Derbyshire. The EIA Scoping Report has been prepared on behalf of Goodman Shepherd (UK) Limited (the Applicant).

1.2 The proposed development is considered to be an Nationally Significant Infrastructure Project (NSIP). Section 14 of the Planning Act 2008 identifies a number of types of NSIP, including 'the construction or alteration of a rail freight interchange' and rail freight interchanges are defined at Section 26 of that Act. The Section 26 definition requires a SRFI to be at least 60ha in area; capable of handling goods from more than one consignor and to more than one consignee; capable of handling at least four goods trains per day; and to include warehouses to which goods can be delivered from the railway network either directly or by means of another form of transport.

1.3 EIA scoping forms part of the pre application stage of the Development Consent Order (DCO) procedure. An application for a DCO is proposed to be submitted in early 2015.

1.4 The EIA Scoping Report is submitted to the National Infrastructure Directorate of the Planning Inspectorate in support of a request for an EIA Scoping Opinion under Regulation 8 of the Infrastructure Planning (EIA) Regulations 2009 (the EIA Regulations). In accordance with Regulation 8, paragraph 3, this report contains:

- A plan sufficient to identify the land (Appendix 1) (the Site); and
- A brief description of the nature and purpose of the development and of its possible effects on the environment.

1.5 This Scoping Report is part of the Preliminary Environmental Information (PEI) to be published and consulted on, in support of the forthcoming application for Development Consent. The forthcoming Statement of Community Consultation will explain how the Applicant intends to publicise and consult on the PEI.

EIA Requirements

1.6 The EIA process is the mechanism by which development proposals are appraised in terms of environmental and socio-economic criteria, in addition to the engineering and technical

considerations. The EIA process defines the context of the proposed development and examines the issues considered pertinent.

1.7 The purpose of the EIA is to establish the nature of the development and the environment in which it is likely to take place, during both construction and operational phases, so as to identify likely significant effects on the environment that may arise. This is done by comparing the existing situation at the start of the work (baseline) with the situation during construction and once the proposals are in place (operation).

1.8 The proposals do not fall within Schedule 1 of the EIA Regulations for which EIA is mandatory.

1.9 The EIA Regulations require that any proposed development falling within the description of a 'Schedule 2 development' within the meaning of the Regulations, will be subject to an EIA where such development is likely to have significant effects on the environment by virtue of such factors as its nature, size or location (Regulation 2(b)).

1.10 The proposed development is considered to be Schedule 2 development, falling under the category of 'Construction of intermodal transshipment facilities and of intermodal terminals' (Schedule 2, 10, (c)) where the proposals have the potential to lead to likely significant effects on the environment.

1.11 Therefore, it is proposed that an EIA be carried out and a supporting Environmental Statement be submitted in support of the future application for a DCO.

Purpose of the Scoping Report

1.12 The process of identifying the topics to be addressed by the EIA and the methodology by which assessments will be undertaken is termed 'scoping' and the results are presented as a scoping report.

1.13 Regulation 8 of the EIA Regulations sets out the requirements for obtaining a scoping opinion from the determining authority, in this case the National Infrastructure Directorate of the Planning Inspectorate.

1.14 This Scoping Report sets out the framework within which the Environmental Statement will be produced and the topic areas and information that will be contained within that

document. Statutory Consultees are invited to express their views on the proposed scope of the EIA or suggest additional issues which may be considered to be of significance.

1.15 In preparing this Scoping Report, regard has been given to Advice Note 7 Screening, Scoping and Preliminary Environmental Information Version 4 (The Planning Inspectorate, July 2013).

2.0 SITE DESCRIPTION

2.1 The Site, as shown in Appendix 1, lies on the south western side of the City of Derby, within the administrative area of South Derbyshire District Council (SDDC), extending to approximately 255ha. It adjoins the existing strategic trunk road network (A38/A50) together with the existing strategic rail freight network (Stoke on Trent to Derby Main Line).

2.2 The boundaries of the Site are defined by existing roads, comprising the A50 (to the north), the A38 Burton Road (to the east), the A5132 Carriers Road (to the south) and Egginton Road/Etwall Road (to the west). The Site is bisected by the Stoke on Trent to Derby Main Line on an east-west alignment.

2.3 The A38 runs in an approximately north-south alignment for routes to the north (Derby) and south (Burton on Trent and Lichfield). The A50 runs in an approximately east-west alignment for routes to the east (M1 and Nottingham) and west (Stoke on Trent, Stafford and M6). The 'Stoke on Trent to Derby Main Line' enables trains to travel in a north westerly direction towards Stoke on Trent and the West Coast Main Line and east towards the Birmingham to Doncaster, Midland and East Coast Main Lines.

2.4 The nearest villages to the Site comprise Etwall (on the northern side of the A50); Hilton (to the west); Egginton (to the south) and Willington (on the eastern side of the A38).

2.5 The surroundings to the Site include the following features (identified on the plan included at Appendix 2):

- The A38/A50 intersection to the north east (Burnaston Interchange) is a grade separated junction incorporating an elevated roundabout;
- To the north of the A50 lies the Toyota European Production Centre. The facility opened in 1992 and vehicle manufacturing operations undertaken at the facility include stamping, welding, painting, plastic moulding and assembly. Over 3,000 people are employed within the facility. The facility produces 900 cars per day, which are currently distributed via the road network, with 80% of vehicle production exported via the Port of Grimsby. In addition to the buildings associated with the facility, a test track is also located on the northern side of the A50;
- To the west, there are residential properties on the Etwall Road. Little Jack Horner's Day Nursery, Tynefield Court nursing home and further residential properties are located to the west of Egginton Road;

- Etwall Road/Egginton Road cross the Stoke on Trent to Derby Main Line via a level crossing;
- Derby Airfield is located to the west of Etwall Road and is the base for Derby Aero Club and Flying School;
- To the south, the A5132 Carriers Road meets the A38 at the 'Y-Pass Junction'. There are petrol filling stations/services adjacent to this junction (northbound and southbound) together with residential properties on the opposite side of the A38 fronting onto the A5152 The Castle Way;
- Also to the south, Willington Quarry is currently in active use for aggregates extraction by Cemex;
- Existing development on the southern side of the A38/A50 intersection comprises a waste transfer station and 'Extra' services (including a Shell petrol filling station, Ibis Hotel, KFC and Cherry Tree Farm Pub Restaurant).

2.6 The main features and uses within the Site are identified on the plan included at Appendix 3. The main features and uses include:

- An existing waste water treatment facility operated by Severn Trent Water Ltd and an in-vessel composting facility operating by Biffa Waste Services Ltd are located centrally within the Site;
- Three residential dwellings are located within the Site, comprising Round House Farm, 1 Standpipe Cottage and 2 Standpipe Cottage;
- Boundary Road provides access to the waste water treatment facility and residential dwellings;
- Pylons and overhead electric power lines straddle the northern part of the Site;
- Parts of the Site have been subject to previous minerals extraction for sand and gravel and now incorporate inert imported material;
- Trees within the Site include a plantation on the western boundary, which is subject to a group Tree Preservation Order;
- An existing flood attenuation pond is located in the eastern part of the Site and connects via a culvert to the existing development on the northern side of the A50;
- Watercourses within the Site comprise Etwall Brook (which cuts across the north western corner) and Willington Brook (on the eastern side);
- Parts of the Site are used for the growing of crops for use as biofuel. In the past the majority of the land has been used for intensive sewage sludge recycling and as such is unsuitable for growing crops direct for human consumption. As a consequence the land us used to grow crops for biofuels or animal feed uses only.

3.0 PROPOSED DEVELOPMENT

3.1 The proposed development known as East Midlands Intermodal Park will include an intermodal terminal and commercial buildings in industrial/logistics use. Access for trains would be by way of the Stoke on Trent to Derby Main Line and a new vehicular access would be via the A38/A50 intersection.

3.2 The proposed development will comprise the following elements:

- Infrastructure to enable the exchange of freight between road and rail, including railway sidings with a connection to the adjacent railway line and an intermodal terminal incorporating mobile container handling equipment and external container storage;
- Rail-linked Class B8 distribution units, to include associated landscaping, access, parking and servicing areas;
- Lorry parking area including facilities for drivers;
- New vehicular access point onto the A50/A38 intersection;
- New estate roads;
- Earthworks to create development plots and areas for mounding and balancing ponds;
- Extensive new landscaping areas; and
- Green spaces accessible to the local community by footways/cycleways.

3.3 Various options for the proposed development are being considered. Three options plans (Appendix 4) formed the basis of a non-statutory consultation between May and July 2014. These options plans are informed by analysis of the different ways in which the Site and the buildings proposed within it could be effectively served by rail access and also by considerations including the proximity of new buildings and infrastructure to existing residential properties; the impact on the existing invessel composting facility operated by Biffa Waste Services; the provision of additional green space within the Site and the retention of existing trees; and improvements to the existing drainage arrangements within the Site, including provision for watercourses and balancing ponds.

3.4 The development options have the following common elements:

- New warehouse units (distribution centres) and intermodal rail freight facilities which would be accessed by both road and rail. In addition to the new rail infrastructure

and warehouses, a mix of new green spaces, servicing infrastructure and parking areas would also be provided;

- Up to 557,400sqm (6,000,000sqft) of warehouse floorspace would be provided for storage and distribution businesses, comprising warehouses. Each warehouse would include areas for the storage of goods and also office areas;
- New infrastructure and loading areas would enable the transfer of unitised freight between road and rail. The infrastructure would include railway sidings and intermodal facilities, which would permit the efficient transfer and storage of intermodal units. A secure gatehouse arrangement and parking for waiting vehicles would also be provided; and
- A new road access to the Site would be created off the A38/A50 intersection in order to serve the new development.

3.5 As indicated above, the differences between each of the development options take account of the different ways in which rail access can be formulated within the Site, with the layout of the buildings developed as a complementary response to the rail infrastructure in each case. The alternative siding arrangements are intended to illustrate different ways in which full length trains (typically 775m) could be moved between the reception sidings and the working intermodal sidings, intermodal terminal and rail-linked warehouses.

3.6 A draft Parameter Plan in respect of the proposed development zones is provided at Appendix 5. Further Parameter Plans will be prepared in order to address parameters including building plots, positions and heights; the road and rail infrastructure; landscaping; and drainage arrangements. It is considered that, for a SRFI, the use of Parameter Plans is appropriate in principle in order to ensure that the proposed development is sufficiently flexible to accommodate the detailed requirements of future occupiers. In preparing the Parameter Plans, regard will be had to the guidance in the 'PINS Advice Note 9: Rochdale Envelope' which provides the following advice in respect of the use of Parameter Plans in defining 'outline' proposals:

- At the time of application, any proposed scheme parameters should not be so wide ranging as to represent effectively different schemes. The scheme parameters will need to be clearly defined in the draft DCO and therefore in the accompanying ES;
- Taken with those defined parameters of the project, the level of detail of the proposals must be such as to enable a proper assessment of the likely environmental effects, and necessary mitigation;
- It will also be the developer's responsibility to present the assessment of possible variations of the project, where certain parameters are not yet fixed, in a manner

that aids the making of recommendations to and decisions by the relevant Secretary of State.

4.0 PLANNING POLICY BACKGROUND AND RELEVANT STUDIES

4.1 The significant growth in rail freight over the period since privatisation has in part been the consequence of a public policy framework which has identified a need for the provision of new SRFIs in order to create conditions favourable to the development of rail freight services and infrastructure.

4.2 The planning policy context for the provision of SRFIs is now extremely supportive in principle and the Government's latest draft guidance, the National Policy Statement (NPS) for National Networks (December 2013) identifies a compelling need for the provision of this nationally significant infrastructure. The draft NPS provides guidance for the promoters of NSIPs and the basis for examination by the Secretary of State. The NPS will be used as the primary basis for making decisions on DCO applications for national networks NSIPs.

4.3 The draft NPS for National Networks summarises the need for development of the national networks as follows:

> *"Transport is an engine for growth. The national road and rail networks that connect our cities, regions and international gateways play a significant part in supporting economic growth and productivity as well as facilitating passenger, business and leisure journeys across the country. Well-connected and high-performing networks with sufficient capacity are vital to meet the country's long-term needs and support a prosperous economy.*
>
> *Government's vision and strategic objectives for the national networks*
>
> *The Government will deliver national networks that meet the country's long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means:*
>
> - *Networks with the capacity and connectivity to support national and local economic activity and facilitate growth and create jobs;*

- *Networks which support and improve journey quality, reliability and safety;*
- *Networks which support the delivery of environmental goals and the move to a low carbon economy;*
- *Networks which join up our communities and link effectively to each other. […]*

The long term drivers of demand to travel – GDP and population growth – are forecast to increase substantially over the coming years. This will increase the pressure on our networks even further. Up to 2030 under central forecasts, road traffic is forecast to increase by 30%, rail journeys by 40%, while rail freight has the potential to nearly double. Without action, congestion and overcrowding will constrain the economy and reduce the quality of life. […]

In their current state, without development, the national networks will act as a constraint to sustainable economic growth, quality of life and wider environmental objectives. The Government has therefore concluded that there is a compelling need for development of the national networks. The Examining Authority and the Secretary of State should therefore start its assessment of applications for infrastructure covered by this NPS on that basis".

4.4 The following policy and evidence documents are of relevance to SRFIs in general and East Midlands Intermodal Park in particular:

Table 1 Summary of Policy Documents

Document	Summary of Content
National Planning Policy Framework (March 2012)	• Recognises the link between transport policy and climate change and provides new encouragement for developments which support reductions in greenhouse gas emissions, reduce congestion, and form a pattern of development which facilitates the use of sustainable modes of transport; • In terms of freight, seeks to protect and exploit opportunities for sustainable transport infrastructure. Development generating substantial freight movements should be located in areas where the need to travel will be minimised and the use of sustainable transport modes can be maximised. In the same way, developments should be located to accommodate the efficient delivery of goods and supplies; • Requires the identification and protection of sites which could be critical in developing infrastructure to widen transport choice.

Document	Summary of Content
	Furthermore, local planning policies should recognise and seek to address potential barriers to investment, including any lack of infrastructure, and set criteria or identify strategic sites to meet anticipated needs over the plan period; • Identifies the commercial aspect of sustainable development, including the importance of paying careful attention to viability and deliverability; • Gives increased importance to securing economic growth through the planning process. The weight to be placed in the planning process on the identified need to support economic growth through the planning system is "significant"; • Requires local planning authorities to set out a clear economic vision which positively and proactively encourages sustainable economic growth; set criteria (or identify strategic sites) to meet anticipated needs; and identify priority areas for infrastructure provision. This is in the context of a planning system which should do "everything it can" to support sustainable economic growth.
Strategic Rail Freight Interchange Policy Guidance (November 2011) and draft National Policy Statement for National Networks (December 2013)	• Provides the current framework for decision making on SRFIs and itemise the main objectives of Government policy, which are to reduce road congestion and carbon emissions; to develop a network of SRFIs in appropriate locations to serve our major conurbations; and to support growth and create new employment opportunities; • Sets out the Government's vision and policy for the future development of NSIPs on the national road and rail networks and provide guidance for promoters of NSIPs and the basis for decisions by the Secretary of State; • Confirms that the Secretary of State should start their assessment of applications on the basis of the compelling need for new SRFIs; • Confirms that a network of SRFIs is needed across the regions, to serve regional, sub regional and cross-regional markets and that the number of locations suitable as SRFIs in order to accommodate Network Rail's forecasts will be limited; • Strengthens the national policy support for new SRFIs in principle by classifying the need for further SRFIs as "compelling"; • Recognises the role of the commercial logistics market. It is for the private sector to identify potential sites in order to deliver the network of SRFIs and developers will ensure that SRFIs are well located relative to the markets they will serve; • Takes account of viability of SRFIs, including in the context of Government investment in the strategic rail freight network and HS2.
Freight Market Study (October 2013) prepared by Network Rail	• Forms a key input to route planning and investment decision making over the next thirty years; • Brings together all of the medium and long term plans for the development of each route (including Route Utilisation Strategies, renewal plans, development of major projects and re-signalling programmes); • Provides robust forecasts of growth in intermodal traffic, which have been adopted by the Government; • Makes the assumption that new SRFI developments will be

Document	Summary of Content
	provided within the East Midlands over the study period to 2043.
Strategic Distribution Site Assessment Study for the Three Cities Area (May 2010) prepared by AECOM on behalf of the East Midlands Development Agency, Local Authorities and Network Rail	• Concludes that the Derby/Nottingham/Leicester area is currently poorly served by rail freight terminals; • Shortlists four broad locations as having the potential to accommodate SRFIs. The East Midlands Intermodal Park is one of the identified broad locations; • Provides analysis of the East Midlands Intermodal Park. Recommends that the Highways Agency would require access to the strategic road network to be addressed, in the context of policy, standards and viability. Notes that Network Rail have concluded that the Site should be capable of supporting east and west rail connections and 775m length sidings. Notes the ability to provide a siding to meet the requirements of Toyota, together with evidence of interest from JCB and Nestlé. Identifies the good local labour market and the potential to deliver a significant quantum of direct jobs plus construction jobs plus rail terminal staff; and jobs at Toyota would also be safeguarded. Concludes that environmental constraints on the Site (including ecological and heritage constraints) are minimal; • Identifies four markets that would be served by the East Midlands Intermodal Park, comprising movement of imports and exports by Toyota; rail servicing of the active industrial base in Derby and South Derbyshire (including Nestlé, JCB and possibly Rolls Royce); National Distribution Centres; and transport of international and domestic containers and swapbodies.
Strategic Economic Plan (March 2014) prepared by D2N2 Local Enterprise Partnership	• Supports competition, growth, innovation and exports from iconic D2N2 businesses (like Rolls-Royce, Alliance Boots, Toyota, Speedo, British Sugar, Thorntons, Capital One and Bombardier) and also SMEs; • Incorporates the vision of a more prosperous, better connected and increasingly competitive and resilient economy; • Targets the creation of an additional 55,000 private sector employee jobs in D2N2 by 2033, including a shift in the balance towards more private sector jobs; • Recognises Derby as the leading city in the UK for transport manufacturing and engineering and its position at the heart of the UK's road and rail network, with emerging SRFI proposals having the potential to deliver large scale economic benefits; • Highlights that investment in strategic road and rail freight corridors will significantly improve capacity and reliability for freight movements to key ports.
Derby Housing Market Area Employment Land Review (March 2008) prepared by BE Group on behalf of Derby City Council, South Derbyshire District Council and Amber Valley Borough Council	• Involves joint working on the strategies for the Derby Housing Market area, given the functional relationships (especially housing markets and travel to work patterns) across the area; • Considers broad need for new employment floorspace and general market demand; • Acknowledges that the Housing Market Area has been identified as one of very few locations capable of accommodating new rail connected strategic distribution sites; • Notes that South Derbyshire District has seen strong demand from the logistics sector as a result of the A50 and A38 road linkages; • Identifies Toyota as a "key business" with a modern purpose built facility in an "excellent location" and also that the Local

Document	Summary of Content
	Plan includes the objective of realising the opportunities afforded by Toyota.
Draft South Derbyshire Local Plan Part 1 (March 2014)	• Sets out the detailed criteria which have been developed by SDDC in relation to the development of a SRFI. The criteria (Policy INF3) include references to rail access arrangements, vehicular access arrangements and a range of environmental issues; • Acknowledges the Strategic Distribution Site Assessment Study for the Three Cities Sub Area as a critical assessment of the relative merits of potential sites; • Seeks to minimise the need to travel and to encourage modal shift away from road based freight towards rail freight.

5.0 EIA STRATEGY

5.1 A scoping exercise has been carried out in order to determine the likely significant effects on the environment that may arise from the proposed development. This process has informed the scoping of technical disciplines to identify any likely significant effects on the environment to be addressed as part of the EIA process.

5.2 The information presented in the ES will be provided in accordance with Schedule 4 of the EIA Regulations and will include:

- A description of the proposed development;
- An outline of the main alternatives studied;
- A description of the aspects of the environment likely to be significantly affected by the proposed development;
- A description of the likely significant effects of the proposed development on the environment;
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment;
- A non-technical summary; and
- An indication of any difficulties encountered by the applicant in compiling the required information.

5.3 The introductory chapters of the ES will provide the following information:

- An introduction to the ES in a legislative and Site specific context;
- Description of the Site and proposals;
- Alternatives considered and project design evolution;
- EIA methodology;
- Construction methodology and programme;
- Details and findings of stakeholder engagement;
- ES structure; and
- EIA project team.

5.4 The geographical coverage of the EIA will be determined by a number of factors including:

- The physical extent of work;
- The nature of the baseline environment, including the location of sensitive receptors;
- The distance over which effects will be significant; and

- The presence and type of pathways along which impacts may be spread.

5.5 Table 2 provides a summary of the scoping exercise carried out, which gives a preliminary view of whether likely significant effects are anticipated for the construction and operational phases of development and the topics proposed to be the subject of ES chapters.

Table 2 Environmental Statement Scoping Summary

	Potential Construction Phase Effects	Potential Operational Phase Effects	ES Chapter	Comments
Noise & Vibration	✓	✓	✓	Chapter to be prepared.
Landscape & Visual Issues	✓	✓	✓	Chapter to be prepared.
Air Quality	✓	✓	✓	Chapter to be prepared.
Cultural Heritage	✓	✓	✓	Chapter to be prepared.
Ecology	✓	✓	✓	Chapter to be prepared.
Agricultural Circumstances	✓	✓	✓	Chapter to be prepared.
Ground Conditions	✓	✓	✓	Chapter to be prepared.
Water Resources and Flood Risk	✓	✓	✓	Chapter to be prepared.
Socio-Economic Issues	✓	✓	✓	Chapter to be prepared.
Wind Microclimate	x	x	x	Due to the low-rise nature of proposed buildings likely significant wind effects are not anticipated.
Transport & Traffic	✓	✓	✓	Chapter to be prepared.
Daylight, Sunlight and Overshadowing	x	x	x	No sensitive land uses are immediately adjacent to areas of the Site proposed to be developed with buildings. No likely significant effects expected.
Exterior lighting	✓	✓	✓	Chapter to be prepared.
Solar Glare	x	x	x	The proposals are not anticipated to be designed of a material that would

	Potential Construction Phase Effects	Potential Operational Phase Effects	ES Chapter	Comments
				generate solar glare or affect drivers' vision.
Electronic Interference	x	x	x	The proposals are not anticipated to be of a size to give rise to electronic interference.
Waste	✓	✓	x	Minimal construction waste expected. Operational phase waste to be managed in accordance with the council's waste management systems. No likely significant effects expected.

Baseline Position

5.6 Baseline environmental surveys are being progressed for the Site. Table 3 summarises their progress. In line with the Planning Inspectorate's Advice Note 7, the results of desktop studies and baseline studies have been included within this Scoping Report, and referenced within each relevant section of this report.

Table 3 Baseline Surveys

Survey	Status
Extended Phase 1 Habitat Survey	Partially Complete
Great Crested Newt Survey	Complete
Breeding Bird Survey	Partially Complete
Bat Survey	Partially Complete
Reptile Survey	Partially Complete
Badger Survey	Partially Complete
Water Vole Survey	Complete
Wintering Birds Survey	Complete
Arboricultural Survey	Complete
Baseline Historic Environment Assessment (including photographic survey and geophysical survey)	Partially Complete
Noise Surveys	Partially Complete
Air Quality Surveys	Partially Complete
Monitoring of Water Courses	Partially Complete
Ground Investigation (including boreholes, trial pits and	Complete

Survey	Status
monitoring wells, and geotechnical and chemical analysis of recovered soil and water samples) Gas & Groundwater Monitoring	

Environmental Disciplines Scoped out

5.7 It is considered that the following disciplines will not give rise to likely significant effects on the environment and would therefore not require inclusion in the ES. An explanation for each discipline is given below.

Daylight, Sunlight & Overshadowing

5.8 There are no residential buildings or other sensitive uses close enough to those areas of the Site proposed for built development such that built massing on the Site could cause changes to daylight or sunlight availability or cause overshadowing of amenity space. It is therefore proposed to scope this discipline out of the EIA.

Solar Glare

5.9 The proposed development would not be constructed of highly reflective materials, and therefore there will be no solar glare effects.

Electronic Interference

5.10 It is considered that the assessment of effects on telecommunications can be scoped out of the EIA as the proposed development is not high-rise and therefore unlikely to cause electronic interference.

Wind (Microclimate)

5.11 The proposals would not be of a sufficient height, mass or density to lead to likely significant effects with respect to wind microclimate. It is therefore considered that wind can be scoped out of the EIA.

Waste

5.12 Minimal construction waste is anticipated as a result of the proposed development. Furthermore, operational phase waste would be managed in accordance with the requirements of SDDC. No likely significant effects are therefore expected.

Cumulative Impact Assessment

5.13 The ES will consider the potential for likely significant effects on the environment resulting from committed developments in the area. These will include:

- Existing completed projects;
- Approved but uncompleted projects;
- Plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
- Plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the proposed development and for which sufficient information is available to assess the likelihood of cumulative effects.

5.14 An extensive list of committed developments has been prepared, in discussion with the Highways Agency, SDDC, Derby City Council and Derbyshire County Council. The full list is provided at Appendix 6. Such committed development will be taken into account in the preparation of the DCO application for the proposed development and is already been used in order to inform the modelling and assessment of the effects of the proposed development on the transport network.

5.15 It is noted that the National Infrastructure Planning website references an emerging proposal by Roxhill (Kegworth) Ltd and Charles Henry Curzo known as the East Midlands Gateway Rail Freight Interchange. The proposal comprises rail access and reception sidings; an intermodal facility; and approximately 6 million sqft of warehouse floorspace and a DCO application is expected this year. The ES will consider the potential for cumulative effects associated this emerging proposal.

Consultation

5.16 The following statutory and other consultees should be consulted through the EIA scoping process:

- National Infrastructure Directorate of the Planning Inspectorate;
- Environment Agency;
- Natural England;
- English Heritage;
- Highways Agency; and
- Derbyshire County Council.

5.17 Other stakeholders may be nominated by the Planning Inspectorate.

5.18 As stated above, a Statement of Community Consultation (SoCC) will be prepared as part of the pre application stage of the DCO process. Non-statutory consultation has been carried out between May and July 2014 and statutory consultation is expected to take place in Autumn 2014. This will be summarised in the ES and written up in full in a report submitted in support of the application for the DCO.

Methodology

5.19 The EIA will assess the construction and operational phases of the proposed development.

5.20 The ES is anticipated to comprise three or more volumes, the first of which will set out the findings with respect to each of the environmental disciplines that have been examined as part of the EIA. Other volumes will include all the supporting documents and technical appendices relating to the chapters, including the Transport Assessment. A Non-Technical Summary will be produced and form a standalone document.

5.21 Each ES chapter will follow the headings set out below to ensure the final document is transparent, consistent and accessible.

- Introduction;
- Legislative and Policy Context;
- Assessment Methodology and Significance Criteria;
- Baseline Conditions;
- Likely Significant Effects;
- Mitigation Measures;
- Residual Effects;
- Cumulative Effects; and
- Summary.

5.22 Each chapter sub-heading is explained in further detail below.

Introduction

5.23 This section will introduce the assessment discipline and the purpose for which it is being undertaken.

Legislative and Policy Context

5.24 This section will include a summary of national, regional and local policies of relevance to the environmental discipline and assessment. Where applicable, relevant legislation will also be summarised.

Assessment Methodology & Significance Criteria

5.25 This section will provide an explanation of methods used in undertaking the technical study with reference to published standards, guidelines and best practice. The application of significance criteria will also be discussed.

5.26 It will also outline any difficulties encountered in compiling the required information.

Baseline Conditions

5.27 This will include a description of the environment as it is (2014) and as it is expected to change given the project were not to proceed (i.e. the 'do-nothing' scenario). The method used to obtain baseline information will be clearly identified. Baseline data will be collected in such a way that the importance of the particular subject area to be affected can be placed in its context and surroundings so that the effects of the proposed changes can be predicted.

Likely Significant Effects

5.28 This section will identify the likely significant effects on the environment resulting from the construction and operational phases of the proposed development.

5.29 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the effects can be positive or negative. The criteria to be used in carrying out this process are detailed below.

5.30 Some technical disciplines will use bespoke criteria in accordance with published guidance. This will be explained where necessary.

Prediction of Impact Magnitude

5.31 The methodology for determining the scale or magnitude of impact is set out below.

Table 4 Methodology for Assessing Magnitude

Magnitude of Impact	Criteria for assessing impact
Major	Total loss or major/substantial alteration to key elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Minor	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

5.32 The sensitivity of a receptor is based on the relative importance of the receptor using the scale set out below.

Table 5 Methodology for Determining Sensitivity

Sensitivity	Examples of receptor
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or local importance.

Assessment of Effect Significance

5.33 Effect significance will be calculated using the matrix in Table 6. This illustrates the interaction between impact magnitude and receptor sensitivity.

Table 6 Effect Significance Matrix

Magnitude	Sensitivity		
	High	**Moderate**	**Low**
Major	Major Adverse/Beneficial	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial
Moderate	Major - Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial
Minor	Moderate - Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

Mitigation Measures

5.34 Adverse effects will be considered for mitigation and specific mitigation measures put forward, where practicable. Mitigation measures considered may include modification of the proposed development, compensation and the provision of alternative solutions (including alternative technology) as well as pollution control, where appropriate.

5.35 The extent of the mitigation measures and how these will be effective will be discussed. Where the effectiveness is uncertain or depends upon assumptions about operating procedures, data will be introduced to justify the acceptance of these assumptions.

5.36 Clear details of when and how the mitigation measures will be carried out will be given. When certainty of impact magnitude and/or effectiveness of mitigation over time exists, monitoring programmes will be proposed to enable subsequent adjustment of mitigation measures, as necessary.

5.37 The opportunity for enhancement measures will also be considered, where appropriate.

Residual Effects

5.38 The residual effects, i.e. the effects of the proposed development assuming implementation of proposed mitigation, will be determined. The residual effects represent the overall likely significant effect of the development on the environment having taken account of practicable/available mitigation measures.

Cumulative Effects

5.39 The cumulative effects of the proposed development and the identified committed developments will be assessed.

6.0 ENVIRONMENTAL STATEMENT SCOPE

6.1 The first five chapters of the ES would be introductory and provide essential information for the subsequent technical chapters. Their proposed content is set out below.

Introduction

6.2 This chapter will provide background to the Applicant, the Site and the proposed development, will describe the structure of the ES and identify the project team.

EIA Methodology

6.3 This chapter will set out the generic methodology used in the EIA, state the assumptions applicable to all disciplines, summarise the EIA scoping process undertaken and summarise the public consultation process. Bespoke methodologies, limitations and assumptions will be contained in the technical chapters of the ES where required.

Site & Development Description

6.4 This chapter will describe the application for the DCO and all elements of the proposed development and infrastructure. The Parameter Plans forming the basis of the DCO application will be described and the Parameter Plans will be included as figures. A summary of the energy strategy and sustainability credentials of the proposed development would be contained in this chapter.

Alternatives & Design Evolution

6.5 This chapter would describe the evolution of the proposed development based on environmental, policy and commercial constraints. It would describe any alternatives considered during evolution of the proposals.

Construction Methodology & Programme

6.6 This chapter will outline the anticipated construction programme, phasing and methodology and explain the assumptions made. This chapter will form the basis of the construction phase assumptions documented in each of the technical chapters of the ES.

6.7 The followings sections of this report describe the detailed scope and methodology proposed for each technical chapter of the ES. As stated previously relevant baseline information is included in accordance with guidance.

7.0 SOCIO-ECONOMIC ISSUES

Introduction

7.1 An assessment will be undertaken of the likely significant effects of the proposed development on the environment with respect to socio-economic issues.

7.2 The scope of assessment will include:

- The anticipated employment generation during the construction phase;
- The quantum of direct and indirect employment opportunities generated during the operational phase;
- The housing demand with increase in employment opportunities from the proposed development; and
- The indirect effects of local expenditure from the proposed development including likely supply chain multiplier effects.

Approach

7.3 This assessment will be undertaken using the following methodology:

- A policy review to provide an outline of the relevant national, regional and local, social and economic objectives for the area;
- Identification and extent of the study area for the assessment of the proposed development;
- A desk-top review of all publicly available information on current socio-economic and labour market conditions in the study area to establish the baseline, using information collated for the Economic Benefits Statement to be submitted as a standalone document in support of the DCO application;
- Assessment of the likely significant direct and indirect socio-economic effects of the Development during the construction and operational phases;
- Recommendation of mitigation and enhancement measures where necessary; and
- Assessment of the significance of residual effects assuming that the mitigation and enhancement measures are implemented.

7.4 Qualitative and quantitative assessments will be undertaken using assessment methodologies from published guidance and professional judgment. The methodology for assessing each topic is described in further detail below.

Direct Construction Employment Methodology

7.5 The volume of employment is a direct function of the scale and type of construction project being undertaken, which in turn is reflected in the overall capital construction costs. A calculation based upon Annual Business Survey (ABS) construction sector data will be made to estimate the likely amount of construction employment.

7.6 The average amount of construction expenditure required to support a construction job for a year will be derived from the ABS's data divided by the number of construction workers for that year within the UK.

Direct Operational Employment Methodology

7.7 The number of direct employment opportunities created by the proposed development will be calculated using Office of Project & Programme Advice & Training (OffPAT) and the Homes & Communities Agency (HCA) employment densities guidance, which was produced in conjunction with Drivers Jonas Deloitte in 2010.

7.8 Due to the flexible nature of uses proposed and unknown nature of the businesses occupying the proposed development in the future, two scenarios will be assessed: the worst case and best case. For the best case, it will be assumed that the land use(s) that would generate the highest number of jobs per square metre would completely occupy the relevant development zones up to the maximum floorspace proposed by the parameter plans. For the worst case, it will be assumed that the land use(s) that would generate the least jobs would completely occupy those zones.

Construction and Operational Phase Expenditure

7.9 The baseline level of expenditure per person will be determined through reference to Experian Retail Expenditure data and will be provided for both convenience (largely comprising locally available food, drink, tobacco, newspapers and non-durable household goods) and comparison (all other retail goods) spend. The additional retail expenditure likely to be generated by the proposed development and any cumulative schemes will be based on the same Experian data.

Indirect Effects

7.10 No specific quantitative socio-economic assessment methodology exists, and as such a quantitative analysis of the potential economic benefits will be undertaken using the Additionality Guide, a standard method of assessing the effects of projects published by English Partnerships. Additionality is considered to be the difference between the reference case position (what would happen without the proposed development) and the position if the proposed development was implemented.

7.11 The English Partnerships guidance recommends accounting for the following factors when assessing additionality:

- Leakage: The number or proportion of outputs (in this case jobs created) that benefit those outside the project's target area;
- Displacement: The number or proportion of project outputs (jobs) accounted for by reduced outputs elsewhere in the target area; and
- Economic Multiplier Effects: Further economic activity (jobs) associated with additional local income, local supplier purchases and longer term development effects that should be accounted for within project's benefits.

7.12 The level of employment produced is likely to be subject to elements of 'leakage' (referring in this instance to the number of jobs likely to be taken up by people outside the Borough; levels of 'displacement' (the level of employment likely to be lost, moved or adversely affected by the employment created as a result of the proposed development) and 'composite multiplier effects' (the additional economic benefit that will be derived as a direct result of the income earned by the new employment and as an indirect result of the supply chain linkages).

Significance Criteria

7.13 The significance criteria set out earlier in this report will be applied based on professional judgment to provide the likely nature and significance of effects.

Baseline Conditions

7.14 An initial desk stop study has been undertaken to assess the baseline conditions of the Site, which can be found at Appendix 7. Information has been obtained from the following sources:

- Office for National Statistics (ONS);
- Office Labour Market Statistics (NOMIS);
- Valuation Office Agency (VOG);
- Derbyshire Economic Review (December 2013);
- Public Health England (for education statistics);
- South Derbyshire Economic Development Strategy 2008-2012; and
- SDDC Employment Land Review 2007.

7.15 The desktop study defines the study area of the Site which falls within the administrative boundary of South Derbyshire (SD) in the Etwall ward. Most of the significant socio-economic effects will therefore be felt within this area. However, due to the size of the proposed development, travel to work patterns and the proximity to strategic road and rail linkages, some effects will be felt over a wider area. Also, as indicated earlier in this report, the Toyota European Production Centre is located within the Etwall ward and is likely to influence employment statistics which will not be representative of the wider region.

7.16 The desktop study shows that a large proportion (39%) of the labour market for SD resides within the same area, however, there 61% of the labour market still commutes from surrounding boroughs, primarily from East Staffordshire, Derby and North West Leicestershire. Using this information and other data sources, such as travel to work data, and based on the location of the Site between Derby and Burton upon Trent, a study area has been derived comprising the local authority areas of SD, Derby City (DC) and East Staffordshire (ES). This larger study area will be used when assessing the labour force factors of the proposed development.

7.17 Other baseline assessments will be appropriately undertaken at a local level of SD and the Etwall ward where appropriate to understand local conditions.

7.18 In addition to this, due to the scale and nature of the proposed development as a regional and national distribution centre, further wider impacts will be felt across the region (East Midlands) and nationally across England. Throughout the assessment definitions will be made clear as to which geographical area is being studied.

7.19 To summarise, SD and the study area are characterised by an above average industrial scene with a higher proportion of low skilled workers than high skilled workers which is reflected in the low local qualifications. Industry in the area demands a larger population of low skilled workers however there is still a need for managerial and professional workers.

7.20 SD is dominated by manufacturing and transport & storage industries with some head office locations whilst there is relatively less employment and fewer businesses units in retail, information and financial sectors. There is a higher percentage of jobs seekers in the study area looking to work within elementary occupations. Deprivation is low in the local area.

7.21 Further detailed information is located in Appendix 7 of this report.

Scoping

7.22 Table 7 summarises the socio-economic topics to be included ('scoped in') for detailed assessment in the ES.

Table 7: Socio Economic Effects

Effect	Topic	Scoped In
Increase in short term construction employment and long-term operational employment	Employment	√
Increase in local expenditure and investment due to construction workforce spending and an increase in occupational expenditure	Employment	√
The housing demand with increase in employment opportunities from the Development	Housing	√

8.0 LANDSCAPE & VISUAL

Introduction

8.1 This chapter of the ES will assess the likely significant effects of the proposed development in terms of Landscape and Visual Impact Amenity. It will consider, in landscape and visual terms, the suitability of the Site to accommodate the proposed development against the identified constraints and opportunities.

8.2 The scope of the Landscape and Visual Assessment (LVIA) is to:

- Review the Site location in relation to statutory and planning policy context;
- Assess the landscape character of the Site, its surroundings and context in the wider landscape;
- Predict the landscape effects of the proposed development and assess the significance of the landscape effects;
- Assess the visual amenity of the Site and its surroundings. Predict the visual effects of the proposed development from representative viewpoints / sensitive locations and access the significance of the visual effects;
- Consider cumulative effects of this and other recent and proposed developments in the vicinity; and
- Consider landscape and visual mitigation measures (landscape design) to inform an iterative design process to promote the sympathetic integration of the proposed development into the surrounding landscape.

Approach

8.3 The LVIA will be carried out with reference to the Guidelines for Landscape and Visual Impact Assessment Third edition (GLVIA3), published in 2013 by the Landscape Institute and the Institute of Environmental Management and Assessment. The Landscape Character Assessment Guidance for England and Scotland published in 2002 by the Countryside Agency and Scottish Natural Heritage will also be used in the preparation of the assessment.

8.4 The study area for the assessment has been determined through a combination of desktop analysis of topographical data and subsequent Site visits to pinpoint potential landscape and visual receptors. The extent of these identified receptors has defined the extent of the proposed study area.

8.5 The landscape designations within the defined study area will be assessed with particular attention to the potential impacts on Conservation Areas in Etwall, Rolleston on Dove, Newton Solney, Repton and the Trent and Mersey Canal. In addition, potential impacts on Sites of Special Scientific Interest (SSSIs), Historic Parks and Gardens, Scheduled Monuments, and Local Nature Reserves will be assessed within the study area. Within the Site, Tree Preservation Orders (TPOs) will be plotted along with any listed buildings in close proximity of the Site. Impacts on the surrounding public footpaths and cycle ways will also be assessed along with analysis of local greenways and opportunities to add to these.

8.6 The assessment will describe the Site and its surrounding features, looking in particular at the surrounding villages and the impact on the traditional settlement pattern. It will also assess any potential impacts to the ridgeline to the south of the Site and the proposed development's assimilation into the regional transport corridors of the A38 and A50.

8.7 Using national and regional character guidance, the Site and immediate surroundings will be further split into smaller local character areas to allow a detailed assessment on the impact of the proposed development on the surrounding landscape.

8.8 From the initial baseline study, key sensitive viewpoints have been identified. These will be assessed in further detail including greyscale block model montages illustrating the maximum height parameters of the proposed development. An approximate zone of visual influence will also be established using topographic analysis and viewpoint surveys to determine the extent of views of the proposed development.

8.9 Information on the local context, vegetation, designations, topography, character areas and viewpoint locations can be found in the attached plans (Appendix 8) and in a summary of the baseline conditions below.

8.10 The results of this will be used to guide the landscape strategy and to identify the necessary mitigation measures required to facilitate the development. This process will feed into the masterplan to produce an illustrative landscape design taking account of factors affecting the perception and appearance of the proposed development. This will include:

- Scale and massing of structures;
- Materials and colours;
- Fencing, signage and lighting of the building and service areas, car parks and access roads;

- Earthworks;
- Structural planting and screening planting;
- Installation and establishment principles;
- Long term maintenance and management; and
- Improvements to local pedestrian and cycle links.

8.11 The landscape will be assessed, describing the changes brought about by the proposal on the existing landscape character both during and after construction. Particular attention will be paid to the cumulative effect of the proposed development and the adjacent Toyota European Production Centre and their combined impact on the traditional structure of the surrounding villages and the Trent / Dove Valley landscape.

8.12 The visual impacts will be assessed using the identified viewpoints, all of which will be taken from the public domain. The viewpoints will be photographed during both summer and winter to allow assessment of deciduous vegetation on the visibility of the Site. The greyscale block model photomontage showing the maximum parameter envelope of the development will be modelled and overlaid onto the photographs to aid with this assessment. Further to this, key viewpoints will then be developed using the illustrative master plan to identify and assess a colour palette of materials to help with the developments assimilation into the surrounding environment.

8.13 In support of the Landscape and Visual Assessment text, the following will also be produced:

- Local Context Plan;
- Designations Plan;
- Topography Plan;
- National and County Character Areas Plan;
- Local Character Areas Plans;
- Photographic Viewpoint Location Plan;
- Photographic Viewpoints including photomontages;
- Illustrative Landscape Proposals; and
- Illustrative Landscape Proposals (Cross Sections).

8.14 Also included as appendices to the ES will be the Pre-Development Tree Survey and the Tree Constraints Plan along with the 10 Year Maintenance and Management Plan.

Summary of Baseline Conditions

8.15 A brief summary of the baseline conditions has been included as part of this Scoping Report as outlined below.

Landscape Designations (See Appendix 8, Figure 2)

8.16 The relevant Landscape Designations are taken from maps and reports found on the SDDC, Derby County Council (DCC) and Natural England websites. Only those designations considered to have a direct influence on the Site or to be potentially impacted upon by the proposed development are listed.

Public Rights of Way

8.17 No public rights of way (PRoW) pass through the Site. There are however several that run to the Site boundary. To the east Willington FP9 runs from the edge of the village across the railway line towards the Site, finishing just south of the A38 / A50 junction. Along the western boundary along Egginton Road, footpaths Etwall FP10 and Egginton FP9 lead off west towards Hilton.

8.18 To the south of the Site there is a developed network of footpaths encompassing the village of Egginton. Of these Egginton FP2, 4, 5 and 21 to the north of the village are of relevance, although bands of thick mature vegetation screen much of the view to the north from here.

8.19 The towing path along the Trent and Mersey Canal (Egginton FP22, Willington FP8 and 15) provides some views across towards the Site at various points along its length. As the land rises further to the south between Repton and Newton Solney, footpaths Newton Solney FP07 & FP05 also give views back towards the Site.

National Cycle Routes

8.20 NR 54 runs along the western edge of the Site linking Derby to Burton on Trent. Further to the west NR 549 runs along a disused railway line linking Hilton to Etwall.

Greenways

8.21 There are a number of existing and proposed greenways adjacent to or near to the Site. There are two road based cycle routes that border the eastern and western boundary and an off-road greenway route following the railway line further to the west. To the southwest there is a proposed route running between Egginton and Hilton.

Conservation Areas

8.22 The Site does not sit within a conservation area, but there are numerous conservation areas within the study area. From most of these, the built form, existing vegetation and topography do not allow views across towards the Site, however there are three that do as described below.

8.23 The Trent and Mersey Canal Conservation Area was designated on 19th May 1994 and its closest point is approximately 600m from the Site. The Conservation Area connects with two other conservation areas. At its east is Shardlow, the terminal port of the canal and to the west, it connects to the Staffordshire section of the canal at Clay Mills. The canal is an important ecological corridor bordered by trees and native hedgerows. It is also an important recreational route popular with walkers, cyclists, anglers and the canal is regularly used by narrowboats. There are views across towards the Site at various points along the canal.

8.24 Repton Conservation Area was first designated as such on 17th July 1969. At its closest point it lies approximately 2.3km from the Site. The settlement evolved in association with the development of two monastic houses and was also a centre for the kingdom of Mercia. Repton is, however, best known for its association with Repton School. There are views across towards the Site from the northern edge of the Conservation Area.

8.25 Newton Solney Conservation Area was designated on 12th October 1978 and at its closest point lies approximately 2.6km from the Site. Its character is largely defined by Abraham Hoskins Parkland to the west of the village and a number of '*attention seeking',* predominantly Georgian period buildings. From the southern edge of the parkland there are some long views across towards the Site.

Scheduled Monuments

8.26 There are several scheduled monuments within the study area. Egginton Bridge is the nearest at approximately 2km from the Site. None of them have any landscape or visual relationship with the Site.

Listed Buildings

8.27 While there are numerous listed buildings located within the search area, only Willington House Farmhouse (Grade II Listed) on Etwall Road has the potential for any landscape or visual relationship with the Site.

Tree Preservation Orders (TPO)

8.28 Only TPOs within the Site boundary have been considered. There are two in total:

- TPO number 324 - This covers an area of wet woodland.
- TPO number 310 – This covers several blocks of tree planting within the Site of varying degrees of maturity.

Sites of Special Scientific Interest

8.29 Hilton Gravel Pits SSSI is located approximately 1.8km from the Site and Marston on Dove SSSI approximately 3km. Neither SSSI is deemed to have any landscape or visual relationship with the Site.

Historic Parks and Gardens

8.30 Bretby Hall is located on the ridgeline to the south of the Site at approximately 5.5km distance. Due to the timbered surroundings to the gardens Bretby Hall is not considered to have any landscape or visual relationship with the Site.

Nature Reserves

8.31 Willington Gravel Pits Nature Reserve is located approximately 1.1km from the Site. The railway line, canal and their associated vegetation along with the low-lying nature of the reserve ensure that there is no significant landscape or visual relationship with the Site.

Topography (See Appendix 8, Figure 3)

8.32 The Site gently slopes from around 62m above ordnance datum (AOD) in the north-eastern corner to around 50m AOD in the south-western corner. Along the southern boundary on Carriers Road, the land rises up to form a ridgeline that obscures views further into the Site when viewed from the road. The A38 / A50 junction and the associated earthworks also provide some screening of views into the Site.

8.33 To the north of the Site the ground rises up to small peaks of around 90m AOD before dropping away again. To the south, the land continues to fall and forms the River Dove / Trent flood plain at between 40 and 50m AOD. The Trent flood plain continues south through the centre of Burton Upon Trent. To the east and west of Burton Upon Trent the ground rises up to form a ridgeline running at between 100 and 150m AOD. From various points along this ridgeline there are long views across towards the Site.

Existing Vegetation (See Appendix 8, Figure 1 for extent of wooded area)

8.34 Within the Site much of the significant mature vegetation has been protected with a TPO. This is mainly located around the periphery of the Site, in particular along the eastern and western boundary. In addition to this, the Marlpit and Gravelpit plantations are located near to the southern edge of the Site adjacent to Carriers Road.

8.35 Within the Site, there are some smaller stands of established vegetation. In the north western corner there is a line of mature vegetation following the existing stream running through the Site. There are also some mature trees around Round House and Standpipe cottages, and adjacent to the sewage works. Hedgerows run along some of the field boundaries within the Site.

8.36 Outside of the Site to the north, much of the opposite side of the A50 has significant woodland and thicket planting forming a screen to the Toyota plant. The generous width of these bands of vegetation also screens views from the north towards the Site. To the south and west of the Site, the smaller traditional field boundaries have been retained along with much of the mature hedgerow and tree planting associated with them. This forms a multilayer screen when looking towards the Site from the adjacent villages of Egginton, Hilton and Etwall. The screening effect of these bands of vegetation is effective all year round.

8.37 To the east the Trent and Mersey Canal, along with the mainline railway, have established planting along their length. As the land rises up to the south, the general feel is that of well timbered landscape with small areas of woodland and mature planted field boundaries.

Landscape Character

National Character Area (See Appendix 8, Figure 4)

8.38 Natural England's National Character Areas (NCAs) divide England into 159 distinct natural areas. Each is defined by a unique combination of landscape, biodiversity, geo-diversity and cultural and economic activity. Their boundaries follow natural lines in the landscape. The Site lies within Character Area 69, Trent Valley Washlands.

8.39 The Trent Valley Washlands comprises the river flood plain corridor. This is often clearly delineated at its edges by higher ground, and it is largely comprised of the flat flood plains and gravel terraces of the rivers. Overall woodland cover in the Washlands is very limited, although riparian trees, especially willows, provide an important component of the landscape. While the cover is low the landscape often appears well furnished with trees. More tree cover on prominent bordering steep slopes, in and around settlements and within parklands, as well as the considerable amount of waterside trees and scrub (particularly willow) result in a well timbered character in places.

8.40 To the south-east of the Site the land rises up to form National Character Area 70 – Melbourne Parklands. This is located between the forests of Needwood and Charnwood and is a landscape of rolling farmland, ancient and plantation woodland and a cluster of landscaped parklands.

8.41 To the north of the Site National Character Area 68 – Needlewood and South Derbyshire Claylands. Though divided by the River Dove's wide flood plain, this Character Area is largely rolling plateau that slopes from the southern edge of the Peak District to the valley of the River Trent in the West.

Derbyshire County Council – Landscape Character Assessment of Derbyshire 2003 (See Appendix 8, Figure 5)

8.42 DCC published a Landscape Character Assessment of Derbyshire in 2003. This has recently been revised and adopted in May 2014. This will be analysed as part of the final baseline information. The report takes the NCAs and breaks them down into smaller more detailed areas. The Trent Valleys Washlands Character is broken down into Lowland Village Meadows, Riverside Meadows and Wet Pasture Meadows. The Site falls within the Riverside Meadows Character Area. This suggests developing occasional wet woodland areas with a proportion of large long-lived species.

8.43 The Site as a whole is consistent with DCC's Riverside Meadows Character Area. However, in order to provide a more detailed appraisal of the immediate local landscape context within which the Site is located, the landscape assessment further breaks down the Derbyshire Assessment into six distinct local character areas. These areas are summarised below and illustrated on Figure 5 in Appendix 8. The baseline sensitivity of the distinct character areas described above is summarised in Table 8 below:

Table 8 Landscape Character Baseline Summary

Baseline			
Character Area	**Landscape Assessment**		
	Character	**Value**	**Condition**
Large Arable Field Structure	Low	Low	Low
Riverside Meadows	Medium	Medium	Medium
Canalside / Railway Corridor	Medium / Low	Medium / High	Medium
Patchwork Farmland / Residential	Medium / Low	Medium	Medium
Small Arable Patchwork	Medium / Low	Medium / Low	Medium / Low
Toyota	Low	Low	Medium

8.44 In summary, the character in relation to the Site and its surroundings is very much split into a local traditional structure of a patchwork of farms, small villages and interconnecting roads and the more regional structure of the A38 and A50 along with the Toyota car plant. Much of the Site has lost its traditional field structure through its previous use activities such as quarrying or slurry spreading.

Visual

8.45 A visual appraisal has been carried out to establish the potential visibility of the Site from receptors which were selected by way of a desk top review followed by Site visits and an extensive field survey.

8.46 It was clear from the desktop and field study that any potential visual effects would be from reasonably close proximity to the east, south and west and from long distance views on the ridgeline to the south.

8.47 The selected 24 viewpoints are listed below and marked up on the accompanying viewpoint location plan (Appendix 8, Figure 6).

Table 9 Proposed viewpoints for LVIA

Viewpoint No.	Location and Direction of View	Designation
1	Looking west from Mercia Marina, Willington	None
2	Looking west from Trent and Mersey Canal south of Mercia Marina	Conservation Area
3	Looking west from pedestrian crossing on public footpath 'Willington FP9'	Conservation Area
4	Looking along public footpath 'Willington FP9' from Etwall Road	Conservation Area
5	Looking north-west from the Trent and Mersey Canal adjacent to Waterside, Willington	Conservation Area
6	Looking north-west from the Trent and Mersey Canal from back of properties on The Castle Way (A5132)	Conservation Area
7	Looking north from tow path of Trent and Mersey Canal adjacent to bridge 25	Conservation Area
8	Looking north from tow path of Trent and Mersey Canal adjacent to A38 Derby Road	Conservation Area
9	Looking north east from public footpath 'Egginton FP21'	None
10	Looking north along Ash Grove Lane adjacent to entrance to Dove Valley Angling fishing lake	None
11	Looking east along public footpath Egginton FP9	None
12	Looking south-east from public footpath 'Etwall FP10' at rear of Blakeley Lodge	None
13	Looking south-east from Egginton Road as it crosses A50	None
14	At juncture of public footpaths 'Hilton FP13', 'Egginton FP9' and 'Etwall FP10' adjacent to Etwall Brook	None
15	At juncture of National Cycle Route 540 and public footpath 'Hilton FP13' looking east	None
16	Looking east along public footpath 'Hilton FP13' from Egginton Road	None

Viewpoint No.	Location and Direction of View	Designation
17	Looking north from Newtown Road near to Bladon Castle	Conservation Area
18	Looking north from Repton Road east of Newton Solney	None
19	From public footpath 'Newton Solney FP7' on Newton Lane looking north	None
20	From public footpath 'Newton Solney FP5' on Newton Lane adjacent to Dale Farm looking north	None
21	From public footpath 'Repton 38' on Knights Lane adjacent to Hill Farm looking north	None
22	Looking north west from Wellington Road north of Repton	Conservation Area
23	View from roundabout on Bretby Lane	None
24	View from end of Monsom Lane	None

8.48 Agreement is sought on the range of views listed above to form the basis of the visual impact assessment.

Scoping

8.49 Table 10 summarises the landscape and visual effects identified for inclusion in the assessment.

Table 10 LVIA Effects

Receptor	Effects	Scoped In
Visual Effects		
Effect on visual amenity from surrounding villages	Construction, operational, and cumulative visual effects on residents	√
Effects on visual amenity on the local footpath network	Construction, operational, and cumulative visual effects on users	√
Effects on visual amenity on users of the Trent and Mersey Canal	Construction, operational, and cumulative visual effects on users	√
Effects on long views from ridgeline to the south of the Site	Construction, operational, and cumulative visual effects on users	√
Landscape Effects		
Landscape Character	Effects on local and regional landscape character areas	√

Receptor	Effects	Scoped In
Landscape features, including existing vegetation, traditional village patterns, land use and vegetation coverage	Landscape effects on the landscape resource	√

9.0 EXTERIOR LIGHTING

Introduction

9.1 An assessment will be undertaken of the likely significant effects of the proposed development on the environment with respect to exterior lighting.

9.2 The assessment will cover all the potential forms of lighting effects, as set out below.

- Glare - Visual discomfort arising from a bright light source with a dark background;
- Light Trespass - Light falling outside the target area onto a surface where it is not wanted;
- Light Presence - Visibility of lit elements (both sources and illuminated surfaces), affecting the character of the nightscape;
- Local Sky Glow - Localised glow over lit development, affecting the character of the nightscape; and
- Sky Luminance - General brightening of the night sky, impairing views of the stars on even the clearest nights.

Approach

9.3 The methodology for assessing lighting effects will be as follows:

- Determine the general baseline conditions of the surrounding area;
- Assess the general sensitivity of the area to lighting effects;
- In the absence of detailed lighting proposals, prepare a lighting strategy that is sufficient for robust assessment;
- Assess potential effects for each identified receptor, taking the baseline condition into consideration; the receptors being those identified in ES Chapter for Landscape and Visual Assessment;
- Assess local sky glow, sky luminance (degradation of views of the night sky), ecological effects and effects on other operations; and
- Consider the possibility for further mitigation.

9.4 The following guidance/published documents will be used to inform the assessment:

- Institution of Lighting Professionals (ILP) Professional Lighting Guide 04, Guidance on Undertaking Environmental Lighting Impact Assessments;

- Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light GN01:2011;
- South Derbyshire District Council Local Plan;
- National Planning Policy Framework;
- Guidance Note – Controlling Light Pollution and Reducing Energy Consumption, Scottish Executive, March 2007; and
- Lighting in the Countryside – Towards Good Practice, DoE/CC 1997 (archived).

9.5 Lighting effects can be experienced over a considerable distance and therefore they will be assessed for visual receptors both close to the Site and further afield. Other particular considerations would be effects on the railway, aircraft (Derby Airfield), ecology and road users.

9.6 The baseline conditions observed in February 2014 revealed that the Site is of an intrinsically dark nature, however, it is abutted by lit highly trafficked roads to the north and east. Other significant lit areas exist, such as the Toyota European Production Plant and Road Services to the north east. Near the horizon, sky glow can be seen over major urban areas. Sensitive receptors consist principally of the residential properties along Etwall Road and Egginton Road between the A50 overbridge and the Carriers Road/Hilton Road junction. Details of the baseline survey to identify existing night-time conditions are given in Appendix 9.

Scoping

9.7 Table 11 summarises the exterior lighting effects identified for inclusion in the assessment.

Table 11 Exterior Lighting Effects

Receptor	Effects After Dark	Scoped In
Nearby residential properties	Glare, light trespass, light presence, local sky glow	√
Residential properties further afield	Glare, light presence, local sky glow	√
Typical views after dark from publicly accessible locations, including roads, footpaths and public open spaces	Glare, light trespass, light presence, local sky glow	√
Ecological receptors within the Site and its immediate surrounds	Light trespass, light presence	√
Low flying aircraft, predominantly users	Glare, light presence	√

Receptor	Effects After Dark	Scoped In
associated with Derby Airfield		
Stoke on Trent to Derby Main Line railway	Glare, light presence	√
Road users	Glare	√
Wider Environment	Sky luminance	√

10.0 CULTURAL HERITAGE

Introduction

10.1 This chapter of the ES will assess the likely significant effects of the proposed development on the environment with respect to cultural heritage.

10.2 The historic environment comprises archaeological remains, structures, monuments or heritage landscapes within or immediately around the proposed development that are considered to be significant because of their evidential, historic, aesthetic or communal values.

10.3 This ES chapter would contain a description of the heritage planning policy context and the methods used in the assessment and would:

- Describe the baseline historic environment currently existing at the Site and in its immediate vicinity;
- Provide a statement of significance of known or possible buried heritage assets and relevant built heritage assets;
- Assess the magnitude of change (effect) of the proposed development upon the significance of known or potential buried heritage assets and built heritage assets and the resulting environmental effect;
- Identify the mitigation measures required to prevent, reduce or offset any significant adverse environmental effects; and
- Assess residual and cumulative effects.

10.4 The archaeological assessment would be in accordance with all national, regional and local planning policy and guidance including:

- National Planning Policy Framework (NPPF) Section 12: Conserving and Enhancing the Historic Environment;
- Saved Policies of the South Derbyshire Local Plan, adopted in 1998; and
- Pre Submission Draft South Derbyshire Local Plan Part 1 (March 2014).

10.5 The presence of designated areas of cultural heritage value at a national, regional or local level would be considered, such as Conservation Areas, Listed Buildings, including both those designated under the Planning (Listed Buildings and Conservation Areas) Act 1990 and the local list, Registered Historic Parks and Gardens, as registered in accordance with the National Heritage Act 1983 and World Heritage Sites.

10.6 Some significant areas of Derbyshire have been recognised as having archaeological potential. The archaeological importance, potential and history of the Site including any heritage designations within it, such as Scheduled Ancient Monuments and designated Areas of Archaeological Priority, would be established and contingencies for unknown archaeological features considered. The significance of more recent industrial remains associated with the area would be considered, including any such remains as might be visible above ground. Reference to sensitivity in the area would also be considered with regard to past development on the Site having significantly removed any archaeological potential.

10.7 Consideration would be given to whether the proposed development would be likely to affect any former burial grounds or other human remains, the disturbance of which would be regulated by statute, principally the Burial Act 1857, the Disused Burial Grounds Act(s) 1884 and 1981 and the Pastoral Measure 1983.

Approach

10.8 The methodology used to determine the significance of buried heritage assets (i.e. archaeological remains), built heritage assets, the severity of any effects upon them and the significance of residual effects would be based on that typically used in EIA. The methodology and information sources consulted during the baseline characterisation would be set out in detail within the ES chapter, but in summary would entail:

- Setting the Site into its archaeological and historical context, by collecting information on the known historic environment within an approximate 2 kilometre (km) radius study area around the centre point of the Site (i.e. including a buffer zone of c 1km around the Site), as held by the primary repositories of such information within Derbyshire. This study area has been approved by the SDDC Archaeologist. These comprise the Derbyshire Historic Environment Record, the Derbyshire Record Office and the English Heritage National Monuments Record;

- Consultation of all relevant documentary and cartographic sources, such as published histories and journals as accessible via British History Online and of Ordnance Survey Maps held by the British National Copyright Library;
- Consultation of the national collections of aerial photographs held by the national Monuments record at Swindon and Cambridge University Collection of Aerial Photography; and
- The industrial history of the area will be considered, including any above ground assets in the near vicinity, including structures associated with the Burnaston Airfield complex and the former sewage treatment works.

10.9 Evidence from all known archaeological investigations, including watching briefs, evaluations and excavations within the study area in the immediate vicinity of the Site have been considered for the assessment. This enables a robust and complete assessment of the archaeological potential of the development to be carried out as set out in the ES chapter.

10.10 Following the characterisation of the baseline conditions, the methods used to define the potential effects on cultural heritage resources (archaeology and built heritage) associated with the proposed development would be as follows:

- An evaluation of the significance of buried and built heritage assets (based on existing designations and professional judgment where assets have no formal designation);
- Prediction of the magnitude of the likely effects upon the significance of known or potential buried heritage assets;
- Determination of what mitigation measures are required during the design and construction or operational lifetime of the proposed development in order to mitigate any adverse effects;
- Quantification of any residual effects (those that might remain after mitigation); and along with the overall cumulative effect (taking into account recent development in the Site's vicinity).

10.11 The assessment would be carried out in accordance with the requirements of the NPPF and to standards specified by the Institute for Archaeologists and English Heritage.

10.12 'Significance' lies in the value of a heritage asset to this and future generations. Known and potential heritage assets within the Site and its vicinity have been identified from national and local designations, Historic Environment Record data and expert opinion. The determination of the significance of these assets is based on statutory designation and/or professional judgement against the following values:

- Evidential Value: the potential of the physical remains to yield evidence of past human activity. This might take into account date, rarity, state of preservation, diversity/complexity, contribution to published priorities, supporting documentation, collective value and comparative potential;
- Aesthetic Value: this derives from the ways in which people draw sensory and intellectual stimulation from the heritage asset, taking into account what other people have said or written;
- Historical Value: the ways in which past people, events and aspects of life can be connected through heritage asset to the present, such a connection often being illustrative or associative;
- Communal Value: this derives from the meanings of a heritage asset for the people who know about it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical, particularly associative, and aesthetic values, along with educational, social or economic values.

10.13 Determination of magnitude of change upon the significance of the known or potential heritage asset would be based on the severity of the potential physical effect (e.g. any activity that would entail ground disturbance, from activities such as piling or ground reduction).

10.14 The environmental effect would be determined by comparing the significance of baseline assets with the magnitude of change. Effects might be either adverse (negative) or beneficial (positive) and would be defined initially without mitigation. Where information is insufficient to be able to quantify either the resource significance or magnitude of change with any degree of certainty, the effect may be given as uncertain.

10.15 Following the identification of any significant effects, an appropriate mitigation strategy would aim to eliminate or reduce to an acceptable level, any adverse effect. Measures to mitigate effects would normally consist of design adjustments, to allow significant resources to be protected and retained (preservation in situ) or, where this is not feasible, investigation and recording before and during development, with dissemination at an appropriate level (preservation by record). The residual effect would reflect the expected success rating for the recommended mitigation strategy.

Baseline Conditions

10.16 The desk-based study (Historic Environment Assessment, Appendix 10) assesses the impact on buried heritage assets (archaeological remains). A separate Museum of London Archaeology (MOLA) report assesses the above ground (built) heritage assets within the Site (Appendix 11), which include a Second World War pillbox associated with former RAF Burnaston airfield in the northern part of the Site.

10.17 The HEA incorporates the findings of the recent MOLA geophysical survey (Appendix 11) covering 109 hectares of the Site. The geophysical survey found only limited evidence of archaeological assets to be preserved. Faint traces of medieval strip cultivation is preserved in parts of the Site, particularly in the south eastern part of the Site.

10.18 All the known areas of made ground and quarrying, as confirmed through cartographic regression and by a 2014 geotechnical report by Applied Geology (Appendix 12), have been subject to intensive ground disturbing operations that have either truncated the buried archaeological resource or masked it beneath deep deposits of imported or redeposited overburden.

10.19 The Historic Environment Assessment (Appendix 10) and the Standing Buildings assessment (Appendix 13) have been summarised below.

10.20 Buried heritage assets that may be affected comprise the following:

10.21 Prehistoric burial and settlement remains, of medium or high heritage significance. The Site has a medium potential for such remains, some of which are visible in the south eastern part of the Site as cropmarks on air photographs (see Appendix 10, p.72 Fig.11). The Trent Valley has long been known to have been densely settled during prehistoric times, often for lengthy durations, from the Mesolithic onwards. The underlying Gravels are the primary source of Palaeolithic artefacts in Derbyshire, typically hand axes, of low significance.

10.22 Medieval agricultural remains of low significance. In the medieval period, the Site lay in the open fields beyond the known settlement centres. Poorly preserved remains of ridge-and-furrow ploughing which have been recorded through geophysical survey (see Appendix 11 P.24 fig 12) survive predominantly in the south eastern area of the Site.

10.23 Roman agricultural remains, of low or medium significance. The A38 road, which forms the eastern boundary of the Site, follows the line of a major Roman road. Whilst settlement close to road is possible, there is currently no evidence for it within the Site. Remains of settlement, if present, would be of higher significance.

10.24 Post-medieval remains, of unknown significance. The Site is located outside the main settlement areas and was open fields with some quarrying until the construction of sewage works in the western part of the Site in the late 19th century. Remains associated with the works, agriculture and quarrying would be of low or negligible significance. Evidence for the English Civil War Battle of Eggington Heath of 1644, part of which may have taken place on the Site, would be of low significance, possibly higher for artefact concentrations.

10.25 Post-medieval and modern quarrying and activities connected with the sewage works are likely to have removed any archaeological remains over slightly more than a third of the Site.

10.26 Preliminary topsoil removal across the Site, followed by ground disturbance from landscaping, construction activities, planting and new service and drainage would partially or completely remove any archaeological remains present, across an extensive area.

10.27 In the light of this and of the archaeological potential of the Site, further evaluation would be necessary in order to clarify the nature, extent, date and significance of any archaeological remains present. As stated above, an archaeological geophysical survey has been carried out. Further non-intrusive survey might also include fieldwalking (the surface collection of artefacts to identify areas of activity), analysis of LIDAR data and detailed low level photographic survey. The results of these surveys would inform the placement of archaeological trial trenches. Information from the evaluation would inform a mitigation strategy for any significant remains. This might include strip-map-and-sampling recording during topsoil removal, with targeted open area excavation in areas where significant features have been identified. Any such work would need to be carried out in consultation with the County Archaeological Officer and in accordance with an approved Written Scheme of Investigation (WSI).

10.28 The built heritage assets are the World War II 'mushroom' pillbox and a brick built octagonal structure which once housed valves controlling the flow of sewage into the settling ponds.

10.29 These structures will be the subject of archaeological building recording to the appropriate English Heritage Building Survey guidelines (English Heritage 2006 Understanding Historic Buildings, a guide to good recording practice), as agreed with the SDCC Archaeologist.

Scoping

10.30 Table 12 summarises the cultural heritage effects identified for inclusion in the assessment.

10.31 A preliminary consultation response has been received from English Heritage. This highlights in particular the nearby listed buildings and the need to consider impacts on their settings.

Table 12 Cultural Heritage Effects

Receptor	Effects	Scoped In
Any designated buried heritage assets within the Site or its immediate vicinity, such as nationally designated Scheduled Ancient Monuments, or locally designated Areas of Archaeological Priority.	Constructional, operational, residual and cumulative effects on any designated buried heritage assets and their settings.	√
Any undesignated buried heritage assets within the Site or its immediate vicinity, such as remains identified by the Derbyshire historic Environment Record, or national collections of archaeological aerial photographs.	Constructional, operational, residual and cumulative effects on any designated buried heritage assets and their settings.	√

11.0 TRAFFIC & TRANSPORTATION

Introduction

11.1 An assessment will be undertaken of the likely significant effects of the proposed development on the environment with respect to traffic and transportation.

11.2 The application will include a full Transport Assessment (TA) of the development proposals. The assessment of the transport impact shall conform to current practice in that a compliant TA and Travel Plan (TP) will be produced in accordance with Guidance on Transport Assessment as published by the Department for Transport (DfT) (March 2007) and the criteria set down in DTLR Circular 02/13. The results of the TA will be summarised in this chapter of the ES.

Approach

11.3 In line with the requirements for the preparation of the TA, all related transport issues will be assessed including:

- Impact of traffic related highway impacts on all road users;
- Site accessibility for staff; and
- Impact on rail network including issues relating to increased rail usage; impact on level crossing and on existing timetabling on the network.

11.4 In so far as it related to highway matters, the detailed scope of the TA is subject to ongoing discussions with the highway authorities (Derbyshire County Council, Derby City Council and Highways Agency). It is intended that the Derby Area model will be used to assess the development which includes consideration over a wide area. Geographically, the traffic assessment is likely to include routes on the A38 and A50. The extent of the area assessed will be further refined as the assessment progresses.

11.5 This ES chapter will consider existing conditions in terms of traffic flows and conditions rail network; highway safety; pedestrian and cycle facilities and public transport access. It will also consider the relevant location of local facilities including employment, education, retail and leisure.

11.6 The TA will describe access arrangements and demonstrate that this complies with relevant standards and will adequately accommodate the traffic from the proposed development.

11.7 The approach to determining the significance of identified impacts that has been followed in this assessment will have regard to the guidance given in the Design Manual for Roads and Bridges (DMRB) HA205/081 in terms of defining the measure of magnitude and significance of impact.

11.8 Reference will be made to the other appropriate background documents, in particular, the 'Environmental Assessment: Good Practice Guide' and the 'The Guidelines for the Environmental Assessment of Road Traffic' published by IEMA. This will also cross refer to other chapters of the ES which deal with topics including the effects on people of traffic-related noise and vibration, on people of changes in air quality related to traffic increase, on the visual changes due to the proposed development, on ecology and nature conservation, on archaeology, and on the water environment (i.e. drainage).

11.9 The traffic impacts of the proposals will consider two cases: construction traffic and operational development traffic. Consideration will also be given to the phasing of the construction process and any resultant impact in terms of construction traffic.

11.10 The impact of the development will therefore be fully considered. The ES will identify any necessary mitigation measures, such as highway improvements, off-site mitigation measures, walking/cycling and public transport measures and a staff travel plan.

11.11 In the context of the environmental assessment, and in accordance with the Institute of Environmental Management & Assessment (IEMA) document "Guidelines for the Environmental Assessment of Road Traffic (Guidance Note 1)" the following rules-of-thumb are applied to delimit the scale and extent of the assessment:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- Rule 2: include any other sensitive areas where traffic flows have increased by 10% or more.

11.12 In addition to this, the IEMA document details the recommended list of environmental impacts which could be considered as potentially significant whenever a new development or modifications to an existing operation are likely to give rise to changes in traffic flows:

[1] Department for Transport (2008) *Design Manual for Roads and Bridges (DMRB) Vol II Section 2 Part 5 HA205/08 – Determining Significance of Environment Effects*

- severance;
- driver delay;
- pedestrian delay and amenity;
- accidents and safety;
- hazardous loads; and
- fear and intimidation.

11.13 Ongoing discussions are being held with the three Highway Authorities and a Transport Working Group has been established to inform these discussions. Details of the outcome of these meetings will be provided as part of the ES and TA. To date agreement has been reached on the approach to modelling, the proposed traffic generation of the Site, the requirements in terms of travel planning and the approach to be adopted in terms of assessing the cumulative impacts on the network.

Baseline Conditions

11.14 In relation to baseline conditions, the transport chapter will explain the existing layout and configuration of the highway, public transport and non – cart network in the vicinity of the Site. It will further report on existing traffic flows (road and rail) on those networks.

11.15 The Site adjoins the existing strategic trunk road network (A38/A50) together with the existing strategic freight network (Stoke on Trent to Derby Main Line). The boundaries of the Site are defined by existing roads, comprising the A50 (to the north), the A38 Burton Road (to the east), the A5132 Carriers Road (to the south) and Egginton Road/Etwall Road (to the west).

11.16 Existing public transport in the area is limited to longer distance services and express routes between major settlements.

11.17 The local network in terms of footpaths and cycleways are as described above.

11.18 At present traffic surveys have been undertaken of the Burnaston Interchange and flows on the A38 / A50 collected from the HA databases. At present the A50 carries around 50,000 vehicles per day of which nearly 9,000 are HGV movements.

Scoping

11.19 Table 13 summarises the traffic and transportation effects identified for inclusion in the assessment.

Table 13 Traffic & Transportation Effects

Receptor	Effects	Scoped In
Local highway network	Potential for increased multi-modal trip generation during both construction and operation.	√
A38/A50 trunk roads	Potential for increased multi-modal trip generation during both construction and operation.	√
Local footways and crossing points	Potential for increased pedestrian activity during operation	√
Local roads / cycleways and crossing points	Potential for increased cyclist activity during operation	√
Public transport	Potential for increased uptake of existing bus and rail services.	√
Impact on existing passenger rail services.	Potential for increased uptake of passenger rail services. [Freight services from EMIP will be scheduled by Network Rail to avoid disrupting passenger rail services.]	√
Level Crossings	Potential for increased level crossing activations during both construction and operation.	√

12.0 NOISE & VIBRATION

Introduction

12.1 An assessment would be undertaken of the likely significant effects of the proposed development on the environment with respect to noise and vibration.

12.2 The ES will include an assessment of the effect of noise and vibration on sensitive receptors, both during the daytime (0700 – 2300 hours) and night time (2300 – 0700 hrs) periods at the nearby noise sensitive properties including surrounding residential properties, community facilities (children's nursery) and Hilton Gravel Pits SSSI. It is considered that the effect of noise and vibration from following components require assessment:

- Site clearance and construction phase;
- Effect of rail vehicle movements (freight locomotives, shunter locomotives and rail cars);
- Effect of changes to road traffic; and
- Effect of on-site operational activity including noise from Rail Mounted Gantry (RMG) and/or reachstacker operation; container handling (loading from trains/trailers); trailer hitching at the warehouse units, fork lift truck activity; warehouse unit noise breakout and the movement of heavy goods vehicle and shunter lorries around the Site.

Approach

12.3 The noise and vibration assessment will be carried out having regard to national policy guidance contained within Section 123 of the NPPF, Planning Practice Guidance (PPG) 2014 and the Noise Policy Statement for England (NPSE) 2010. Local policy guidance is contained within the SDDC adopted saved local policy 'E8-New Development' and within the policies 'SD 8 –Amenity' and 'I 3-Strategic Rail Freight Interchange' of the emerging South Derbyshire Local Plan – Sept 2013.

12.4 This methodology used within the assessment will take into account appropriate guidance including the World Health Organisation (WHO) Guideline Values for Community Noise, relevant British Standards including BS 4142:1997 (measurement of industrial noise), BS 8233:2014, BS 5228:2009 (construction noise), BS 6472:1992/ BS7385:1993 (vibration), Design Manual for Road and Bridges, Volume 11, section 3, part 7 'Noise and Vibration and the effect of changes in noise level, guidance contained within the Calculation of Road Traffic Noise (CRTN) 1988 and Calculation of Rail Noise (CRN).

12.5 To establish the levels of the existing noise climate, noise surveys were carried out in April and May 2014 comprising both continuous unattended monitoring and discrete attended measurements over different time periods, weather conditions. The identification of the monitoring locations and extent of the monitoring has been agreed with the SDDC, Environmental Health department.

12.6 The extent of the baseline survey was determined following consultation with the Environmental Health Section at SDDC. It was agreed that with the exception of noise from rail movements the impacts would be localised. Appendix 14 shows the location of the following noise sensitive properties have agreed with the local authority:

- 1 – 8 Gravel Pit Cottages, Eggington Road, Etwall;
- Old Station Cottages, Etwall Road, Eggington;
- Railway Cottages, Etwall Road, Eggington;
- Park View, Etwall Road, Eggington;
- 230 Castle Way, Willingdon;
- Danes Lodge, Willingdon;
- Westmead Kennels, Willington Road, Etwall;
- Broomhill Cottages, Jacksons Lane, Etwall;
- Findern Lane, Willingdon; and
- 29 Marstons Old Lane, Hatton.

12.7 Noise source levels from on-Site activities, including RMG operations, container handling and locomotives will be determined from library data and measurements carried out at similar sites.

12.8 In order to predict the noise levels from the proposed development, an acoustic model will be prepared using the SoundPLAN© environmental and planning modelling software. SoundPLAN calculates the overall and maximum noise levels at defined receptors in accordance with relevant standards. The calculation is based on a number of input parameters, including noise source data, topography, intervening ground conditions, other buildings in the area and the impact of any screens, earth bunds around the Site.

12.9 SDDC, Environmental Health Department has been consulted in relation to the proposals. Following a meeting with the Environmental Health Manager on the 10th February 2014, the extent of the baseline survey was agreed and the brief scope of the environmental assessment. Appendix 15 details the consultation carried out with SDDC.

Baseline Conditions

12.10 The survey of existing baseline noise levels was carried out between 23 April 2014 and 28 May 2014 at the locations identified above and agreed with SDDC, Environmental Health Department. At each location monitoring was carried out for approximately 7 days, including weekdays and weekends.

12.11 At each location the L_{A90}, an indicator of underlying background noise, L_{Aeq}, the equivalent continuous noise level, an indicator of total ambient noise, and the L_{Amax}, the maximum noise level were recorded. Table 14 below is a summary of the results at each monitoring location.

Table 14 Noise Monitoring Results

Receptor	Sound Pressure Level (dB)				
	Daytime (0700 – 2300 hours)		Night time (2300 – 0700 hours)		
	$L_{Aeq16hr}$	$L_{A90,10min}$	L_{Aeq8hr}	$L_{A90,10min}$	L_{Amax}
ML1 - Gravel Pit Cottages	49 - 61	37 - 43	47 - 53	34 - 42	58
ML2 – Old Station Cottages	48 - 52	40 - 45	50	35 - 40	54
ML3 – 8 Railway Cottages	58 - 62	35 - 45	48 - 53	30 - 39	67
ML4 – Park View	50 - 54	34 - 42	52 - 54	35 - 42	61
ML5 – 230 Castle Way	70 - 72	55 - 60	64 - 67	39 - 47	76
ML6 – Danes Lodge	60 - 62	51 - 55	58 -59	44 - 47	66
ML7 – Westmead Kennels	53 - 58	36 - 45	47 - 51	31 - 42	58
ML8 – Broomhill Cottages	51 - 59	40 - 50	50 – 57	38 - 43	60

ML9 – Findern Lane	54 - 58	36 - 43	51 - 54	29 - 35	65
ML10 – 29 Marstons Old Lane	56 - 59	44 - 50	51 - 55	44 - 51	59

12.12 The existing noise levels are dominated by road traffic noise from the A50 and A38. Noise levels are affected by weather conditions, primarily wind direction.

Scoping

12.13 Table 15 summarises the noise and vibration effects identified for inclusion in the assessment.

Table 15 Noise & Vibration Effects

Receptor	Effects	Scoped In
Existing local residential properties	Noise from construction activities	√
	Vibration from construction activities	√
	Noise from rail freight	√
	Vibration from rail freight	√
	Noise from on-site activity • RMG Operation • Container Handling • Trailer hitching • Movements of HGV's around Site • FLT activity • Noise breakout from warehouse	 √ √ √ √ √ √ √
	Noise from changes in traffic flow	√

13.0 AIR QUALITY

Introduction

13.1 An assessment will be undertaken of the likely significant effects of the proposed development on the environment with respect to local air quality.

13.2 The assessment will focus upon the following key air pollutants:

- Nitrogen dioxide (NO_2);
- Fine particulates (PM_{10}); and
- Dust.

Approach

13.3 The geographic scope of the air quality assessment will include areas where traffic generation and/or point source emissions resulting from the scheme might affect nearby sensitive locations. Temporary construction emission sources will also be assessed, particularly where they have the potential to affect operations at the adjacent Toyota production plant.

13.4 The scope of the assessment will also be informed by the SDDC's ongoing Local Air Quality Management (LAQM) review and assessment work, as required by obligations under the Environment Act 1995.

13.5 The entire construction period will be examined for the potential for air quality impacts. The spatial area affected is likely to include properties or other sensitive locations within 350m of the construction Site boundaries, including haul and access routes on the local highway, within a reasonable distance. Potential effects on locally important ecology will also be assessed.

13.6 The operational assessment of the scheme will focus on the opening year and any subsequent years to which existing, proposed or potential Air Quality Standards and Objectives might apply. If account needs to be taken of proposed development phasing over a number of years then this will be assessed accordingly.

13.7 The geographical locations to be assessed will include sensitive receptors such as housing and schools/nurseries where the public and/or sensitive groups are likely to be exposed to

pollutants over the various averaging periods to which the Air Quality Standards and Objectives apply. These locations will be agreed with SDDC.

13.8 Baseline conditions will be established using existing sources of air quality data, including reports published for the purpose of LAQM review and assessment, the UK Air Information Resource (UK-AIR) and any other relevant sources. These data will be supplemented by a six-month programme of Site-specific NO_2 diffusion tube monitoring at locations agreed with the local authority.

Baseline Conditions

13.9 UK-AIR data for the Site (centred on a $1km^2$ grid square at reference 427500, 329500) are shown below in Table 16.

Table 16 UK-AIR annual mean background concentrations of NO_2 and PM_{10} in 2014

Pollutant	Prediction year	Predicted background concentration ($\mu g.m^{-3}$)	Averaging Period	Air quality standard concentration ($\mu g.m^{-3}$)	Objective: to achieve the standard by
NO_2	2014	13.86	Annual mean	40.00	31 December 2005
PM_{10}	2014	15.37	(gravimetric) Annual mean	40.00	31 December 2004

13.10 The six-month, Site-specific, monitoring programme is currently ongoing. The first month of data are presented below in Table 17. These will be adjusted as more data are collected and the final results are annualised using factors derived from Defra automatic monitoring and appropriate technical guidance.

Table 17 Annualised mean NO_2 concentrations from Site-specific monitoring

Location ID	Site description	Concentration ($\mu g.m^{-3}$)
L1	Tynefield Mews	27.41
L2	Jackson Lane	24.03
L3	Gravel Pit Cottages	21.55
L4	Railway Cottages	20.30
L5	layby on Camers Road	29.59
L6	Pumping Station	31.31
L7	Rumenco Farm	47.94
L8	Danes Lodge	33.38
L9	Ash Grove	21.22
L10	Site	23.11

13.11 Receptors to be assessed will be discussed and agreed with SDDC and will include those areas where changes in traffic flows and/or dispersion of pollutants are likely to result in significant impacts on air quality. This could include pollution hotspots in the wider area, including adjacent administrative areas, if traffic from the proposed development might be directed towards them. This is likely to involve assessment of impacts close to or within Air Quality Management Areas (AQMAs) in Derby, if proposed development traffic data suggest this might be necessary.

13.12 Potential dust effects during construction on the adjacent Toyota European Production Plant will also be assessed, as necessary. Monitoring of background levels of dust has been discussed and agreed with Toyota staff. This commenced in June 2014.

13.13 If potential odour and/or bio-aerosol effects from the relocation and/or current operation of anaerobic digesters and other waste treatment plant to the south of the Site are deemed to be significant, then these will also be assessed.

13.14 Potential impacts from the construction of the proposed development will predominantly include emissions to air from the raising of dusts. These will arise from construction vehicle movements and specific activities such as earth works and handling of construction materials. Additional impacts could include releases of odorous materials and exhaust fumes from construction vehicles and driven plant.

13.15 Potential impacts during the operation of the proposed development will arise from exhaust fumes emitted by vehicles accessing the Site. There are also likely to be some emissions of gaseous pollutants from boilers and energy production.

13.16 Due to difficulties in estimating precise emission factors and sources of pollution, construction impacts will be assessed using a qualitative approach. This will establish the most sensitive receptors to potential impacts in the area surrounding the Site and will then seek to gauge the likelihood and significance of such impacts. However, more detailed dispersion modelling might be required to assess particular impacts on the adjacent Toyota production plant.

13.17 The air quality assessment for traffic sources of pollution will use the Defra-approved ADMS Roads dispersion model or the US-EPA Caline suite of models.

13.18 Emissions from power plant and boilers will be assessed using an appropriate Gaussian point source model such as ADMS or Aermod. If the local authority approves of it, simpler

assessment methodologies for smaller plant will be used (e.g. screening methods such as TG09 nomograms).

13.19 The significance of air quality impacts will be determined by comparison of results from the model outputs with the Air Quality Standards and Objectives in the UK Air Quality Strategy. Guidance from Defra and Environmental Protection UK will also be followed, where appropriate. Construction impacts will be considered in line with the methodologies presented and outlined in guidance produced by the Institute of Air Quality Management and the Association of London Governments.

13.20 Appropriate mitigation measures for the reduction of any adverse effects will be discussed, if necessary.

Scoping

13.21 Table 18 summarises the air quality effects identified for inclusion in the assessment.

Table 18 Air Quality Effects

Receptor	Effects	Scoped In
Sensitive properties close to construction activities, Site accesses and haulage routes.	Nuisance effects from dust, health effects from fine particulates.	Yes
Sensitive ecological habitats and species	Ecosystem effects from deposited dust during construction and elevated air pollution emissions during operation. The nearest SSSI is 1.7km away and is therefore too far to be affected.	No
Areas of Toyota facility that might be sensitive to construction dust impacts.	Soiling of new cars and potential disruption of some manufacturing processes from deposited dust.	Yes
Sensitive properties close to roads experiencing a significant change in traffic flows as a result of the proposed development.	Health effects from elevated exposure to air pollution.	Yes
Future occupants of the proposed development.	Nuisance or health effects from exposure to odours and/or bio-aerosols from the operation of waste treatment plant at the Site.	Yes

14.0 GROUND CONDITIONS

Introduction

14.1 An assessment will be undertaken of the likely significant effects of the proposed development on the environment with respect to ground conditions including contamination and ground stability hazards.

14.2 The ES chapter on Ground Conditions will include the assessment methodology; the baseline conditions at the Site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed.

Approach

14.3 The assessment methodology with respect to Ground Conditions will be fully set out in the relevant section of the ES chapter. The approach is briefly summarised as follows:

- A review of the Planning Policy Context is made at local, regional and national level;
- Baseline data has been collected by review of desk study information available in the public domain, together with combined Geotechnical and Geo-environmental intrusive ground investigations, undertaken in accordance with current relevant British Standards;
- The baseline data has been reviewed and assessed using current geotechnical standards, engineering judgement/professional experience and the UK contaminated land regime documents; and
- The assessment of environmental effects has been made according to resource values, the magnitude of impact, the duration of impact, the reversibility of the effect and the number and sensitivity of receptors. The full significance criteria are set out in the relevant section of the Environmental Statement.

14.4 The study area for the assessment comprises the Site as defined by the Site area set out in Appendix 1.

Baseline Conditions

14.5 A combined geotechnical and geo-environmental intrusive investigation was undertaken between September and December 2013 comprising 150 trial pits, 40 boreholes and the installation of 32 combined gas and groundwater monitoring wells. Six monthly rounds of gas monitoring were carried out between December 2013 and May 2014. Two rounds of groundwater and surface water sampling were completed in December 2013 and March 2014. Environmental testing comprising chemical laboratory analysis was undertaken on 386 soil samples, 90 soil leachability samples, 60 groundwater samples and 14 surface water samples. Geotechnical testing comprised a variety of classification, strength, compressibility and earthworks tests on selected samples to provide general coverage of all the material types encountered by the investigation.

14.6 The ground conditions, as revealed by the baseline data and as expected from published data, are highly variable across the Site comprising:

- Sewage improved and thickened topsoil/subsoil;
- Variable Made Ground including areas of landfill;
- Variable superficial drift deposits including River Terrace Deposits, and Glacial Deposits; and
- Silty clays and mudstones of the Gunthorpe Formation.

14.7 Groundwater occurrence was also variable across the Site, usually associated with the disturbed or natural granular superficial drift deposits at relatively shallow depths (<5.0m). The River Terrace Deposits are classified as a Secondary A Superficial its aquifer. Groundwater elevations fall across the Site from a high of c. 60m AOD in the north-east to c. 51m AOD along the southern and south-eastern boundary indicating groundwater flow in a general southerly direction.

14.8 Based on field observations, the Site was not generally observed to be grossly contaminated, with the majority of locations appearing free of contamination. However, limited potential sources of minor impact were identified in localised areas across the Site, primarily relating to landfilled/buried waste materials. Asbestos was identified at 13 of the 111 samples screened, nearly all in made ground and associated with the former landfilling.

14.9 The baseline ground conditions summarised above are presented in the ground investigation report which is included in Appendix 12.

Assessment Methodology

14.10 Land contamination is a material planning consideration under the Town & Country Planning Act 1990. The NPPF identifies that planning policies and decisions should ensure that the Site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation. Adequate site investigation information, prepared by a competent person, is to be presented. At the very least, following redevelopment, a site must not be capable of being determined as 'contaminated land' as defined under Part 2A of the Environmental Protection Act 1990.

14.11 Under this framework, decisions may initially be informed by a Qualitative Risk Assessment but most brownfield redevelopments will require a Generic or more site specific Detailed Quantitative Risk Assessment. The latter are generally appropriate where generic guideline values are not available, or where they are not appropriate given the specific circumstances of the pollutant linkage. They may also be required where a greater level of certainty is needed to support the decision making process. Typically the information required to undertake a Quantitative Risk Assessment will be obtained through a Desk Study and intrusive site investigation works.

14.12 The risk is determined by the combination of the probability of a hazard occurring and the magnitude of its consequences. This principle is applied to land contamination through the use of the 'source-pathway-receptor' concept. The concept relies on the identification of a contaminant (source) in, on, or under the land at a concentration sufficient to have the potential to cause harm, and also the presence of a receptor which may suffer harm, and a pathway by which the receptor may be exposed to the contaminant.

14.13 At the preliminary stage, a conceptual model is formed which characterises the Site by identifying relationships between possible sources of contamination, receptors which may be affected, and where possible, the likely pathways of exposure. A contaminant-pathway-receptor relationship is known as a contaminant linkage. As the risk assessment moves on through each stage, the conceptual model is refined to reflect the increasing level of knowledge about the Site. Contaminants of concern may be added or deleted from the model as site investigation data becomes available, and pathways may be confirmed or eliminated from further consideration. The objective of the risk assessment should be to provide a clear picture of what if any significant risks are present, identify if remedial actions if required or identify areas of uncertainty where further information/assessment is required before conclusion can be reached.

14.14 Consultation with the local authority and Environment Agency is being undertaken.

Scoping

14.15 Table 19 summarises the ground conditions effects identified for inclusion in the assessment.

Table 19 Ground Conditions Effects

Receptor	Effects	Scoped In
Construction workers and surrounding off-site commercial / residential properties	Presence and disturbance of potentially contaminated ground	√
Future Site workers	Effects of potentially contaminated ground	√
Future Site structures	Effects of ground conditions (soil, water and gas) on proposed structures.	√
Groundwater	Effects of soluble substances from potentially contaminated ground, percolation of those mobile substances and dissolution into groundwater	√
Surface Water	Effects of migration of potentially contaminated substances in groundwater and supply of baseflow to surface waters, or via runoff from potentially contaminated ground	

15.0 WATER RESOURCES & FLOOD RISK

Introduction

15.1 An assessment would be undertaken of the likely significant effects of the proposed development on the environment with respect to water resources and flood risk.

15.2 The assessment will comprise:

- Description of the existing conditions, including current risks and issues;
- Assessment of construction phase effects;
- Assessment of operational phase effects;
- Recommendation of mitigation measures; and
- Assessment of residual effects.

15.3 This is applicable to both the water resources and flood risk elements of the study.

15.4 The following topics will be considered as potential issues at the Site and the immediate surrounding area.

- Water demand (potable);
- Surface water drainage;
- Foul drainage;
- Flood risk: On and off site, river flow volumes, flood risk management structures, additional contributions from third parties;
- Water Quality: The quality of fluvial and surface water including physio-chemical, bio-chemical, flora and fauna.

Approach

15.5 The proposed assessment methodology will be based on the following guidance and best practice documentation.

- Baseline review of existing flood risk mapping using the Environment Agency (EA) "know your risk" website, surface water maps, groundwater maps and available local flood risk documentation.
- Review of the policy context including: the NPPF (and PPG); DCC policy; local SDDC policy and any supplementary planning documents (SPDs), which are in use.

- The assessment of catchment hydrology; hydraulic modelling and assessment of flood risk will be based on EA best practice guidance.
- Assessment of water quality using the European Union Directive (i.e. Water Framework Directive) guidance.

15.6 The baseline status of flood risk and water resources will be established as follows:

- By undertaking a review of the EA risk maps for surface water, fluvial and coastal and groundwater mapping;
- Assessment of historical records, previous flood risk studies and information gathered during consultation;
- Consultation with statutory and non-statutory stakeholders including but not limited to: the EA, DCC, SDDC and Toyota. The object will be to establish a comprehensive understanding of local information regarding the catchment;
- Public consultation at an appropriate stage to understand flood history and concerns;
- Consultation with Toyota regarding the design and management of the Toyota drainage schemes through a series of meetings. The objective will be to establish the impact surface water and other discharges from the Toyota site on flood risk issues;
- Consultation with the Highways Agency to establish what, if any, runoff provision for the A38 and A50 has on the Site;
- Data collection to improve knowledge of the watercourses and surrounding areas. This will include (where available), topographic survey to define channel geometry, LiDAR data, flow and rainfall records;

- The baseline status for foul drainage will be assessed by a utility and asset survey of the Site. This will be in the form of asset surveys, drainage network studies and connectivity surveys;
- The baseline status for foul drainage will also be informed through consultation with Severn Trent Water;
- The baseline status for potable water infrastructure will be assessed by undertaking a utility and asset survey of the Site. This will be in the form of asset surveys, drainage network studies and connectivity surveys. This will also be informed through consultation with South Staffs Water; and
- The existing water demand baseline will be assessed based on the current occupation and use of the Site. This will be informed through consultation with South Staffs Water.

15.7 The Site includes two ordinary watercourses – an unnamed tributary of the Etwall Brook and the Willington Brook. Assessments of flood risk will be undertaken on each watercourse independently and treated as a single system. The study area will encompass areas both 'upstream' and 'downstream' of the Site limits. Flood risk issues are not limited to the Site, and the approach will be mindful of investigating each watercourse catchment to establish potential issues and solutions.

15.8 Hydrological analysis will be undertaken using existing EA guidance as well as rainfall modelling simulations. The hydrological analysis will be supplemented with a review of appropriate information, such as the ground investigation (i.e. borehole data and soak away tests). Local hydrometric and historical information will also be consulted.

15.9 Hydraulic modelling will be undertaken on both the Willington and Unnamed watercourses. This modelling has a twofold aim of assessing existing and future third party flood risk (including the villages of Willington, Egginton and Etwall).

15.10 Water quality will be assessed through sampling and testing of water collected from the watercourses on the Site and a review of the appropriate European Union Directive (i.e. Water Framework Directive).

15.11 The requirement for future potable water demand will be assessed based upon the prospective tenanted occupation and the number of people using the Site, and investigated in relation to previous studies and guidance for the provision of water. This will be agreed with South Staffordshire Water, and where possible will be modelled to show the impact of increased water demand on the system.

15.12 Future water demand will also be informed through consultation with the local Fire and Rescue Service to ensure that there is adequate provision of water to provide fire services on the Site.

15.13 The requirement for future foul drainage infrastructure will be assessed based upon the prospective tenanted occupation and the number of people using the Site, and investigated in relation to previous studies and guidance for the provision of water. This will be agreed with Severn Trent Water, and where possible will be modelled to show the impact of increased of foul drainage on the system.

15.14 The foul drainage strategy for the proposed development will be assessed through discussions with Severn Trent regarding the capacity within the existing system and any constraints within it. This will be further informed and agreed with Severn Trent through sewer network modelling to establish the effects of increased discharge upon the existing and proposed system.

15.15 The sustainable drainage systems (SuDS) strategy will be assessed based upon national guidance for planning applications and best practise from CIRIA (R&D Technical Report W5-074/A/TR/1 Revision E) where possible. This strategy will be adhered to, but will also rely heavily on discussions with the EA to ensure that the proposed development provides no detriment to downstream parties by agreeing to discharge limitations that are commensurate with best practise and agreed to by the EA and the design team. The proposed development will seek to design for exceedance and will discuss this with DCC to ensure that designs are commensurate with best practise and meet with their approval.

15.16 The process of SuDS adoption and management will follow in accordance with national guidance. At the time of writing this document, the guidance is in the process of being reviewed, and the SuDS Approval Body is being changed. Therefore this is in a state of flux.

15.17 The following timeline represents a summary of important contact and consultation dates with the Environment Agency and other consultees to date:

- 30th October 2013: Initial contact with EA Planning;
- 22nd November 2013: SDDC Meeting (Flood Risk);
- 29th November 2013: Meeting with Environment Agency (Flood Risk);
- 06th December 2013: Meeting with Toyota;
- 05th February 2014: Environment Agency contact regarding reservoir;
- 06th February 2014: Liaison with SDDC regarding reservoir;
- 10th February 2014: Contact made with HA external relations regarding drainage;
- 11th February: Environment Agency liaison regarding future meetings and costs;
- 13th February 2014: Meeting with Toyota;
- 12th March 2014: Flood risk meeting EA, SDDC, DCC;
- 14th April 2014: SDDC data request relating to flood risk;
- 16th April 2014: Flood risk meeting EA, SDDC, DCC; and
- 10th July 2014 Flood risk meeting EA.

Baseline Conditions

15.18 The Site is within flood zone 1 according to EA maps and is therefore in the 'very low risk" category. This makes it suitable for all types of development.

15.19 There are local flood risk issues downstream of the Site and these will be investigated throughout the study to ensure that, where possible, betterment can be achieved for local issues.

15.20 There are currently no SuDS facilities on the Site.

15.21 There is a flood attenuation reservoir on the Site, called the Willington Balancing Pond.

15.22 The Site is currently used for agricultural purposes and also as a waste composting facility; water use on Site reflects this.

15.23 The demand for potable water on site is subject to the residential dwellings and the composting facility.

Scoping

15.24 Table 20 summarises the water resources and flood risk effects identified for inclusion in the assessment.

Table 20 Water Resources & Flood Risk Effects

Receptor	Effects	Scoped In
Off-site impacts including existing properties in Willington and Etwall	Potential change in flood risk	√
Toyota site discharge	Potential interaction between flood risk strategies	√
Willington and Unnamed watercourse	Potential for change in aqueous chemistry and species variation	√
Willington FAS Reservoir	Potential for variation in use owing to development	√
Unnamed watercourse	Potential for change in discharge and flow regime	√
Willington Brook	Potential for change in discharge and flow	√

Receptor	Effects	Scoped In
	regime	
Etwall Brook	Potential for change in discharge and flow regime	√
River Trent	Potential for change in discharge	√
Foul Sewer System	Increase in discharge to the system	√
Surface Water System	Transfer of water safely within the Site to SuDS receptors	√
Water Demand	Increase in demand for water from system. Sufficient water for emergency response.	√
On Site Attenuation Ponds	Safely designing for exceedance.	√

16.0 ECOLOGY & NATURE CONSERVATION

Introduction

16.1 An assessment will be undertaken of the likely significant effects of the proposed development on the environment with respect to ecology and nature conservation.

16.2 The assessment will take into account relevant planning policy including: the NPPF and supporting PPG – Natural Environment (section 2: Biodiversity, ecosystems and green infrastructure); and The South Derbyshire Draft Local Plan (Part 1) policy BNL3 – Biodiversity.

16.3 The scope of assessment for ecology and nature conservation will include assessment of the following topics:

- Designated Sites for Nature Conservation including Hilton Gravel Pits SSSI and any non-statutory designated sites within 1km;
- Habitats and botanical species interest;
- Great crested newts;
- Breeding birds;
- Wintering birds;
- Bats;
- Reptiles;
- Badgers;
- Water voles; and
- Invertebrates.

Approach

Baseline

16.4 Baseline information will be gathered from the following sources:

- Online resources including the Multi Agency Geographic Information for the Countryside (MAGIC) website, 1:25,000 scale Ordnance Survey maps and aerial photographs;
- Existing ecological survey information for the Site;
- Information from organisations holding biological records; and

- Further ecological surveys (described below).

16.5 Existing reports for surveys undertaken in relation to the Site include:

- Etwall Sewage Farm Bird Survey Report (EMEC, 1999);
- Breeding Bird Survey Report (Ecology Surveys, 2013) (Appendix 16);
- Bat Survey Report (Ecology Solutions, 2013) (Appendix 17);
- Great Crested Newt Survey Report (Ecology Solutions 2013) (Appendix 18);
- Reptile Report (Ecology Solutions 2013) (Appendix 19).

16.6 Relevant ecological information will be requested from:

- Derbyshire Wildlife Trust (DWT);
- Derbyshire Amphibian and Reptile Group;
- Derbyshire Bat Conservation Group;
- Derbyshire Ornithological Society; and
- South Derbyshire Badger Group.

16.7 The search area for biodiversity information is related to the significance of sites and species and potential zones of influence, as follows:

- 5km around the application area for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site);
- 2km around the application area for sites of National or Regional Importance (e.g. SSSI); and
- 1km around the Site for sites of County/Local Importance (e.g. Sites of Importance for Nature Conservation (SINC), Wildlife Sites (WS), Local Nature Reserves (LNR)) and species records (including protected species, species of principal importance for nature conservation under the Natural Environment and Rural Communities (NERC) Act 2006, local biodiversity action plan (LBAP) or notable species).

16.8 Further ecological surveys being undertaken in 2013-2014 include:

- Extended Phase 1 Habitat Survey (Phase 1 Habitat Survey Methodology, JNCC 1993, revised 2003);
- Hedgerow assessment (wildlife and landscape criteria of the Hedgerow Regulations 1997 (Statutory Instrument No: 1160); Hedgerow Evaluation and Grading Systems

(HEGS): A Methodology for the Ecological Survey, Evaluation and Grading of Hedgerows, Clements & Toft, 1993);

- Great Crested Newt Survey (Great Crested Newt Mitigation Guidelines, English Nature, 2001);
- Breeding Bird Survey (Bird Census Techniques, Bibby et al, 2000);
- Wintering Bird Survey (Bird Census Techniques, Bibby et al, 2000);
- Bat Surveys (Bat Surveys- Good Practice Guidelines, Bat Conservation Trust, 2012);
- Badger Survey (Surveying Badgers, Harris, Cresswell & Jeffries, 1989);
- Water Vole Survey (if required) (Water Vole Conservation Handbook, Strachan and Moorhouse, 2006); and
- Detailed Botanical (Phase 2) Surveys (British Plant Communities, Rodwell 1991).

Impact Assessment

16.9 The assessment will be undertaken with reference to current best practice and in particular the Guidelines for Ecological Impact Assessment in the United Kingdom (Institute of Ecology and Environmental Management, June 2006). As this approach differs slightly from the process described in Chapter 2, both assessment methods will be applied in parallel in order that the assessment results can be compared across disciplines.

Nature Conservation Evaluation

16.10 Features likely to be important in terms of biodiversity will be identified and evaluated on a geographical scale of importance ranging from International to Site level importance

16.11 Assessment of impact magnitude will take account of the likely effects in relation to the baseline resources of features of biodiversity importance.

16.12 The sensitivity of features subject to potential impacts will be determined based on the nature conservation value of the feature and its vulnerability.

16.13 In order to determine whether the effects of changes to the baseline conditions are significant, it is necessary to assess whether or not an impact will result in an effect (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of a habitat or species within a given geographical area (IEEM, 2006).

16.14 The integrity of a site is determined as "*the coherence of the ecological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*."

16.15 For habitats, conservation status is determined by "*the sum of influences acting on the habitat and its typical species that may affect its long term distribution, structure and functions as well as the long term survival of its typical species within a given geographical area*."

16.16 For species, conservation status is determined by "*the sum of influences acting on the species concerned that may affect the long term distribution and abundance of its population within a given geographical area*."

16.17 Once an impact is considered to be significant then the scale of impact is assessed on a geographical scale.

16.18 The likelihood that a change/ activity will occur as predicted has a degree of confidence assigned based on the estimated probability, i.e.: Certain/Near-Certain (95% chance or higher); Probable (below 95% but above 50%); Unlikely (below 50% but above 5%); Extremely Unlikely (less than 5%).

Baseline Conditions

16.19 The existing baseline information is summarised below.

Statutory designated sites for nature conservation

16.20 Hilton Gravel Pits SSSI lies approximately 1.7km north-west of the Site. There are no other statutory designated sites for nature conservation within the search area.

Habitats and botanical species interest

16.21 The Site consists primarily of large arable fields with associated hedgerows and narrow field margins. There are stands of plantation and semi-natural woodland and areas of grassland and tall ruderal vegetation. There are also three residential houses and gardens and composting and sewage treatment facilities within the Site.

16.22 Habitats occurring within the Site are summarised in Table 21.

Table 21 Summary of Habitats Present within the Site

Habitat/ Feature	Status	Nature Conservation Value
Arable	-	Negligible
Broadleaf plantation woodland	LDBAP includes objective to create new broadleaf woodland; Potential to meet LWS criteria.	Local
Semi-natural broadleaf woodland	Habitat of Principal Importance - Lowland Mixed Deciduous Woodland (S41 NERC); LDBAP target feature; Potential to meet LWS criteria.	Local-County
Wet woodland	Habitat of Principal Importance - Wet Woodland (S41 NERC); LDBAP target feature; Potential to meet LWS criteria.	Local-County
Species poor semi-improved grassland	-	Site
Semi-improved grassland	Potential to meet LWS criteria.	Local-County
Tall ruderal vegetation	-	Site
Ponds	Habitat of Principal Importance - Eutrophic Standing Waters (S41 NERC); LDBAP target feature; Potential to meet LWS criteria.	Local-County
Ditches and streams	LDBAP target feature (Trent & Dove Valleys Area)	Local
Hedgerows	Habitat of Principal Importance - Hedgerows (S41 NERC); LDBAP target feature; Potential to meet LWS criteria.	Local-County
Veteran, mature and notable trees	Potential for veteran trees to meet LWS criteria	Local

Great crested newts

16.23 Surveys for great crested newts carried out in 2013 did not find any to be present. However, two great crested newts were subsequently found on the Site during reptile surveys in 2013 indicating that this species could be present either in a small population that was not detected during surveys, or occupying ponds that were not subject to surveys.

16.24 Surveys carried out in 2014 have found a small population of great crested newts to be present in two ponds in woodland in the south of the Site. These ponds were not included in the 2013 surveys and the records made during the reptile surveys were located within 150m of these ponds.

Breeding birds

16.25 During initial bird surveys carried out in July 2012, notable species recorded include tree sparrow *Passer montanus*, lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, linnet *Carduelis cannabina*, yellow wagtail *Motacilla flava*, song thrush *Turdus philomelos*, house sparrow *Passer domesticus*, starling *Sturnus vulgaris*, kestrel *Falco tinnunculus*, whitethroat *Sylvia communis*, dunnock *Prunella modularis* and stock dove *Columba oenas*.

16.26 Breeding bird surveys have been carried out in 2014, however the data is pending detailed analysis. In addition to the species noted previously, a single observation of a corn bunting *Emberiza calandra* was made. It is likely that this is a single individual on occasional passage.

Wintering Birds

16.27 The species recorded on site are largely typical of the main habitats available on site, and are particularly characterised by notable species of hedgerows (e.g. dunnock *Prunella modularis* and redwing *Turdus iliacus*); woodland (fieldfare *Turdus pilaris*, song thrush and bullfinch *Pyrrhula pyrrhula*); arable farmland (skylark, linnet, corn bunting, reed bunting *Emberiza shoeniclus* and yellowhammer *Emberiza citrinella*) and the urban fringe (song thrush, dunnock and starling).

16.28 All species recorded are common resident or winter visiting species within the county with the exception of corn bunting and wood sandpiper which are both uncommon in Derbyshire.

16.29 A single wood sandpiper was recorded in December 2013, which was likely to have been passing through the Site on passage. Similarly notable flocks of around 1000 starlings and 50 lapwing were observed passing over, but only much smaller numbers of starling were observed to be associated with the Site, foraging in stubble and freshly ploughed fields.

16.30 Up to twelve corn bunting were recorded during the surveys and this species is historically known to be present on-site. This species is uncommon in Derbyshire with the latest Derbyshire Bird Report citing records of up to eight birds recorded in two locations in the county in the winter of 2012. Therefore, the Site is considered to be important to this species at a county level.

16.31 Overall, the Site is considered to support a winter bird assemblage of no more than county level for nature conservation value, mainly due to its red-listed farmland bird assemblage.

Bats

16.32 Two buildings were identified as having potential to support roosting bats. Emergence surveys for bats indicate there is likely to be a common pipistrelle roost in one building.

16.33 A number of trees are present within the Site, which may have potential to support roosting bats.

16.34 Initial activity surveys indicated that there is likely to be a moderate level of bat activity across the Site.

Reptiles

16.35 The Site provides areas of suitable habitat for grass snake, common lizard and slow worm.

2.5 Surveys of the Site for reptiles indicate that there is a small population of common lizards present along the northern embankment of the railway line.

16.36 While no other reptiles were recorded it is possible that small populations of these commoner species could be present.

Water Voles

16.37 The Willington Brook provides suitable habitat for water voles, however, no evidence of water vole presence was observed during surveying and it is therefore reasonably unlikely that this species is present within the Site.

Invertebrates

16.38 The grassland, woodland, ponds and arable margins within the Site provide habitats likely to support a typical assemblage of relatively common invertebrates. Habitats that could be of greater interest for invertebrates include the Marl Pit and wet woodland in the south of the Site and grassland in the east of the Site. The Marl Pit and wet woodland areas are entirely outside the development footprint and will not be directly affected by the Development. The grassland areas also fall largely within the proposed green space and invertebrate populations associated with these are therefore unlikely to be significantly affected. Further detailed invertebrate surveys are therefore not required in order to inform the environmental assessment.

Scoping

16.39 Table 22 summarises the ecology and nature conservation effects identified for inclusion in the assessment. A preliminary consultation response has been received from Natural England. It identifies the two SSSIs that will require consideration in the assessment.

Table 22 Ecology & Nature Conservation Effects

Receptor	Effects	Scoped In
Designated sites for Nature Conservation	Disturbance, noise, pollution, increased visitor pressure	√
Arable Farmland	Loss	√
Hedgerows	Loss, Severance, Disturbance	√
Woodland	Loss, Disturbance, Isolation	√
Trees	Loss, Disturbance, Isolation	√
Rough Grassland	Loss, Disturbance	√
Ponds	Loss, pollution	√
Wintering Birds	Loss of habitat, Disturbance	√
Breeding Birds	Loss of habitat, Disturbance	√
Bats	Loss of potential habitats, disturbance, possible loss of roosts	√
Badgers	Loss of potential habitats, possible loss or disturbance of setts	√
Great Crested Newts	Loss of terrestrial habitat, possible disturbance, killing or injury	√
Reptiles	Loss of habitat, possible disturbance, killing or injury	√
Invertebrates	Loss of widespread habitats of limited value only	X
Water Voles	None present	X

17.0 AGRICULTURAL CIRCUMSTANCES

Introduction

17.1 An assessment will be undertaken of the likely significant effect of the proposed development on agriculture.

17.2 The ES will include an assessment of the effect:

- On agricultural land and soil resources, including the quantity and quality of agricultural land;
- On occupying farm businesses; and
- On the potential for effects on surrounding agricultural land or businesses.

Approach

17.3 The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The ALC system divides agricultural land into five grades (Grade 1 'Excellent' to Grade 5 'Very Poor'), with Grade 3 subdivided into Subgrade 3a 'Good' and Subgrade 3b 'Moderate'. Agricultural land classified as Grade 1, 2 and Subgrade 3a falls in the 'best and most versatile' category in Paragraph 112 and Annex 2 of the National Planning Policy Framework (NPPF) of March 2012.

17.4 Published data gives an idea of the potential grade of agricultural land, but it is only possible to determine land quality by way of a detailed survey. In this case it is proposed to carry out an ALC survey in two stages:

(i) Stage 1 will be to carry out a reconnaissance level ALC across the whole Site, and to analyse the results;
(ii) if Stage 1 identifies areas that are of Best and Most Versatile (BMV) quality those areas would be surveyed at a detailed level (1 auger point per hectare).

17.5 The soil profiles will be examined at each sample location to a maximum depth of approximately 1.2 m by hand with the use of a 5 cm diameter Dutch (Edleman) soil auger. Small trial pits will be excavated with a spade at a few selected locations which are representative of the main types of soil over the Site. This is in order to examine certain soil physical properties, such as subsoil structure, stone content and drainage status of the profile (including identification of any slowly permeable layers) in more detail. Soil disturbance at the auger locations will be negligible and the soil pits will be fully restored to their original soil profile (i.e. topsoil over subsoil).

17.6 A sample of topsoil will be collected at periodic auger locations as necessary to represent the main types of topsoil over the Site. The topsoil samples will be sent to an accredited laboratory for particle size analysis, ie the proportions of sand, silt and clay. This is to determine the definitive texture class of the topsoil, especially with regard to distinguishing between medium clay loams (ie <27% clay), heavy clay loams (27% to 35% clay) and clays (>35% clay).

17.7 The samples will then be analysed and a grading of the land will be completed against the Ministry of Agriculture, Fisheries and Food (MAFF) criteria.

17.8 Where there are areas of better quality land falling within the definition of the BMV return visits to the Site will be assessed to undertake additional samples so as to cover that area at a sampling density of one auger per hectare.

17.9 In addition the effects on agricultural businesses will be assessed via a combination of survey methods including:

- Discussions, face-to-face or by telephone, with the occupying farm business operators; and
- Walkover survey of the land to assess the field size, infrastructure, land use and the existence and quality of buildings, gateways, fences etc.

Baseline Conditions

17.10 The Site is shown on the 1:250,000 'provisional' MAFF ALC sheet as comprising undifferentiated Grade 3 land.

17.11 There are no known detailed ALC survey results for the land. Detailed surveys of similar land locally have identified Subgrade 3b, but that cannot be relied upon for defining the grade of the Site.

17.12 The land is in arable farming use, with fieldwork undertaken by contractors under the direction of the landowners.

Scoping

17.13 Table 23 summarises the agricultural effects identified for inclusion in the assessment.

Table 23 Agricultural Circumstances Effects

Receptor	Effects	Scoped In
Agricultural land quality and soils	Loss of good quality agricultural land (MAFF ALC Grades 1, 2, 3a)	✓
Farm businesses	Loss or disruption to occupying farm business	✓
Effects on surrounding agricultural land and businesses	Effects on off-site drainage, increased trespass	✓

APPENDIX 1: SITE LOCATION PLAN

- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipients responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.

Key

Application Boundary

N

A50

Eggington Road

A50

A38 - Burton Road

Carriers Road

Sewage Farm

Eggington Common

100m SCALE 1:5000

rev	amendments	by	ckd	date

East Midlands InterModal Park

Application Boundary

Newark Beacon Innovation Centre, Cafferata Way, Newark, Nottinghamshire NG24 2TN
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Drawing Status:	Feasibility
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13061 F0050	-

APPENDIX 2: SITE CONTEXT PLAN

1. A50
2. Toyota European Production Centre
3. A38/A50 Interchange
4. Extra Services
5. A38
6. Y-Pass Junction
7. Railway Line
8. Etwall Road
9. Derby Airfield
10. Residential Properties
11. Egginton Road
12. Day Nursery and Nursing Home

100m SCALE 1:5000

N

EAST MIDLANDS INTERMODAL PARK
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East Midlands Intermodal Park - Site Context Plan

APPENDIX 3: SITE FEATURES PLAN

1. Etwall Brook
2. Pylons
3. Residential Properties
4. Willington Brook
5. Flood Attenuation Pond
6. In-vessel Composting Facility
7. Waste Water Treatment Facility
8. Boundary Road
9. Railway Bridge
10. Tree Preservation Order

EAST MIDLANDS INTERMODAL PARK
EMIPARK.CO.UK

100m SCALE 1:5000

N

East Midlands Intermodal Park - Site Features Plan

APPENDIX 4: OPTION PLANS

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Schedule Of Accommodation

Unit 100	92,902 sq m	1,000,000 sq ft
Unit 101	21,832 sq m	235,000 sq ft
Unit 102	21,832 sq m	235,000 sq ft
Unit 103	21,832 sq m	235,000 sq ft
Unit 104	62,709 sq m	675,000 sq ft
Unit 105	62,709 sq m	675,000 sq ft
Unit 200	32,516 sq m	350,000 sq ft
Unit 201	23,226 sq m	250,000 sq ft
Unit 202	36,231 sq m	390,000 sq ft
Unit 203	35,303 sq m	380,000 sq ft
Unit 300	92,902 sq m	1,000,000 sq ft
Unit 301	46,451 sq m	500,000 sq ft
TOTAL	**550,445 sq m**	**5,925,000 sq ft**

Schedule Of Plot Areas

Unit 100	50.62 acres	20.49 hectares
Unit 101	10.61 acres	4.29 hectares
Unit 102	10.71 acres	4.33 hectares
Unit 103	10.70 acres	4.33 hectares
Unit 104	30.22 acres	12.23 hectares
Unit 105	28.69 acres	11.61 hectares
Unit 200	19.35 acres	7.83 hectares
Unit 201	12.00 acres	4.86 hectares
Unit 202	19.94 acres	8.07 hectares
Unit 203	17.59 acres	7.12 hectares
Unit 300	48.98 acres	19.82 hectares
Unit 301	23.78 acres	9.62 hectares
Total	**283.19 acres**	**114.60 hectares**

Land north of railway	**429.91 acres**	**173.98 hectares**
Land south of railway	**199.96 acres**	**80.92 hectares**
Land Total	**629.87 acres**	**254.90 hectares**

Note: Intermodal, lorry park & existing lease plots are not included in developable plot areas.

rev	amendments	by	ckd	date

East Midlands InterModal Park

Illustrative Masterplan - Option A

EAST MIDLANDS INTERMODAL PARK

Goodman

Shepherd Group

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N

UNIT 100
400,000 sq ft

UNIT 101
900,000 sq ft

UNIT 102
200,000 sq ft

UNIT 103
235,000 sq ft

UNIT 104
235,000 sq ft

UNIT 105
600,000 sq ft

UNIT 106
425,000 sq ft

UNIT 107
425,000 sq ft

UNIT 200
350,000 sq ft

UNIT 201
250,000 sq ft

UNIT 202
350,000 sq ft

UNIT 203
265,000 sq ft

UNIT 300
1,000,000 sq ft

UNIT 301
500,000 sq ft

A50

A38 / A50
Interchange

Lorry park

Intermodal Facility

Existing Lease

100m SCALE 1:5000

Schedule Of Accommodation

Unit 100	37,161 sq m	400,000 sq ft
Unit 101	83,612 sq m	900,000 sq ft
Unit 102	18,580 sq m	200,000 sq ft
Unit 103	21,832 sq m	235,000 sq ft
Unit 104	21,832 sq m	235,000 sq ft
Unit 105	55,741 sq m	600,000 sq ft
Unit 106	39,483 sq m	425,000 sq ft
Unit 107	39,483 sq m	425,000 sq ft
Unit 200	32,516 sq m	350,000 sq ft
Unit 201	23,226 sq m	250,000 sq ft
Unit 202	32,516 sq m	350,000 sq ft
Unit 203	24,619 sq m	265,000 sq ft
Unit 300	92,902 sq m	1,000,000 sq ft
Unit 301	46,451 sq m	500,000 sq ft
TOTAL	**569,954 sq m**	**6,135,000 sq ft**

Schedule Of Plot Areas

Unit 100	16.90 acres	6.84 hectares
Unit 101	43.91 acres	17.77 hectares
Unit 102	8.97 acres	3.63 hectares
Unit 103	10.11 acres	4.09 hectares
Unit 104	10.10 acres	4.09 hectares
Unit 105	24.89 acres	10.07 hectares
Unit 106	20.09 acres	8.13 hectares
Unit 107	20.48 acres	8.29 hectares
Unit 200	19.35 acres	7.83 hectares
Unit 201	12.00 acres	4.86 hectares
Unit 202	17.61 acres	7.13 hectares
Unit 203	10.65 acres	4.31 hectares
Unit 300	48.28 acres	19.54 hectares
Unit 301	23.78 acres	9.62 hectares
TOTAL	**287.12 acres**	**116.20 hectares**
Land north of railway	**429.91 acres**	**173.98 hectares**
Land south of railway	**199.96 acres**	**80.92 hectares**
Land Total	**629.87 acres**	**254.90 hectares**

Note: Intermodal, lorry park & existing lease plots are not included in developable plot areas.

rev	amendments	by	ckd	date

East Midlands InterModal Park

Illustrative Masterplan - Option B

Goodman

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- All relevant drawings and specifications should be read in conjunction with this drawing.

Schedule Of Accommodation

Unit 100	92,902 sq m	1,000,000 sq ft
Unit 101	21,832 sq m	235,000 sq ft
Unit 102	21,832 sq m	235,000 sq ft
Unit 103	21,832 sq m	235,000 sq ft
Unit 104	55,741 sq m	600,000 sq ft
Unit 105	55,741 sq m	600,000 sq ft
Unit 200	32,516 sq m	350,000 sq ft
Unit 201	23,226 sq m	250,000 sq ft
Unit 202	32,516 sq m	350,000 sq ft
Unit 203	35,303 sq m	380,000 sq ft
Unit 204	24,154 sq m	260,000 sq ft
Unit 300	92,902 sq m	1,000,000 sq ft
Unit 301	46,451 sq m	500,000 sq ft
TOTAL	**556,948 sq m**	**5,995,000 sq ft**

Schedule Of Plot Areas

Unit 100	50.62 acres	20.49 hectares
Unit 101	10.61 acres	4.29 hectares
Unit 102	10.71 acres	4.33 hectares
Unit 103	10.70 acres	4.33 hectares
Unit 104	25.70 acres	10.40 hectares
Unit 105	25.95 acres	10.50 hectares
Unit 200	19.35 acres	7.83 hectares
Unit 201	12.00 acres	4.86 hectares
Unit 202	17.61 acres	7.13 hectares
Unit 203	17.59 acres	7.12 hectares
Unit 204	10.65 acres	4.31 hectares
Unit 300	48.98 acres	19.82 hectares
Unit 301	23.78 acres	9.62 hectares
Total	**284.25 acres**	**115.03 hectares**

Land north of railway	**429.91 acres**	**173.98 hectares**
Land south of railway	**199.96 acres**	**80.92 hectares**
Land Total	**629.87 acres**	**254.90 hectares**

Note: Intermodal, lorry park & existing lease plots are not included in developable plot areas.

rev	amendments	by	ckd	date

East Midlands InterModal Park

Illustrative Masterplan - Option C

EAST MIDLANDS INTERMODAL PARK

Goodman

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13061 F0028	H

APPENDIX 5: DRAFT PARAMETER PLAN

- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipients responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.

N

Development Plot Areas

Intermodal Terminal -
10.06ha - 24.86 acres

Lorry Parking Area -
2.46ha - 6.08 acres

Plot A
29.54ha -
72.99 acres

Plot B
42.50ha -
105.02 acres

Plot C
31.02ha -
76.65 acres

Plot D
10.93ha -
27.01 acres

Plot E
7.68ha -
18.98 acres

Plot F
13.18ha -
32.57 acres

100m

SCALE 1:5000

rev	amendments	by	ckd	date

East Midlands InterModal Park

Parameters Plan, Use: Development Zones

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13061 F0044	B

APPENDIX 6: REFERENCE CASE ASSUMPTIONS

INFO NOTE

EAST MIDLANDS INTERMODAL PARK

REFERENCE CASE ASSUMPTIONS

IDENTIFICATION TABLE	
Client/Project owner	David Tucker Associates
Project	East Midlands Intermodal Park
Title of Document	Reference Case Assumptions
Type of Document	Info Note
Date	03/03/2014
Reference number	102496
Number of pages	6

TABLE OF CONTENTS

1. REFERENCE CASE ASSUMPTIONS

1.1 Overview

1.1.1 This information note details the transport network and land use assumptions for the 2017 Year of Opening DfT 2013 Circular Reference Case and 2026 Core Strategy Reference Case being developed for the EMIP study.

1.1.2 At the project meeting held on 27 January 2014 it was agreed that the above two reference cases would be required to satisfy the requirements of the Highways Agency, Derby City Council and Derbyshire County Council.

1.2 2017 DfT Circular Reference Case

Reference Case Overview

1.2.1 The 2013 DfT circular which relates to the assessment of the impact of developments on the Strategic Highway Network (SRN) requires a year of opening assessment of the development with the full scheme and associated mitigation.

1.2.2 The predicted first occupancy date for any part of the EMIP scheme is 2017, therefore this has been as the year of opening.

1.2.3 The DfT 2013 circular indicates that the year of opening should include the following growth assumptions:

- 100% of the committed development that has received planning permission (irrespective of whether it will be fully built by the year of opening).
- 100% of any adopted Core Strategy developments, the South Derbyshire and Derby City Core strategies have not been adopted therefore no growth associated with the Core strategies is required for this assessment.
- Growth taken up to appropriate Tempro, unless these have been exceeded by the above).

1.2.4 Any changes to the transport networks that are committed and are due to be implemented before the end of the Year of Opening should be included in the assessment.

Land Use Assumptions

1.2.5 The Greater Derby Transport Model (GDTM) incorporates a land use model which will be utilised for the development of the Reference Cases for the EMIP development assessment.

1.2.6 In January, South Derbyshire, Derby City and Amber Valley provided updates of the committed and core strategy developments for each of their areas, to be used by Systra to assess their Core Strategies. This information identifies developments with planning permission, those in the planning system, core strategy sites and completed sites since 2006 separately. This information has been agreed by the planning authorities and the City and County councils as the most recent prediction of land use for the area.

1.2.7 It is proposed that we utilise this up to date information to develop the 2017 DfT Circular Reference case based on the following assumptions:

- Full development of all identified completed and committed sites. These will be forced to be fully occupied (see list in Appendix A).
- No core strategy sites as the core strategies have not been adopted.
- No constraint to Tempro as the level of growth from these developments is likely to be above Tempro levels for 2017.
- Outside of South Derbyshire, Derby City and Amber Valley growth will be constrained to Tempro population and employment forecasts using Tempro 6.1.

1.2.8 This approach will ensure that the background growth within the EMIP 2017 DfT Circular Reference Case reflects the requirements of the 2013 circular.

Network Alterations

1.2.9 The 2017 DfT Circular reference case will utilise the re-validated 2006 model as its base. The 2017 Reference case will include all highway and public transport schemes that have been constructed or are predicted to be constructed by 2017. These are listed below:

- T12 Link Road;
- London Road Bridge fully open to all traffic;
- Pinch-Point schemes at Markeaton (A38/A52) and Abbey Hill (A38/A61) junctions
- Pinch Point scheme at M1 junction 24 together with representation of the A453 duelling although this is outside the models simulation area.
- New signal controlled access onto Osmaston Road and improvements to Mitre Island associated with the Tesco's Allenton development.
- New layout of the Stenson Road/A5111 junction associated with the Stenson Fields development.
- Ripley Relief Road, as this forms part of a committed development.

1.2.10 No schemes associated with the Core Strategies will be incorporated into the 2017 DfT Circular Reference Case.

With Development Scenario

1.2.11 The 2017 'With Development' scenario will build upon the 2017 DfT Circular Reference Case. It will include the full EMIP scheme including the Distribution Park and the Rail Freight interchange.

1.2.12 The 2017 'With Mitigation' assessment will build upon the 'with development' scenario and will include the full mitigation package irrespective of the timescales for the implementation of the various schemes.

1.3 2026 Core Strategy Reference Case

Reference Case Overview

1.3.1 The 2026 Core Strategy assessment provides an evaluation of the EMIP development with the full Core Strategy developments and associated mitigation in place. This represents the likely situation following the full occupation of the EMIP development.

Land Use Assumptions

1.3.2 The Greater Derby Transport Model (GDTM) incorporates a land use model which will be utilised for the development of the Reference Cases for the EMIP development assessment.

1.3.3 In January, South Derbyshire, Derby City and Amber Valley provided updates of the committed and core strategy developments for each of their areas, to be used by Systra to assess their Core Strategies. This information identifies developments with planning permission, those in the planning system, core strategy sites and completed sites since 2006 separately. This information has been agreed by the planning authorities and the City and County councils as the most recent prediction of land use for the area.

1.3.4 It is proposed that we utilise this up to date information to develop the 2026 Core Strategy assessment will include the following growth assumptions:

- 100% of the completed development;
- 100% of the committed development.
- 100% of the proposed Core Strategy developments for South Derbyshire, Derby City and Amber valley.
- Employment Growth taken up to appropriate Tempro, residential growth taken from the Core Strategy allocations.

1.3.5 Details of the individual sites are provided in Appendix B.

Network Alterations

1.3.6 The 2026 Core Strategy Reference Case will utilise the re-validated 2006 model as its base. The 2026 Core Strategy Reference case will include all highway and public transport schemes that have been constructed or are predicted to be constructed by 2026. These are listed below:

- All schemes included in the 2017 Reference Case above excluding the A38 Pinch Point which will be replaced by the grade separation.
- Grade Separation of A38 junctions with A61, A52 and A5111;
- M1 hard shoulder running;
- Southern Derby Integrated Transport Scheme; and
- Derby HMA Core Strategy highway mitigation (these schemes are yet to be fully determined).

With Development Scenario

1.3.7 The 2026 'With Development' scenario will build upon the 2026 Core Strategy Reference Case. It will include the full EMIP scheme including the Distribution Park and the Rail Freight interchange.

1.3.8 The 2026 'With Mitigation' assessment will build upon the 'with development' scenario and will include the full mitigation package irrespective of the timescales for the implementation of the various schemes.

APPROVAL

Version	Name		Position	Date	Modifications
1	Author	Asseed Khan	Senior Consultant	03/03/2014	
	Checked by	Duncan Irons	Director	03/03/2014	
	Approved by	Duncan Irons	Director	03/03/2014	

Appendix – A: List of Completions and Commitments

Table 1 - Residential Commitments and Completions

Site Reference	ADDRESS	Dwellings
S2618	SWADLINCOTE LANE	1361
9/2009/0342	Drakelow Power Station	1160
9/2005/0611	Boulton Moor	1058
9/2006/0775	Highfields Farm	981
	Rykneld Road (Heatherton Extn)	900
	Manor/Kingsway Hospitals	700
D2360	DERBY COLLEGE PRIDE PARKWAY	591
-	Radbourne Lane, Mackworth	530
	Land south of Mansfield Rd / North of A38	500
9/2012/0039	STENSON FIELDS LAND, AT STENSON ROAD, STENSON, DERBY, DE23 1LG	487
D1931	LAND AT SWARKESTONE ROAD	485
	Evans of Leeds	400
	DRI	400
S2808	MOIRA ROAD	400
S2789	.	367
S3007	EAST OF THE MEASE	271
D1969	CREWTON ALLOTMENTS RADFORD STREET	242
D2739	WESTERN ROAD	240
S2993	The Mease	237
	Former Derby College	220
D2810	PRINCE CHARLES AVE	217
	Fellow Lands Way	203
	Castleward	200
	Stevensons Dye Works, Bullbridge Hill, Ambergate	171
9/2010/1113	Council Depot, Darklands Lane	159
9/2009/0850	Land at Hepworth Road	158
	Friar Gate Station	150
D2645	BASEBALL GROUND	149
S2643	HILTON DEPOT	147
	Primula Way	145
A3129	Butterley Works, Butterley Hill, Ripley	142
A3384	James Street / Quarry Road, Somercotes	141
A3078	Fuchs, Derby Road, Belper	136
9/2008/0811	STATION ROAD	130
D2457	TEICH FLEXIBLES NOTTINGHAM ROAD	112
A3278	Aeromatix, Derby Road, Marehay	110
D2139	FORMER ROLLS ROYCE TRAININC CENTRE STATION ROAD	108
D2269	BROOK STREET MILLS	108
D2085	HIGHFIELDS BROADWAY	107
A2923	SEDC, Ilkeston Rd, Heanor	102
D2422	FORMER ALEXANDRA HOSIERY MILLS UTTOXETER NEW ROAD/ GREAT NORTHERN ROAD	100
S2763	hartshorne road	100
	Land off Waingroves Rd, Ripley	98
A3158	Milford Foundry, Derby Rd, Milford	97
D2362	LAND AT STATION ROAD	95
	Elton Road	95
S2992	Hilton Brook	93
	Brook Street	90
D2179	EGGLESTON BROTHERS PHEONIX STREET	85
-	Adale Road, Smalley	83
D2071	NOTTINGHAM ROAD	81
9/2008/0868	EGGINTON ROAD	77
A3265	Parks School, Bargate Rd, Belper	77
A2590	Phase 1 Greenhillocks, Ripley	77
S2471	high street	75
D2426	LAND AT ANGLERS LANE	73
D2108	LAND WEST OF KEDLESTON ROAD	72
D2402	WOODLANDS SCHOOL BLENHEIM DRIVE	71
-	Milford Mills, Milford	70
D2026	LAND OFF RYKNELD ROAD/ TREFOIL COURT	69
A2922	Upper Dunstead Road, Langley Mill	69
A3228	Cromford Rd, Langley Mill	68
S2814	coronation street	66
A2590	Phase 2 Greenhillocks, Ripley	65
A2657	Holloway Rd, Duffield	64
A3204	Penn Street, Penn Street	62
A3570	Phase 2, Deb Ltd, Nottingham Road, Belper	62
	Land off Nailers Way, Belper	62
	Heanor Haulage, Wesley Street, Langley Mill	60
-	Hands Road, Heanor	60
S3032	OFF LONDON ROAD	59
9/2013/0765	Repton Road	58

A3002	North Street, Langley Mill	57
D2508	BENNETTS IRONMONGERY ROMAN ROAD	56
	Woodlands Lane	56
A3025	Greenhill Lane, Leabrooks	54
D2480	CHURNET HOUSE CARRINGTON STREET	53
A2658	Ambergate Brickworks	53
D2502	GOWER HOUSE GOWER STREET	51
9/2012/1056	Alexandra Road	51
	DURLEY CLOSE ALVASTON	50
	Leabrooks Club, Greenhill Lane, Leabrooks	50
D2133	LAND AT SLACK LANE	49
D2821	HUNTLEY AVE	49
A2750	Brook Lane, Ripley	49
D2769	ASHBOURNE ROAD	48
A1538	Openwood Road, Belper	48
D2249	UTTOXETER NEW ROAD	45
9/2012/0167	LAND AT SK2818 7032 GLAMORGAN WAY, GLAMORGAN WAY SWADLINCOTE, CHURCH GRESLEY, SWADLINCOTE	45
A2870	Convent, Field Lane, Belper	45
	Evans Concrete, Peasehill Road, Ripley	44
A2928	Vicarage Lane, Ironville	43
S2470	Castle Road	42
9/2012/0889	Clayton Works, Scropton Road	41
A3600	West of Aeromatix site, Marehay	41
D2268	MANCHESTER STREET	40
D2368	ST LUKES UTTOXETER NEW ROAD AND GREAT NORTHERN ROAD	40
	1 Eastview Terrace, Langley Mill	40
9/2008/1179	LAND AT HIGHFIELD ROAD	39
D2201	HARVEY ROAD	38
S2519	OLD STATION CLOSE	38
-	South Street, Swanwick	38
A3531	Douglas Avenue, Heanor	38
D2424	CTS TYRES (55) MANSFIELD ROAD	37
A3117	Heanor Road, Smalley	37
S2514	MOUNT PLEASANT ROAD	36
D2356	38 ASHBOURNE ROAD	35
D2365	SPONDON CRICKET GROUND ROYAL HILL ROAD	34
A2350	Peatburn Ave, Heanor	34
S3035	Small Thorn Place	32
	Home Farm, Coach Road	31
	Land at Whitemoor Lane, Belper	31
D2296	65-71 ASHBOURNE ROAD	30
A2590	Phase 4 Greenhillocks, Ripley	30
D2499	582-584 OSMASTON ROAD	29
D2469	34-36 BROOK STREET	28
S2558	wood lane/bretby hollow	28
S2807	WOODVILLE ROAD	27
S2364	THORPE DOWNS ROAD JUNCTION	26
S3044	BASS'S CRESCENT	26
D2364	FORMER FORTE POSTHOUSE PASTURES HILL	25
S1354	BURTON ROAD	25
A3131	Station Rd, Heanor	25
A0618	Lowes Hill, Ripley	25
	Off Ashton Close, Swanwick	25
D2107	ST SWITHINS CLOSE	24
D2131	MANSFIELD ROAD	24
D2178	MILL STREET	24
D2267	158-170 DERBY ROAD	24
D2311	484 BURTON ROAD	24
D2410	BROOK STREET	24
D2418	LAND AT PARLIAMENT STREET	24
S2804	hilton road/old station close	24
S3125	SALISBURY DRIVE	24
S2674	MEADOW LANE/ROBINSON ROAD	24
S3104	FREDERICK STREET	24
A3298	New Zealand Ln, Duffield	24
A3379	Station Approach, Duffield	24
A0159	Sandbed Ln, Belper	24
A3229	Wellington St, Ripley	24
A2076	Laceyfields Road, Heanor	24
D2001	6 BASLOW DRIVE	23
D2344	SIKH TEMPLE CROMWELL ROAD	23
A3192	Main Rd, Smalley	23
D2304	FORMER LAUNDRY CLARENCE RD/ PARMESTON ST	22
D2409	ST MARYS RC PRIMARY SCHOOL EDWARD STREET	22

D2670	ALBANY ROAD	22
A3139	Over Lane, Belper	22
	Apollo Engineering, 209 Derby Rd, Ripley	22
D2336	8 LOUVAIN ROAD	21
D2462	LAND OFF RYKNELD ROAD	21
D2494	514 STENSON ROAD	21
A2204	6/8 Derby Rd, Belper	21
A2926	Maple Avenue, Ripley	21
D2208	CURZON STREET	20
D2419	398-418 UTTOXETER NEW ROAD	20
D2470	FORMER NIGHTINGALE PH OSMASTON ROAD	20
S3058	MAIN STREET/MOIRA ROAD	20
S3174	COPPICE SIDE	20
A3115	Cumberhills Rd, Duffield	20
A2590	Phase 3 Greenhillocks, Ripley	20
A2890	116 Ilkeston Road, Heanor	20
-	Plumptre Road, Langley Mill	20
D0061	103 BOULTON LANE	19
D1976	TROWELS LANE	19
D2117	7 - 9 MOOR STREET	19
D2335	17 SWINBURNE STREET	19
A3201	Chesterfield Road, Belper	19
A2621	71 Derby Road, Heanor	19
A3570	Phase 1, Deb Ltd, Nottingham Road, Belper	19
D2148	ST BARTHOLOMEWS CHURCH ADDISON ROAD	18
D2260	2 BASLOW DRIVE	18
D2503	97 EMPRESS ROAD	18
D2509	77 BOYER STREET	18
S1883	thorn street	18
9/2009/0883	WILMOT ROAD	18
A3200	King Street, Alfreton	18
A3312	Land at Brickyard Lane, Kilburn	18
D0561	38-44 REGINALD STREET	17
D2153	451 BURTON ROAD	17
D2417	FORMER WAREHOUSE CAMERON ROAD	17
D2443	60 SHARDLOW ROAD	17
A1745	Brook St, Heage	17
A3081	Main Road, Pye Bridge	17
D2341	33 SOUTH STREET	16
S2036	EUREKA ROAD	16
9/2013/0351	32B MOIRA ROAD	16
A3170	Frederick St, Riddings	16
	Ray Arms PH, Ray Street, Heanor	16
D2248	FORMER SCRAPYARD DUKE STREET	15
D2370	8 - 14 GEORGE STREET	15
D2376	FOUR OAKS TIMBER ROWDITCH PLACE	15
S2742	The Hays	15
9/2011/0424	47-51 ALEXANDRA ROAD	15
A2930	Matlock Rd, Belper	15
A3203	Nottingham Road, Ripley	15
A3219	Chapel St, Kilburn	15
A3378	Loscoe Grange, Loscoe	15
A3130	Chesterfield Road, Alfreton	15
A3353	Breach Road, Heanor	15
-	Saxton Avenue, Heanor	15
D2149	OSMASTON ROAD	14
D2272	RADBOURNE STREET	14
D2734	WOOLLATON ROAD	14
A2917	Spring Road, Riddings	14
A3147	Four Lane Ends, Oakerthorpe	14
A3383	Park Grange Derby Road,, Heanor	14
A3539	The Common, Crich	14
	Newlands Drive, Riddings	14
D2207	14 BROADWAY	13
D2292	18-20 WOOD ROAD	13
D2435	63 BURNSIDE STREET	13
D2757	AMY STREET	13
S2286	main street	13
9/2012/0861	LAND AT AND ADJOINING 1 FREDERICK STREET WOODVILLE SWADLINCOTE	13
9/2011/0006	Belmont Street	13
A0121	Larkhill, Swanwick	13
A2513	Rawson Green, Kilburn	13
A2988	Mundy Street, Heanor	13
A3356	Milnhay Rd, Langley Mill	13
A3191	Town Street, Duffield	13

D1298	LAND AT DRAGE STREET	12
D1991	FORMER COURTAULDS FACTORY	12
D2092	218-20 SIDDALS ROAD	12
D2180	58-66 STATION ROAD	12
D2393	39-47 GRANGE STREET	12
D2493	162-164 DERBY ROAD	12
S2129	OVERSETTS ROAD	12
9/2013/0087	128 london Road	12
9/2011/0329	DOMINION ROAD	12
A2527	Red Lion Square, Heanor	12
A2898	Chestnut Ave/Park Rd, Belper	12
A1683	Outram Street, Ripley	12
A3055	Sherbourne Drive, Belper	12
A3409	Sleetmore Lane, Somercotes	12
	47 Cromford Road, Langley Mill	12
	Land adj 130 Station Road, Langley Mill	12
	Residue, Greenhilocks	12
D2182	106-112 CHAIN LANE	11
S2415	HOSPITAL LANE	11
S3015	askew grove	11
S2749	granville street	11
9/2010/0320	Old Plough Inn, Main Street	11
A3508	Main Street, Horsley Woodhouse	11
	Granwax, West Street, Riddings	11
D2211	THORNHILL ROAD	10
D2427	ST GEORGES WORKS FAIRE STREET	10
D2484	121A NUNS STREET	10
D2500	LAND RO WYE STREET	10
S2863	longlands lane	10
S3105	Coton Park Road	10
A2567	Catherine St, Alfreton	10
A2033	Hands Rd, Heanor	10
A2915	Bluebell Way, Heanor	10
A3506	QES Butterley Hill, Ripley	10
A3526	Church Hall, Moseley Street, Ripley	10
	Mount Street Car Park, Heanor	10
	rear of Butcher's Arms, Hands Road, Heanor	10
D2137	MERCHANT STREET	9
D2144	6 EDMUND ROAD	9
D2177	CAESAR STREET	9
D2501	FOUR WINDS OLD HALL AVENUE	9
S2662	HASTINGS ROAD	9
9/2008/0634	CADLEY HILL AND APPLEBY GLADE	9
S2860	STANHOPE ROAD	9
9/2008/1156	WEST SIDE OF BURTON ROAD	9
9/2010/0891	Mason Arms, Burton Road	9
A2712	Nottingham Road, Belper	9
A3498	Phase 2, Ewart Lane, Alfreton	9
S2820	Derby Road	8
S2522	BRETBY HALL	8
S2633	bridge street	8
S2836	rink drive	8
S3063	Holmleigh Way	8
9/2009/1026	BARLEY MOW, PARK ROAD, CHURCH GRESLEY , SWADLINCOTE, DE11 9QE	8
9/2012/1061	91, OVERSETTS ROAD, NEWHALL, SWADLINCOTE, DE11 0SL	8
A3498	Phase 1, Ewart Lane, Alfreton	8
D2270	DUNKIRK METHODIST CHURCH BAKEWELL STREET	7
D2321	BEECH WOOD HOUSE OSMASTON ROAD	7
D2382	8 - 10 STAFFORD STREET	7
D2498	MICKLEOVER BRITISH LEGION WESTERN ROAD	7
S1833	Miry Lane	7
S2809	gresley wood road	7
S2691	LAWN AVENUE	7
S3131	OFF SUTTON LANE	7
S3006	queens drive	7
S2288	ASTON HALL HOSPITAL (SUBS)	7
9/2008/0484	38 NEWHALL ROAD	7
S2806	Station Street	6
S1988	market street	6
S2695	NETHER HALL ROAD	6
S2724	clifton road	6
S3093	ALMA ROAD / OVERSETTS ROAD	6
S2843	swadlincote road	6
S2544	CASTLE WAY	6
S3161	WESTFIELD ROAD	6

9/2008/0029	89/89a GRANVILLE STREET	6
9/2011/0107	Blakenhall Farm	6
9/2009/0805	A AND M MOTORS PARK ROAD CHURCH GRESLEY SWADLINCOTE, DE11 9QE	6
D2403	ST EDMUNDS CHURCH HALL CHELLASTON ROAD	5
D2407	GISBOURNE ARMS FRANCHISE STREET	5
S2682	GEARY LANE	5
S2796	sunnyside	5
S2964	coppice side/ hastings road	5
S2003	HIGH STREET/STATION ROAD	5
S2772	SCHOOL STREET	5
9/2008/0416	JOHN STREET	5
S3058	GROTTO FARM, MOIRA ROAD	5
9/2012/0005	28, PRINCESS STREET, CHURCH GRESLEY, SWADLINCOTE, DE11 9JZ	5
9/2008/0789 (9/2012/0188)	REAR OF 32 CHAPEL STREET	5
A2052	Ryknield Hill, Denby	5
S3086	UTTOXETER ROAD	4
S3085	GRAVELPIT LANE, WEST OF, GRAVEL PIT HILL	4
S2840	CASTLE STREET	4
S2853	cockshut lane	4
S2665	edwards street	4
S2794	edward street	4
S2815	hallcroft avenue	4
S2504	PARLIAMENT STREET	4
S0605	BERNARD STREET	4
S2584	trent lane	4
9/2008/0013	11 CHURCH LANE	4
9/2008/1014	GOSELEY AVENUE	4
S1787	MONSOM FARM, MONSOM LANE	4
S2920	BLAKELOW FARM, OFF SUTTON LANE	4
9/2011/0794	14-16 ASKEW GROVE	4
9/2012/0493	2, ROSE TREE LANE, NEWHALL, SWADLINCOTE, DE11 0LN	4
9/2012/0482	FORMER CROWN INN, 8 PRINCESS STREET, CHURCH GRESLEY , SWADLINCOTE, DE11 9JZ	4
9/2012/0828	SMISBY MANOR, ANNWELL LANE, SMISBY, ASHBY DE LA ZOUCH, LE65 2TA	4
9/2012/1032	LAND AT ARCHERS BARN FARM, MOUNT PLEASANT ROAD, CASTLE gRESLEY, SWADLINCOTE, DE11 9RU	4
9/2011/0174	45 Alma Road	4
S1247	ARLESTON LANE	3
S2195	BURTON ROAD, SOUTH EAST OF 36	3
S2710	hartshill road	3
S2573	WELLAND ROAD	3
S2862	PERCY WOOD CLOSE	3
S2602	coton park	3
S2753	chapel street	3
S3091	GEORGE STREET	3
S3149	COMMERCE STREET	3
S2817	hallcroft lane	3
S2788	meadow view road	3
S3113	SWARKESTONE ROAD	3
S2572	ALBION STREET	3
9/2008/0917	MILL LANE	3
S1557	HALL FARM, TWYFORD ROAD	3
9/2008/0443	THE OLD HALL, LOWER GREEN	3
9/2008/0780	MANOR FARM, PIDDOCKS ROAD	3
S2792	COMMON END	3
S3025	ETWALL ROAD	3
S3230	WILLOW BROOK CLOSE	3
9/2011/0281	CHURCH FARM, CHURCH STREET	3
9/2011/0139	699 Burton Road	3
9/2011/0520	Coppice Farm	3
9/2012/0189	RECTORY FARM, SUTTON ON THE HILL, SUTTON ON THE HILL, DERBY, DE6 5JA	3
9/2012/0066	AND TO THE REAR OF 10, MAIN STREET, ROSLISTON, SWADLINCOTE, DE12 8JW	3
9/2012/0416	Land On The Corner Of Potters Croft And Coronation Street Swadlincote, DE11 0BQ	3
9/2012/0504	13 & 13A, WOODVILLE ROAD, OVERSEAL, SWADLINCOTE, DE12 6JG	3
9/2012/0953	113, HASTINGS ROAD, SWADLINCOTE, DE11 9AL	3
9/2012/0923	78, ASHBY ROAD, MELBOURNE, DERBY, DE73 8ES	3
A2376	Old Road, Heage	3
S2876	Weston road	2
S1347	HILL FARM NW OF	2
S2690	ashby road east	2
S2936	bretby hall park	2
S2468	STATION STREET, BETWEEN 32 & 38	2
S2612	MEYNELL STREET	2
S2937	Common Road	2
S2975	regent street	2

S2980	queen street	2
S3183	-	2
S2360	bellfield road	2
S2909	doles lane	2
S2757	Sutton Lane	2
S2942	church avenue	2
S2152	meadow lane	2
S2686	off back lane	2
S2775	the close	2
S3031	Linton Heath	2
S2084	woodhouses	2
S2773	Union Street	2
S2857	penn lane	2
S2869	potter street	2
S2913	hope street	2
S2973	south street	2
S2564	midway road	2
S1709	acresford road	2
S3041	MILTON ROAD	2
S2417	BOTANY BAY	2
S2508	bretby road	2
S2844	maypole hill and high street	2
S1721	DISH LANE	2
S2921	Darklands Road	2
S2394	narrow lane	2
S1565	Bells End Road	2
S2595	twyford road	2
S3177	BEECH AVENUE	2
S2940	Vicarage Road	2
S2535	DALE END ROAD	2
9/2008/0215	MIDLAND ROAD	2
9/2008/0222	MERCIA DRIVE	2
9/2008/0399	ROSE TREE LANE	2
9/2008/0411	TALBOT STREET	2
9/2008/0720	MOOR LANE	2
9/2008/1004	TICKNALL ROAD	2
S2678	PARK FARM	2
S2780	HALL LANE	2
S2934	SCROPTON ROAD	2
S3068	PRINCES AVENUE	2
S3134	PARK ROAD	2
S3157	MOUNT STREET	2
S3171	HIGH STREET	2
S3218	TRENT AVENUE	2
S3233	RENSHAW DRIVE	2
SUD/0000/3272	HALL STREET	2
9/2009/0352	BERNARD STREET	2
9/2009/0541	Bank Street	2
9/2011/0262	Park Farm, Main Street	2
9/2011/0260	45-47 WESTON STREET	2
9/2011/0587	Band Room, Church Street	2
9/2011/0569	Castleway	2
9/2011/0590	22 Gorsey Leys	2
9/2011/0718	LAND ADJACENT TO 27 MOIRA ROAD	2
9/2011/0604	Tanners Lane	2
9/2012/0343	FORMER TAMWORTH CO OPERATIVE STORE, MAIN STREET, ROSLISTON, SWADLINCOTE, DE12 8JW	2
9/2012/0415	LAND TO REAR OF 8 VALLEY ROAD, VALLEY ROAD, OVERSEAL, SWADLINCOTE, DE12 6NL	2
9/2012/0259	THE BRIARS /, OLIVETTE, DALBURY LEES, ASHBOURNE, DE6 5BE	2
9/2012/0294	60, ASHBY ROAD, MELBOURNE, DERBY, DE73 8ES	2
9/2012/0305	LAND ADJOINING CASTLE COURT, CASTLE COURT, ELVASTON, DE72 3GZ	2
9/2012/0641	15 16, Land R/O WILSON CLOSE, MICKLEOVER, DERBY, DE3 0DT	2
9/2012/0518	LAND ADJACENT TO, 5 BEAUMONT CLOSE, BARROW ON TRENT, DERBY, DE73 7HQ	2
9/2012/0625	LAND ADJACENT 26, PRINCESS STREET, CHURCH GRESLEY, SWADLINCOTE, DE11 9JZ	2
9/2012/0985	707, BURTON ROAD, MIDWAY , SWADLINCOTE, DE11 0DL	2
9/2011/0137	95 Landsdowne Road	2
9/2011/0343	The Oaks, Green Lane	2
9/2011/0146	159 Ashby Road	2
A2734	Deepdale Road, Belper	2
D1696	CHAIN LANE	1
D2084	CHATSWORTH DRIVE/DEVONSHIRE DRIVE	1
S2812	rectory gardens	1
S3010	Aston lane	1
S2496	twofold road	1

S3072	Bannells Lane	1
S1321	bretby lane	1
S2813	walnut close	1
S2363	MOUNT ROAD	1
S2839	oak close	1
S2898	linton road	1
S2636	CATTON ESTATE	1
S1814	bent lane	1
S2565	sutton road	1
S2846	twisses bank	1
S1909	WINDMILL street	1
S2446	new street	1
S2622	Spring Street	1
S2851	oak street	1
S3003	OXFORD STREET	1
S3163	COTON LANE/CRAFTY FLATS LANE	1
S2642	long lane	1
S2664	poplar grove farm	1
S3045	LEES LANE	1
S2747	hilton road	1
S2708	JACKSON LANE	1
S2886	heage lane	1
S3096	WILLINGTON ROAD	1
S2551	Common Piece Lane	1
S2671	PORTERS LANE	1
S2715	beech drive	1
S2300	NETHERCLOSE FARM	1
S2680	SCROPTON LANE	1
S3076	Leathersley Lane	1
S2315	coal lane	1
S2885	Church Street	1
S3107	FLAX COURT	1
S3143	THE HAYES	1
S2276	oak drive	1
S2676	willowpit lane	1
S2974	ELM DRIVE	1
S3050	SHADY GROVE	1
S2716	cauldwell road	1
S2866	Hillside Road	1
S2978	colliery lane	1
S3070	The Crest	1
S1277	blackwell lane	1
S2202	TRENT LANE,THE ELMS,KINGS NEWTON	1
S2467	MAIN STREET, STABLE AT KINGS NEWTON HALL	1
S2687	victoria street	1
S2950	alma street	1
S3056	ROBINSONS HILL	1
S3060	Pack Horse Road	1
S3090	North Street	1
S3144	BREACH LANE	1
S3186	OFF COCKSHUT LANE	1
S2632	dog lane	1
S2658	GRANGEWOOD ROAD	1
S2754	lodge road	1
S2822	grangewood	1
S2882	OSLESTON LANE	1
S3037	CROPPER LANE	1
S2651	valley road	1
S2795	woodlands road	1
S2955	gorsey leys	1
S2811	red lane	1
S2786	ambaston lane	1
S2870	THE WHARF	1
S2892	millfield and wilne lane	1
S3047	Canal Bank	1
S3116	LONDON ROAD	1
S1468	The Rise	1
S2189	WOODVIEW ROAD	1
S2449	PARK ROAD, BUILDER'S YARD SOUTH OF 8-10	1
S2900	off woodland road	1
S2997	hill street	1
S3005	the leys	1
S3013	Orchard Street	1
S2791	ingelby road	1
S3069	A514 (STANTON HILL) AND B587 (STANTON BY BRIDGE)	1

S3115	OFF MARLPIT LANE/COMMON LANE	1
S2988	Hearthcote Road	1
S3048	West Street	1
S2361	LOWES LANE	1
S2589	BANTONS LANE	1
S2931	Church Lane	1
S1870	BUCKFORD LANE	1
S2856	drakelow road	1
S2873	station lane	1
S2896	rosliston road	1
S2377	BRIDGE LANE	1
S3012	THE GREEN	1
S3244	WESTONHILL CHALET PARK	1
S2960	fern close	1
S3067	Bargate Lane	1
S2396	BELVEDERE ROAD, HIGHWAYS DEPOT N E BNDRY	1
S3053	heron drive	1
S0374	BROOK END	1
9/2008/0819	Mills Lane	1
9/2008/1021	Trent Side	1
9/2008/1063	GREYSICH LANE	1
9/2009/0976	The City	1
S2744	back lane	1
S2919	PRINCESS AVENUE	1
S2966	LUCAS LANE	1
S2990	CHERRY TREE LANE	1
S3028	Kingfisher Avenue	1
S3040	VALERIE ROAD	1
S3073	Castle Hill	1
9/2009/0358	ROSE COTTAGE, A514	1
S3145	OAK ROAD	1
S3150	MALLARD WALK	1
S3170	STATION ROAD	1
S3194	LARCH ROAD	1
S3200	STENSON ROAD	1
S3212	THE GLEBE	1
9/2010/0711	WILNE ROAD	1
9/2010/0561	WESTON STREET	1
S3220	POPLAR AVENUE	1
S3229	OFF MELBOURNE ROAD	1
S3246	ALMA ROAD	1
S3252	OAKS ROAD	1
S3259	BELFIELD ROAD	1
S3260	COTON ROAD	1
S3275	0	1
S3287	Apple tree Road	1
9/2009/0781	Wood Lane	1
9/2009/0490		1
9/2009/0568	The Crescent	1
9/2009/0611	Cropper Farm	1
9/2011/0149	93 Derby Road	1
9/2011/0254	44 Kings Mill Lane	1
9/2011/0464	Arnolds Close	1
9/2011/0316	7A PINFOLD LANE	1
9/2011/0584	159 Station Road	1
9/2011/0582	30 BELVEDERE ROAD	1
9/2011/0559	The Willows	1
9/2011/0635	STANTON HOUSE FARM	1
9/2011/0867	SAPPERTON LANE	1
9/2011/0995	Garages on Granville Street	1
9/2011/1016	41 Station Road	1
9/2012/0190	COLBERE ENGINEERING LTD CHURCH LANE CALDWELL SWADLINCOTE, DE12 6RT	1
9/2012/0252	ST JOHNS VICARAGE LAND ADJACENT TO CHURCH STREET NEWHALL SWADLINCOTE, DE11 0HY	1
9/2011/0894	FALLOWFIELD, MILL STREET, COTON IN THE ELMS, SWADLINCOTE, DE12 8ES	1
9/2012/0842	CORNER HOUSE, WOODSHOP LANE, SWARKESTONE, DERBY, DE73 7GR	1
9/2012/0125	LAND ADJACENT TO FRIARY HOUSE, HILTON ROAD, ETWALL, DERBY, DE65 6HZ	1
9/2012/0130	84, BURTON ROAD, FINDERN, DERBY, DE65 6BE	1
9/2012/0158	83, STANHOPE ROAD, SWADLINCOTE, DE11 9BG	1
9/2012/1070	GRANGEFIELD COTTAGES PLOT 1, OSLESTON LANE, DALBURY LEES , ASHBOURNE, DE6 5BN	1
9/2011/0992	39, LONDON ROAD, SHARDLOW, DERBY, DE72 2GR	1
9/2012/0180	EAR OF 44 & 46 LAND AT ASKEW GROVE, MILTON ROAD, REPTON , DERBY, DE65 6FZ	1
9/2012/0331	THE COPPICE, COPLOW LANE, FOSTON, DERBY, DE65 5DL	1
9/2012/0643	31 HIGH STREET LINTON SWADLINCOTE, DE12 6QL	1

9/2012/0478	5 SLADE FARM, ROSE LANE, TICKNALL, DERBY, DE73 7LB	1
9/2012/0492	1, INGLEBY LANE, TICKNALL, DERBY, DE73 7JX	1
9/2012/0572	TALLY HO, HILTON ROAD, ETWALL, DERBY, DE65 6NL	1
9/2005/0901	SHARDLOW MARINA, LONDON ROAD, SHARDLOW, DERBY, DE72 2GL	1
9/2012/0715	BT EXCHANGE LAND ADJACENT CHAPEL STREET, MELBOURNE, DERBY, DE73 8EH	1
9/2012/0934	23, MERCIA DRIVE, WILLINGTON, DERBY, DE65 6DA	1
9/2012/0901	2A, DOMINION ROAD, SWADLINCOTE, DE11 0AY	1
9/2012/1071	32, ASHBY ROAD, MELBOURNE, DEBY, DE73 8ES	1
9/2012/0971	168, STATION ROAD, HATTON, DERBY, DE65 5EH	1
9/2012/0821	POPLARS FARM INGLEBY ROAD STANTON BY BRIDGE DERBY, DE73 7HU	1
9/2012/0824	63 DARKLANDS ROAD SWADLINCOTE, DE11 0PG	1
9/2012/0886	76, CHURCH STREET, CHURCH GRESLEY , SWADLINCOTE, DE11 9NP	1
9/2012/0909	10, HIGH STREET, TICKNALL, DERBY, DE73 7JH	1
9/2012/0806	1, THE GARDENS LAND ADJACENT TO CHAPEL LANE, CHURCH BROUGHTON , DERBY, DE65 5BB	1
9/2010/0375	NEWHALL ROAD	1
9/2011/0157	71 - 85 Belmont Street	1
S3011 (9/2009/0963)	THE FORGE	1

Table 2 - Commitments and Completions (Office)

Site Reference	Floorspace (sqm)
9/2005/1174 Swarkestone Road Derby	2315
9/2005/0597 Heage Lane, Etwall	40
9/2006/1289 Badger Farm, Hilton	0
9/2008/0407 Manor Farm, Shardlow	296
9/2006/1232 Home Farm, Calke	21
9/2008/0645 Byzant House, Swarkestone	396
9/2009/0152 Hill Street, Swadlincote	66
9/2008/0260 Derby Road, Melbourne	408
9/2008/0831 Woodyard Lane, Foston	480
9/2011/0302 Hartshorne Rd, Woodville	214
9/2012/0815 Twyford Road, Willington	75
9/2012/0332 56-58 High Street, Swadlincote	207
AVA/2000/0547	15793
AVA/2008/0539	344
AVA/2008/0291	484
AVA/2008/0827	152
AVA/2005/1385	15150
AVA/2006/1315	21309
AVA/2006/0072	2015
AVA/2009/0361	520
AVA/2009/0369	525
AVA/2010/0231	415
AVA/2007/0399	1840
AVA/2008/1332	24088
AVA/2009/0467	5075
AVA/2011/0453	1394
AVA/2011/0605	582
AVA/2009/0419	1000
AVA/2009/1092	1134
AVA/2010/1060	595
AVA/2008/0503	750
AVA/2008/0651	1657
AVA/2009/0122	580
AVA/2010/0953	612
AVA/2010/0995	978
AVA/2011/0706	2541
AVA/2010/0475	1260
AVA/2007/0649	1250
AVA/2007/0759	13805
AVA/2008/0296	523
AVA/2009/0347	2231
AVA/2010/0701	815
AVA/2011/0402	5575
AVA/2010/1197	552
AVA/2010/0367	629
AVA/2008/1344	898
AVA/2009/0356	898

AVA/2009/0369	525
AVA/2011/1133	775
AVA/2010/0345	788
AVA/2008/0773	2467
AVA/2005/0528	925
AVA/2008/0291	1584
AVA/2008/0869	879
AVA/2009/0103	6032
AVA/2010/0352	995
AVA/2007/0815	1861
AVA/2008/0444	1082
AVA/2010/1143	825
AVA/2011/0438	1082
AVA/2011/0822	2073
AVA/2006/1219	83800
AVA/2008/0940	879
AVA/2011/0762	83400
AVA/2005/1022	1280
AVA/2007/1284	1190
AVA/2010/0890	789
AVA/2010/0951	702
AVA/2011/0293	5500
Blueprint - Bold Lane	3700
Corner of Ford Street & Friar Gate	2600
Bolsterstone - Cathedral Road	6000
Clowes - Cathedral Road	1000
Clowes - St Marys Gate	500
Cedar House - Cathedral Road	7700
Wilson Bowden - Full Street	15000
Council House Refurb	3669
Norseman - North Castleward	46000
Derbyshire Royal Infirmary	3000
Lowbridge - Agard Street	9000
Stores Road	3500
Former Bogey Works - Pride Park	15000
Orient Way, Pride Park	5550
Pride Park (Riverside)	9500
Pride Park	21900
Wilmorton School	1000
Alfreton Road	737
Alfreton Road	2230
Pride Park (East of Gas Holder)	8150
Pride Plaza	2000
Chaddesden Sidings (South)	30000
Manor Kingsway	20000
Wyvern Business Park	13000
Asterdale Sports Club	2250
Land south of Chellaston	6000
Wilmore Road Training Centre	4400
Rykneld Road	7000
Land South of Wilmore Road	2500

Table 3 - Commitments and Completions (Industry)

Site Reference	Floorspace (sqm)
9/2000/1067 Cadley Hill Industrial Estate	1080
9/2003/0687 TNT, former Cadley Hill Colliery	14305
9/2002/1313 Bison Concrete, former Cadley Hill Colliery	29568
9/2004/1477 Plot 5000 Dove Valley Park, Foston	57000
9/2005/0245 Plot 2000 Dove Valley Park, Foston	7435
9/2001/0686 Cadley Hill Industrial Estate	1675
9/2002/0456 Lilypool Industrial Estate	834
9/2004/0255 Former Swadlincote Colliery	2786
9/2002/1134 Blakenhall Farm Caldwell	946
9/2004/1535 Former Cadley Hill Colliery	2296
9/2002/0578 Royle Farm, Drakelow	2827
9/2003/0287 Land off Woodyard Lane, Foston	4254
9/2003/0699 Riding Bank Farm, Melbourne	1211
9/2005/0931 Heath Top, Church Broughton	8700
9/2005/0657 Zone 2, former Cadley Hill Colliery	8073
9/2005/0642 Former Swadlincote Colliery	3600
9/2004/1405 former Swadlincote Colliery	1760
9/2006/0970 Former Cadley Hill Colliery	13172
9/2005/0841 Former Cadley Hill Colliery	8671
Policy EMP2 South Derbys Local Plan - Cadley Hill	736
9/2004/1253 Breach Farm, Cadley Lane, Caldwell	1877
9/2005/0351 Sinfin Lane, Barrow on Trent	1500
9/2008/1045 Scaddows Farm, Ticknall	1365
9/2005/0079 Newlands Farm, Hilton	930
9/2001/0770 Plot 2500 Dove Valley Business Park	71349
9/2010/0868 Unit 2100A Dove Valley Business Park	7624
9/2010/0869 Unit 2100B Dove Valley Business Park	8288
9/2010/0870 Unit 2050 Dove Valley Business Park	2630
9/2010/0871 Unit 3000 Dove Valley Business Park	28136
9/2010/0872 Unit 5500 Dove Valley Business Park	13862
9/2005/0270 Occupation Lane, Woodville	5620
9/2001/1220 Swadlincote Road, Woodville	3412
9/2007/0070 Former Swadlincote Colliery	302
9/2006/0444 Former Swadlincote Colliery	1535
9/2002/0499 Woodyard Lane, Foston	3159
9/2002/0005 Occupation Lane, Woodville	5620
9/2001/0891 Stenson Road, Stenson Fields	335
9/2006/0938 Burton Road , Acresford	618
9/2004/0652 E T Bentley, Foston	950
9/2003/1500 Woodyard Lane, Foston	7965
9/2006/1416 Former Cadley Hill Colliery	7965
9/2007/0357 Former Cadley Hill Colliery	2241
9/2009/0147 Woodyard Lane Farm, Foston	16750
9/2005/1283 Sapperton Manor Farm	1150
9/2007/1143 Tetron Point, Swadlincote	3775
9/2008/0693 Staker Flatt Farm, Burnaston	198
9/2009/0497 Rosliston Forestry Centre	235

9/2008/0442 Occupation Lane, Woodville	364
9/2009/0341 Walton Road, Drakelow	50640
9/2007/0135 Woodyard Lane, Foston	11940
9/2008/0707 ATL, Woodyard Lane, Foston	3600
9/2009/0582 Council Farm, Stanton	466
9/2006/0785 Walton Road, Drakelow	1875
9/2007/1401 Nestle, Hatton	335
9/2006/1229 Ryder Close, Swadlincote	112
9/2008/0972/979 Sapperton Manor, Church Broughton	1600
9/2008/0377 Bretby Business Park	2310
9/2008/0938 ATL, Foston	100
9/2009/0529 Barton Fields, Barton Blount	486
9/2009/0452 Unit 2 Castle Lane Melbourne	3870
9/2009/0298 Annwell Lane, Smisby	240
9/2006/0770 Isoma Conveyors, Swadlincote	400
9/2008/0837 Bison Concrete, Swadlincote	356
9/2008/0609 WS Tanker Group, Foston	1260
9/2004/0902 Castle Street, Melbourne	755
9/2009/0692 Anwell Lane, Smisby	130
9/2009/0016 Castle Lane, Melbourne	224
9/2007/0364 Castle Lane, Melbourne	315
9/2009/0419 Sutton Lane, Hilton	85
9/2009/0354 Uttoxeter Road, Foston	352
9/2008/1054 Black Fir Tree Farm, Dalbury Lees	48
9/2009/0168 Bretby Business Park	1070
9/2009/0392 Heage Lane, Etwall	245
9/2009/0186 Marston Lane, Hatton	1397
9/2010/0818 Windy Ridge, Findern	171
9/2011/0014 Bretby Hotel and Conference Centre	4613
9/2010/0110 Badger Farm, Hilton	390
9/2010/1083 Oaklands Farm, Walton-on-Trent	587
9/2010/0997 Astec Conveyors, Swadlincote	756
9/2011/0288 Sinfin Lane, Barrow on Trent	3288
9/2011/0335 Toyota, Burnaston	323
9/2011/0365 Ryder Close, Swadlincote	714
9/2011/0471 Hay Lane, Foston	521
9/2011/0510 Boardman Road, Swad	664
9/2011/0557 Willowpit Lane, Hilton	1750
9/2011/0606 Dove Valley Business Park, Foston	42
9/2011/0609 Dove Valley Business Park. Foston	900
9/2011/0873 Derby Hills, The Common, Melbourne	147
9/2012/0857 The Common, Melbourne	200
9/2007/1214 Walton Road, Drakelow	853
9/2008/0407 Manor Farm, Shardlow	296
9/2004/1620 The Common, Melbourne	750
9/2005/1174 Swarkestone Road, Derby	2315
9/2011/0967 Nestle, Hatton	17
9/2011/0503 Nestle, Hatton	2376
9/2011/1026 Nestle, Hatton	3371
9/2012/0546 Nestle, Hatton	396

9/2012/0630 Nestle, Hatton	33646
9/2011/0824 Staunton Lane, Calke	175
9/2011/0302 Hartshorne Road, Woodville	214
9/2011/0417 Pool Street, Church Gresley	410
9/2012/0344 Forties Lane, Smisby	198
London Road	500
Land west of Stores Road	8350
Hansard Gate	1700
Chequers Lane	2000
Sawley Packaging	8000
Chaddesden Sidings (West)	26000
Land South of Locomotive Way	6200
Land off London Road	4600
London Road	1000
Carriage & Wagon Rec Ground	1762
Penine Healthcare	700
Slack Lane	2900
Pride Park	13200
Ascot Drive	1000
Harvey Road	1800
Longbridge Lane	18338
Ascot Drive	2000
Elton Road	850
Chaddesden Sidings (South)	82000
Nottingham Road, Spondon West	8200
Nottingham Road, Spondon Central	1500
Anglers Lane	2060
Raynesway - Axion	15000
RR Raynesway	20000
Raynesway West	6000
Osmaston Park Road	4100
Victory Road	29000
RR Wilmore Road / Sinfin Lane	30000
Sinfin Tannery	7000
Raynesway	60000
Land south of Wilmore Road	35000
Wilmore Road	5000
RR Wilmore Road / Sinfin Lane	30000
Land south of Wilmore Road	100000
Raynesway	142000

Table 4 - Commitments and Completions (Retail)

Site Reference	Floorspace (sqm)
Derbyshire Royal Infirmary	5667
Friar Gate Goods Yard	12500
Tesco Allenton	8546
Sainsburys Extension - OPR	4239
Sainsburys Extension - Wyvern	3989
Lidl - Chaddesden	1387
Meteor Redevelopment	13000
Boots 'Edge of Centre' store (complete)	1400
Extension to Asda	1300
B&Q Warehouse (permission exists)	13000
Potential new supermarket within Eastern Fringes Area	1200
Retail element of Riverlights (small scale ancillary retail)	400
Extension to Eagle Centre (under construction - floorspace figure relates to net increase)	48000
New neighbourhood centre	750
Redevelopment of existing B&Q	3000
Expansion of Heatherton Retail Facilities (part of Policy H9 - convenience floorspace expected)	1000
Tesco Metro - Abbey Street	300
Castleward Retail (Retail)	1000
Evans of Leeds (Retail)	400
Former Wraggs Pipeworks, Coppice Side, Swadlincote	6970
Coppice Side, Swadlincote: non-food retail, food and drink uses	7700
2 non-food retail units, Darklands Road, Swadlincote	2781
Aldi, Huntspill Road, Hilton	990
Extension to Sainsbury's, Civic Way, Swadlincote	2284
Willington service area retail element	1065
Mercia Marina, Findern Lane, Willington	688
Glamorgan Way, Church Gresley	650
Boulton Moor	1000
Taylors Mill, Wellington Street, Ripley	635

Appendix – B: List of Core Strategy Strategic Sites

Table 1. List of Strategic Sites for Derby HMA

Description	Land Use	Dwellings/Floorspace
DER/0105 Boulton Moor	Residential (units)	800
	Retail (floorspace)	1000sqm
	Education (floorspace)	1285 sqm
DER/0018 Hackwood Farm	Residential (units)	400
	Retail (floorspace)	1000 sqm
	Education (floorspace)	1285 sqm
DER/0008 Nightingale Works	Residential (units)	400
	Industrial (floorspace)	-100,000
DER/0011 RR Elton Road	Residential (units)	50
	Residential (units)	50
DER/0104 Wragley Way	Residential (units)	180
Brook Farm Chaddesden	Residential (units)	275
South of Mansfield Road/Hill Top	Residential (units)	200
Holmleigh Way, Derby	Residential (units)	49
Onslow Road	Residential (units)	200
CITY CENTRE STRATEGIC LOCATION	Residential (units)	300
Infinity Park ext (Land South of Sinfin Moor Lane)	Industrial/Waterhouse (floorspace)	45,000 sqm
	Office (floorspace)	5,000 sqm
S0231 - Primula Way	Residential	366
S0090 - Wragley Way	Residential	1,180
	Retail sq m	1,950
	Education sq m	1,285
S0220 - Chellaston Fields	Residential	450
	Retail sq m	650
	Education sq m	300
S0072 - Boulton Moor Phase 2	Residential	700
Boulton Moor Phase 3	Residential	190
Land off Holmleigh Way	Residential	150
Land at Hackwood Farm	Residential	290
S0086 - Broomy Farm	Residential	400
S0034 - Land NE of Hatton	Residential	400
	Retail sq m	600
S0095 - North of William Nadin Way	Residential	600
S0202 - Church Street, Church Gresley	Residential	400
S0094 - Land off The Mease, Hilton	Residential	500
	Employment	35,000
	Education sqm	300
S0088 - Longlands, Repton	Residential	100
S0033 - Willington Road, Etwall	Residential	100
	Leisure	18,000
S0251 - Aston-on-Trent	Residential	100
S0099 - Woodville Regeneration Area	Employment	87,500
	Residential	437
Land South of Cadley Hill	Employment	40,000
Land North of Dove Valley Business Park	Employment	140,150
Stenson Fields Estate	Residential	98
AVA/2012/0084 'Outseats Farm	Residential	500
AVBC/2013/0004 Land at Alfreton Rd, Codnor	Residential	600
AVBC/ 2008/0200Land North of Derby	Residential	1,800
AVBC/2013/0005 Land at Nottingham Rd Ripley	Residential	560
AVBC/2008/0154 Newlands Heanor	Residential	500

APPENDIX 7: SOCIO-ECONOMICS BASELINE INFORMATION

SOCIO-ECONOMICS

Initial Desk Top Study

Study Area and Commuter Flows

1.1 It is important when undertaking an assessment of social and economic effects that the geographical scope of the assessment is clearly understood.

1.2 The Site falls within the administrative boundary of South Derbyshire (SD) in the Etwall ward, therefore socio-economic effects will be felt within this area. However due to the size of the Development, travel to work patterns and the proximity to strategic road and rail linkages, some effects will be felt over a wider area. Also the large Toyota European Production Centre is located within the Etwall ward and is therefore likely to influence existing employment statistics which may not be representative of the wider region.

1.3 Due to the employment nature of the Development, there are impacts located within the labour catchment area otherwise known as the travel to work areas (TTWA). Using data from the 2011 Census Annual Population Survey (APS) commuter flows, Table 6.2 below shows the number of commuters travelling into SD from their location of residence. It shows that a large proportion (39%) of the labour market for SD resides within the same area, however there is still 61% commuting from surrounding boroughs, primarily from East Staffordshire, Derby and NW Leicestershire.

Table 6.2 Inward Commuting Flows to South Derbyshire

Place of residence	Number of commuters (%)
South Derbyshire	39
East Staffordshire	18
Derby	15.5
NW Leicestershire	12
Hinckley and Bosworth	2
Amber Valley	1.5
Erewash	1.5
Tamworth	1.5
Nottingham	1.5
Leicester	1.5
Lichfield	1
Birmingham	1
Bracknell Forest	1

Rushcliffe	1
Coventry	1
Charnwood	0.5

Source: Annual Population Survey commuter flows, local authorities in GB 2011

1.4 The SD Employment Land Review (2007) used 2001 census data to evaluate travel to work patterns which showed that of SD's working residents, 60% were commuting to surrounding districts. Data from the 2011 APS outward commuter flows show that 61% are now commuting to surrounding districts so little has changed in a ten year time period. SD is a net exporter of labour.

1.5 A TTWA map has been produced by the Office of National Statistics (ONS) which was published in 2007 and is based on the 2001 Census data. The 2011 Census map is due in 2015. The TTWAs have been developed as approximations to self-contained labour markets and are a statistical analysis rather than administrative boundaries. The location of the Site on Figure 6.1 below is between the Derby and Burton upon Trent TTWA (Site denoted by red star). The criteria for defining TTWAs are that at least 75% of the area's resident workforce work in the area and at least 75% of the people who work in the area also live in the area.

Figure 6.1 TTWA's map (star denoting Site)

Source: 2001 ONS Census Data

1.6 The population of an area changes as people move in and out of an area to work on a daily basis. For the workday populations the usual resident population is redistributed to their places of work, while those not in work are recorded at their usual residence. 2011 Census data[1] shows that SD has a 20% decrease in population during the workday whilst statistics for surrounding boroughs are as follows: East Staffordshire - 5.1% increase, NW Leicestershire - 10.8% increase and Derby City - 6.3% increase.

1.7 Therefore based on this information and the location of the Site between Derby and Burton upon Trent, a study area has been derived comprising the local authority areas of South Derbyshire (SD), Derby City (DC) and East Staffordshire (ES). This has been used when collating baseline socio-economic data.

1.8 Other baseline assessments have been appropriately undertaken at a local level of SD and the Etwall ward where appropriate to understand local conditions.

1.9 In addition to this, due to the scale and nature of the Development as a regional and national distribution centre, further wider impacts will be felt across the region (East Midlands) and nationally across England. Throughout the assessment definitions have been made clear as to which geographical area is being studied.

Population

1.10 SD is spread over 33.812 hectares (ha) with a density of 2.8 persons per ha, which is lower than Derbyshire (3.0 persons per ha) and England (4.1 persons per ha). It is more sparsely populated owing to its semi-rural environment with a lack of large urban settlements.

1.11 The latest 2011 census shows that SD has the lowest population in comparison to the surrounding councils, with DC doubling the population due to Derby city being a major economic centre. However in comparison to 2001 data, SD has seen an increase of 16% in the population in comparison to just a 4.1% increase over Derbyshire county. The total population in the study area in 2011 was 427,106 of which 94,611 lived in SDDC and 5,584 in the Etwall ward. The mid-year estimates (2012) show that the population in the Etwall ward is 5,574.

Population Projections

1.12 Population projections have been derived from the interim 2011 sub-national population projections provided by the ONS. The interim 2011-based sub-national population projections are an indication of the future trends in population by age and sex over the next 10 years. They are trend-based projections, which mean assumptions for future levels of births, deaths and migration are based on observed levels mainly over the 2006 to 2010 period, as used in the 2010-based sub-national population projections.

Table 6.3: Population Forecast for SD (rounded to nearest 100)

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
96,200	97,500	98,800	100,000	101,400	120,600	103,800	105,100	106,300	107,500

Source: ONS interim-2011 subnational population projections

1.13 This can be validated against the current population estimate from the mid year 2012 data, which states that SD has a population of 96,000, which is just under the population prediction of 98,790.

Qualifications

1.14 SD has below average qualifications with only 52% achieving a National Vocational Qualification level 3 (NVQ3) and above compared to the regional national average of 56%. Only 28% achieved NVQ4 and above in SD in comparison to the regional (30%) and national average of 35%.

1.15 Using the Public Health England (PHE) health profile for SD (2013), it can be seen that the SD population performs significantly worst than the national average in achieving 5A* to C GCSE grades.

Employment and Economy

Existing Employment on Site

1.16 An existing waste water treatment facility operated by Severn Trent Water Ltd and an in-vessel composting facility operating by Biffa Waste Services Ltd are located centrally within the Site. Parts of the site are used for the growing of crops for use as biofuel.

Employment

1.17 Table 6.4 shows that within the study area, SD (79.2%) has a higher than average percentage of economically active population both regionally (71.7%) and nationally (71.5%). This is the number of people aged 16-64 who are economically active (i.e. who are either in employment or unemployed), as a percentage of all working age people. In comparison DC has a below average (71.1%) proportion of the population being economically active.

Table 6.4 – Economically Active

Economically Active	SD (%)	ES (%)	DC(%)	East Midlands (%)	UK (%)
Employed	79.2	80.6	71.1	71.7	71.5
Unemployed	4.4	4.6	8.7	7.4	7.5

Source: Neighbourhood Statistics ONS 2011 census

1.18 Employees in SD earn approximately £493 a week (2013 ONS annual survey of hours and earnings)[2] which is more than the East Midlands average at £474 a week but less the GB average at £518 a week.

Industry and Occupations

1.19 SD and the study area's economy is driven by its location and proximity to key infrastructure through road links and East Midlands Airport. It is also situated in the centre of England with national and internal links, therefore making it internal headquarters of several major multi-national businesses, including Toyota.

1.20 SD is dominated by manufacturing and transport & storage industries with some head office locations whilst there is relatively less employment and fewer businesses units in retail, information and financial sectors.

1.21 The Toyota headquarters lie directly north of the Site across the A50. The Toyota site covers approximately 234ha and employs over 3,000 people. This demonstrates why is it useful to also compare data from the study area which gives a broader range of information from surrounding industries.

Table 6.5 – Actively Employed by Industry

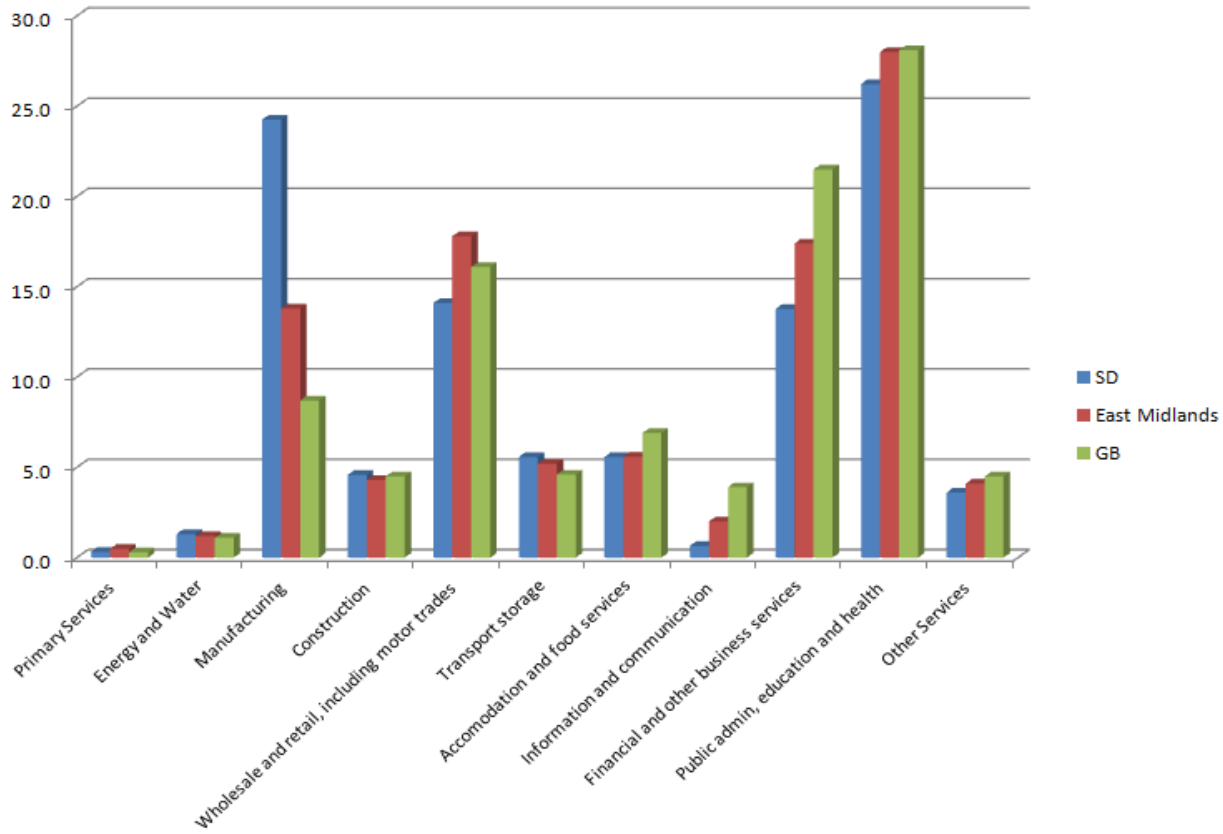
Industry	Study Area	SD	East Midlands	GB
Primary Services	0.3	0.3	0.5	0.3

Energy and Water	1.1	1.3	1.2	1.1
Manufacturing	18.7	24.3	13.8	8.7
Construction	3.5	4.6	4.3	4.5
Wholesale and retail, including motor trades	15.7	14.1	17.8	16.1
Transport & storage	4.7	5.6	5.2	4.6
Accommodation and food services	5.7	5.6	5.6	6.9
Information and communication	2.3	0.7	2	3.9
Financial and other business services	16.6	13.8	17.4	21.5
Public admin, education and health	27.3	26.2	28	28.1
Other Services	4.1	3.6	4.1	4.5

Source: ONS business register and employment survey

1.22 As illustrated in Table 6.5, the manufacturing industry in the study area is 10% above the national average. Looking at SD where the Site is located, the manufacturing industry is even higher (24.3%) than the study area (18.7%). To understand the immediate surrounding industries of the Site, Figure 6.2 has been produced to illustrate the differences. The Transport & Storage industry in SD (5.6%) is also above the regional (5.2%) and national (4.6%) average.

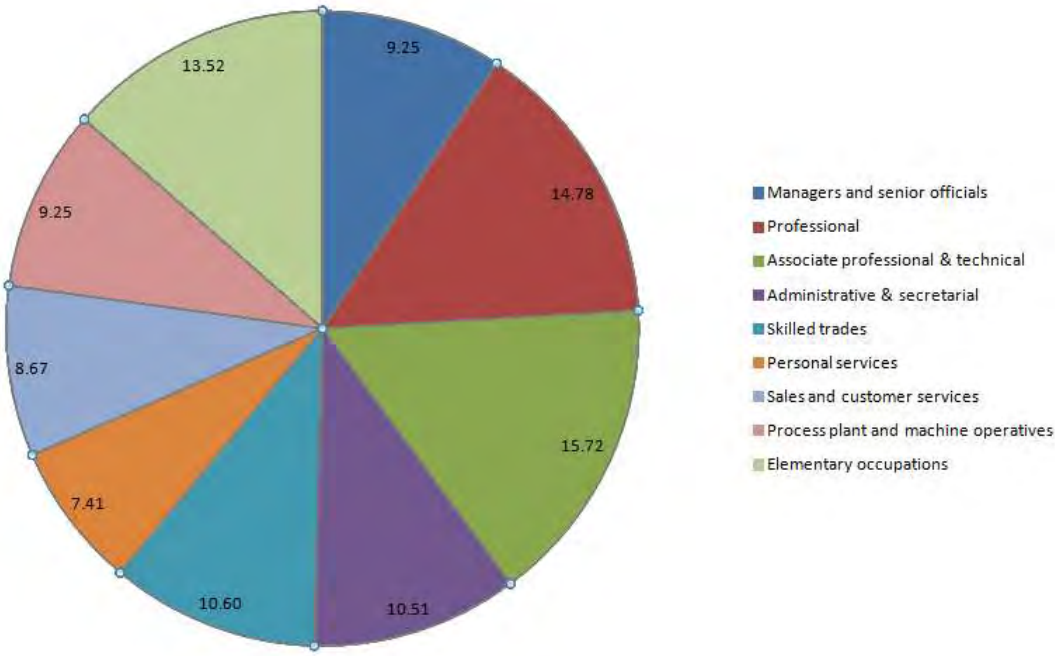
Figure 6.2 - Jobs within Industry of the Employed (%)



Source: ONS Business Register and Employment Survey

1.23 Using the 2011 census APS data from January 2013 to December 2013, the occupation of the employed was calculated for the study area to give an understanding of the existing baseline in and around wider surrounding area from the Site. The study area has been used as this demonstrates the labour catchment area. Figure 6.4 shows that the study area has a relatively equal spread across the sectors with 'Professional Occupations' and 'Associate Professional and Technical Occupations forming the majority at 14.78% and 15.72% respectively. These are both high skilled sectors, however the majority of occupations are based around the lower skilled sectors to include administration, sales and plant operatives. This occupational structure is reflected in the Manufacturing and Wholesale & Retail industries of the study area.

Figure 6.3 - Employees by Occupation (%)



Source: NOMIS, Annual Population Survey Jan 2013 to Dec 2013

1.24 Figure 6.3 shows the majority of occupations of the employed within the study area fall within the low skilled sectors with 60% falling within this category. The study area has a higher than average proportion of employment as managers at 2.2% more than the national average and a higher than average proportion of employment as process, planer and machine operatives at 1.4% above the national average.

Unemployment

1.25 Table 6.6 shows that SD has a below average unemployment percentage, with 4.4% of the economically active being unemployed compared with 7.4% in the East Midlands regions. DC

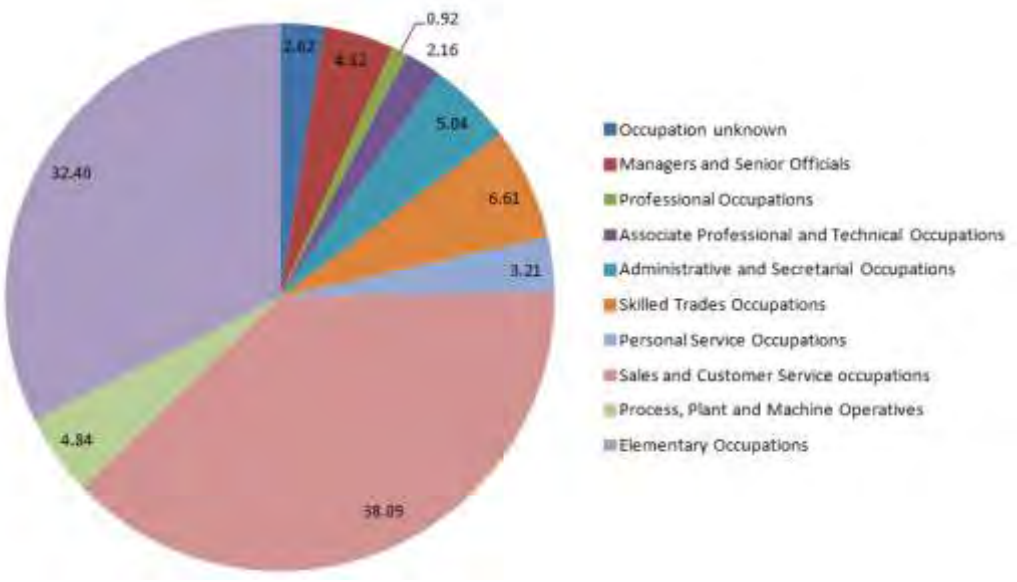
has an above average rate of unemployment at 8.7%. It should be noted that the claimant unemployed is only calculated from those who are registered unemployed, therefore the actual figure would be somewhat higher. This suggests that the majority of those who reside in the Borough are finding employment.

1.26 Of the economic inactive populations, SD has an above average rate of those looking after family or staying at home at 44%, significantly above the East Midlands average of 25.7% and the national average of 25.6%. Long-term unemployment is below the national average.

Sought Occupations

1.27 Sought occupation information has derived from the Claimant Count data released in March 2014. It shows that most roles sought are within the sales and customer service occupations. The high proportion of unemployment in this area reflects the lack of retail and commercial space in SD and the study area.

Figure 6.4 Sought Occupations of Claimants in the Study Area (%)



Source: NOMIS, Claimant Counts by Occupation (March 2014)

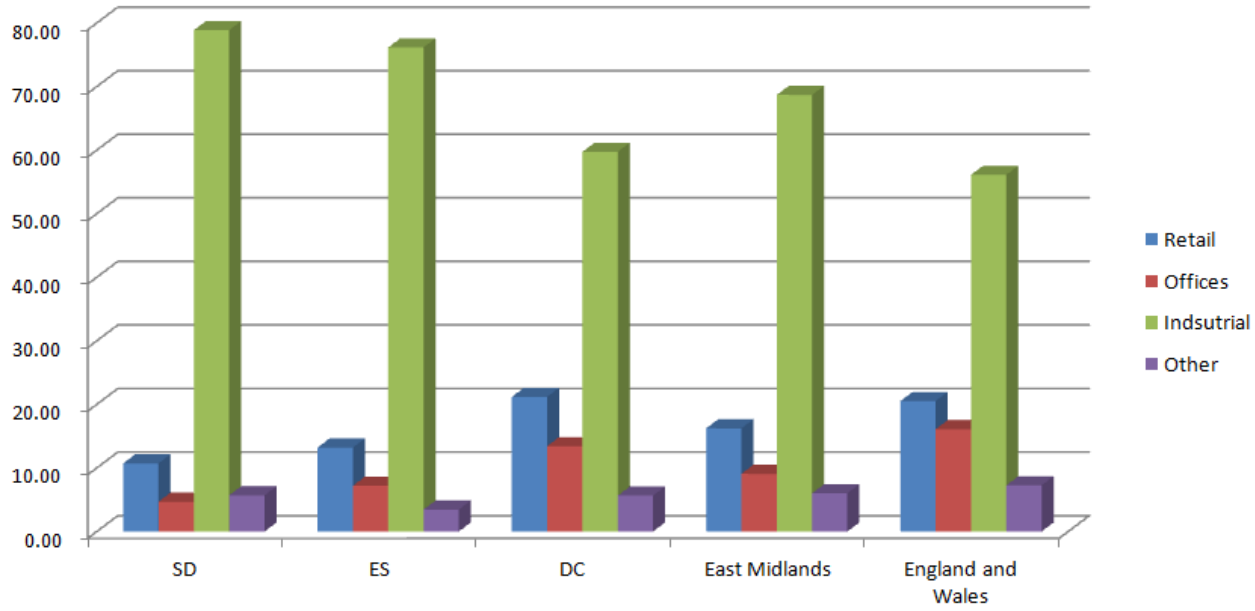
1.28 Although the majority of roles sought fall within the sales and customer service occupations, 32.4% of claimants are seeking opportunities within the Elementary Occupations. The Standard Occupation Classification (SOC), is the basis for national occupation classification including the ONS census, which includes manufacturing and transport & storage labourers in lower skilled roles.

1.29 SD has a job density of 0.63 jobs to persons (ONS 2012), which is less than the national average at 0.78 jobs to persons meaning that is a higher demand for jobs in the area than the national average.

Commercial Floorspace

1.30 The Valuation Office Agency has provided an update of commercial floorspace across local authorities up to 2012. It showed that 78.88% of commercial floorspace in SD is industrial. This is higher than regional industrial floorspace (68.69%) and national industrial floorspace (56.12%). The differences between SD and its surrounding areas to national averages shows there is a below average number of office, retail and other commercial floorspace highlighting that this is an area dominated by industrial uses.

Figure 6.5 – Type of Commercial Floorspace by Area (%)



Source: Valuation Office Agency (2012)

1 http://www.neighbourhood.statistics.gov.uk/HTMLDocs/dvc128/wrapper.html
[2] NOMIS website, Earning by Residence 2013 Annual Survey of Hours and earning. ONS. http://www.nomisweb.co.uk/reports/lmp/la/1946157140/report.aspx?town=south d

APPENDIX 8: LVIA FIGURES

Key

- Railway Line
- Trunk Road
- Waterbody
- Wooded Area
- Site Boundary

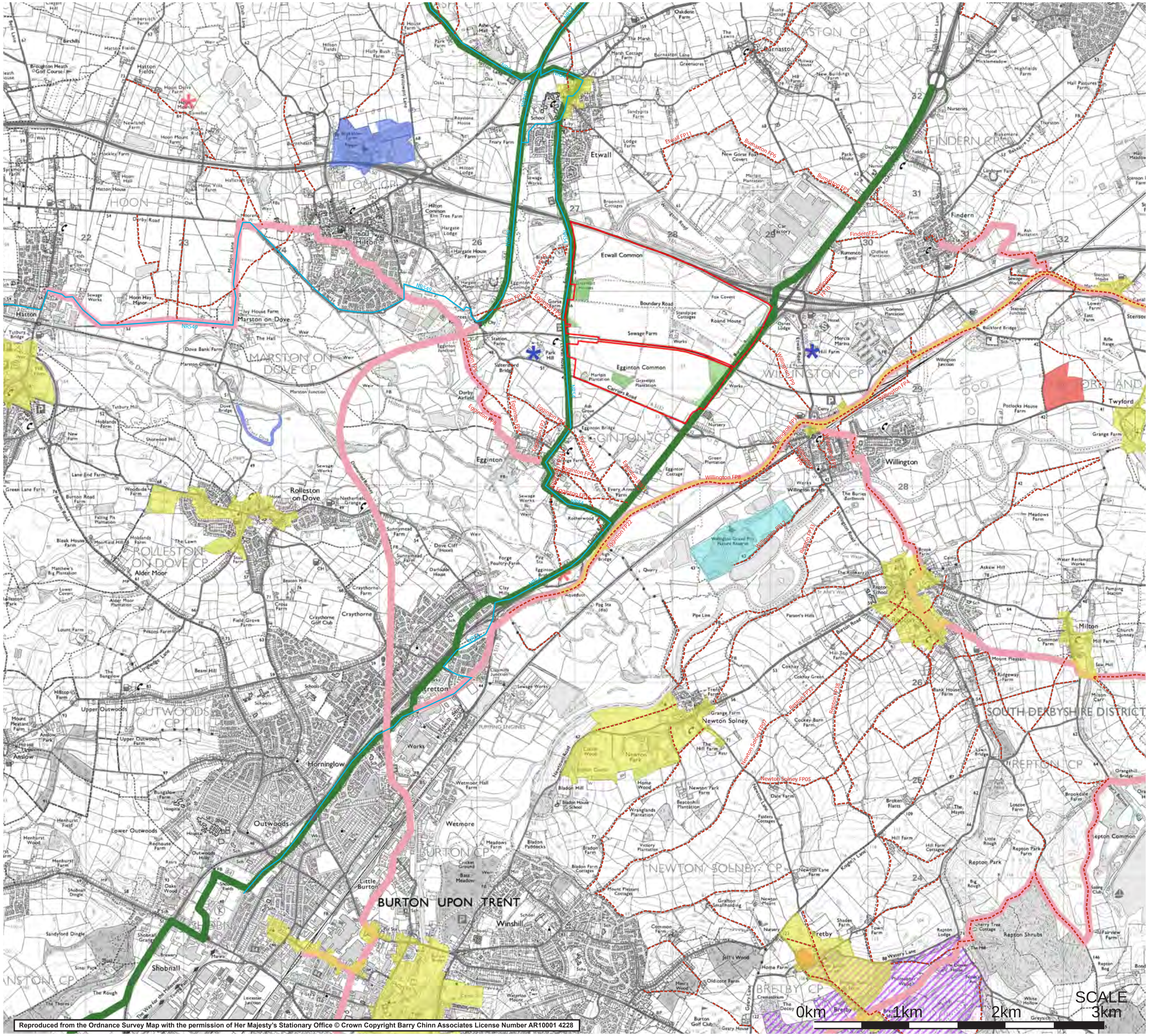
North

SCALE 0km 1km 2km 3km

Appendix 7 - Figure 1
Local Context Plan

BCA BARRY CHINN associates Landscape Architects

EAST MIDLANDS INTERMODAL PARK
EMIPARK.CO.UK



SCALE
0km 1km 2km 3km

Key

- Nature Reserve
- Conservation Area
- Tree Preservation Order (On site)
- Scheduled Monument
- Listed Building
- Site of Special Scientific Interest
- Historic Parks and Gardens
- National Cycle Route
- Public Footpath
- Site Boundary
- County / District Boundary
- Existing Greenway (2006)
- Proposed Greenway (2006)

North

Appendix 7 - Figure 2
Designations Plan

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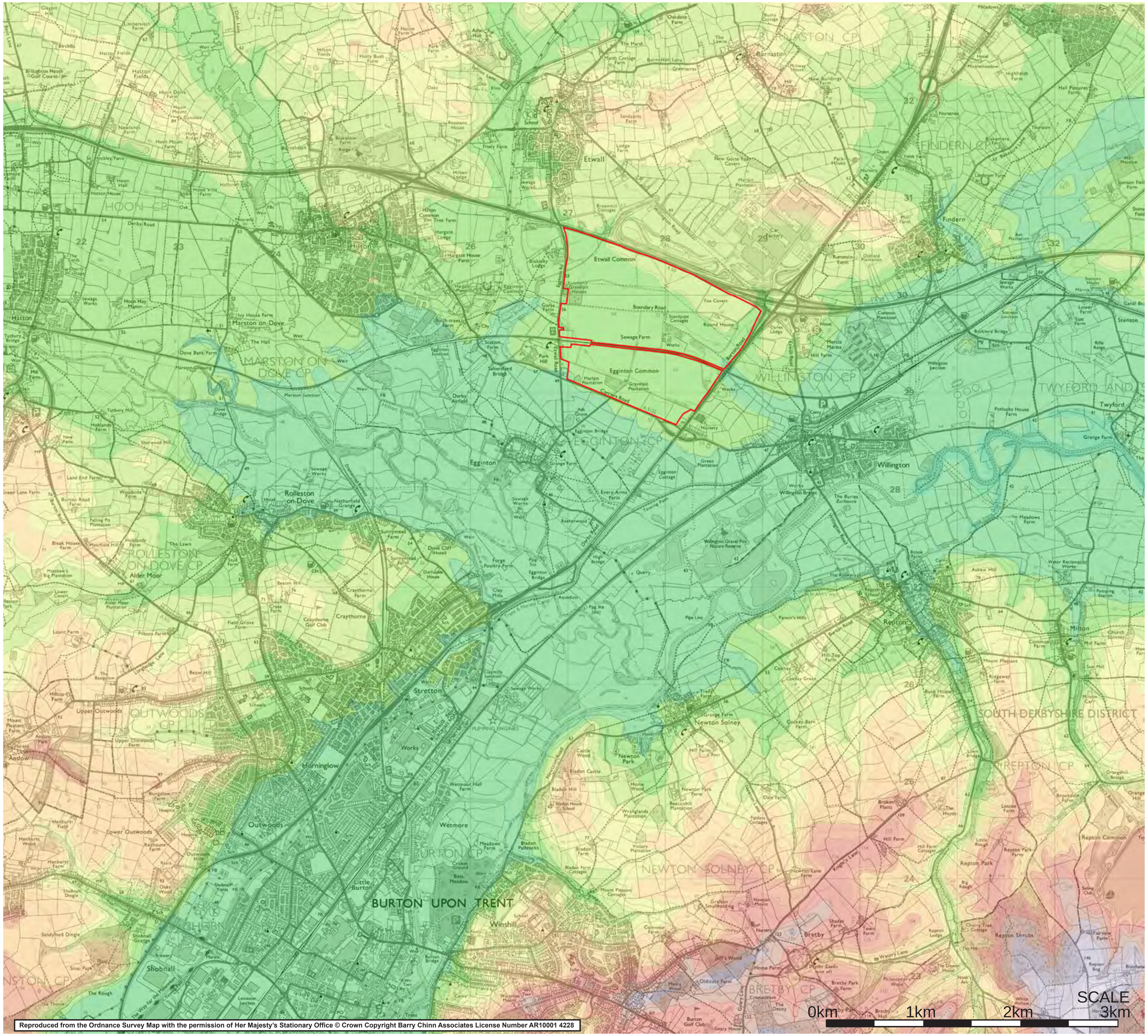
EMIPARK.CO.UK



Key

30-40m

40-50m

50-60m

60-70m

70-80m

80-90m

90-100m

100-110m

110-120m

120-130m

130-140m

140-150m

150-160m

Site Boundary

North

Appendix 7 - Figure 3
Topography Plan

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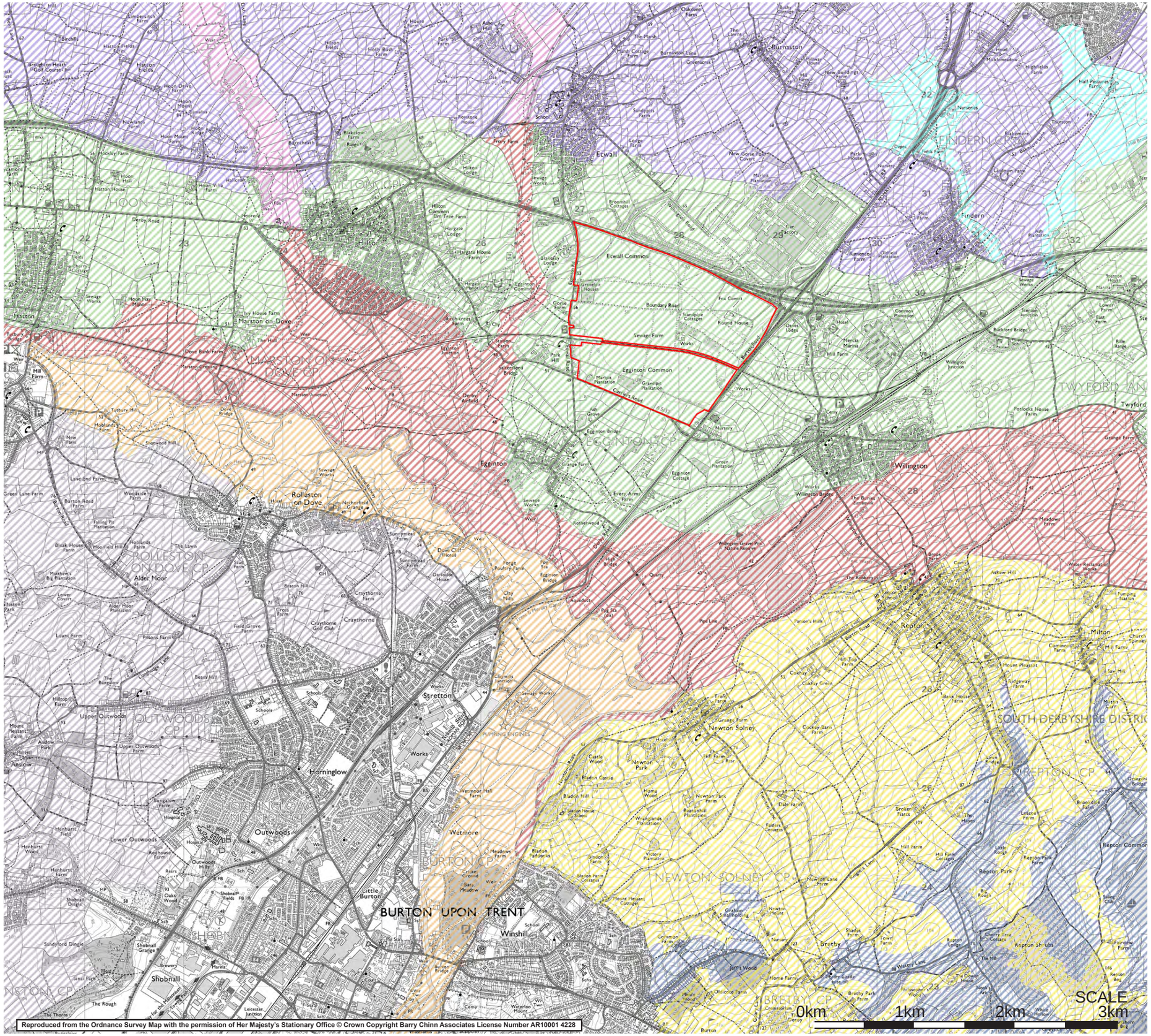

Key

Derbyshire County Character Areas

National Character Area 68 - Needlewood and South Derbyshire Claylands

- Settled Farmlands
- Riverside Meadows

National Character Area 69 - Trent Valley Washlands

- Lowland VIllage Farmlands
- Riverside Meadows
- Wet Pasture Meadows

National Character Area 70 - Melbourne Parklands

- Sandstone Slopes and Heaths
- Estate Farmlands

East Staffordshire District Character Areas

- Settled Plateau Farmland Slopes
- Riparian Alluvial Lowlands

- Site Boundary

North

Appendix 7 - Figure 4
National and County Character Areas

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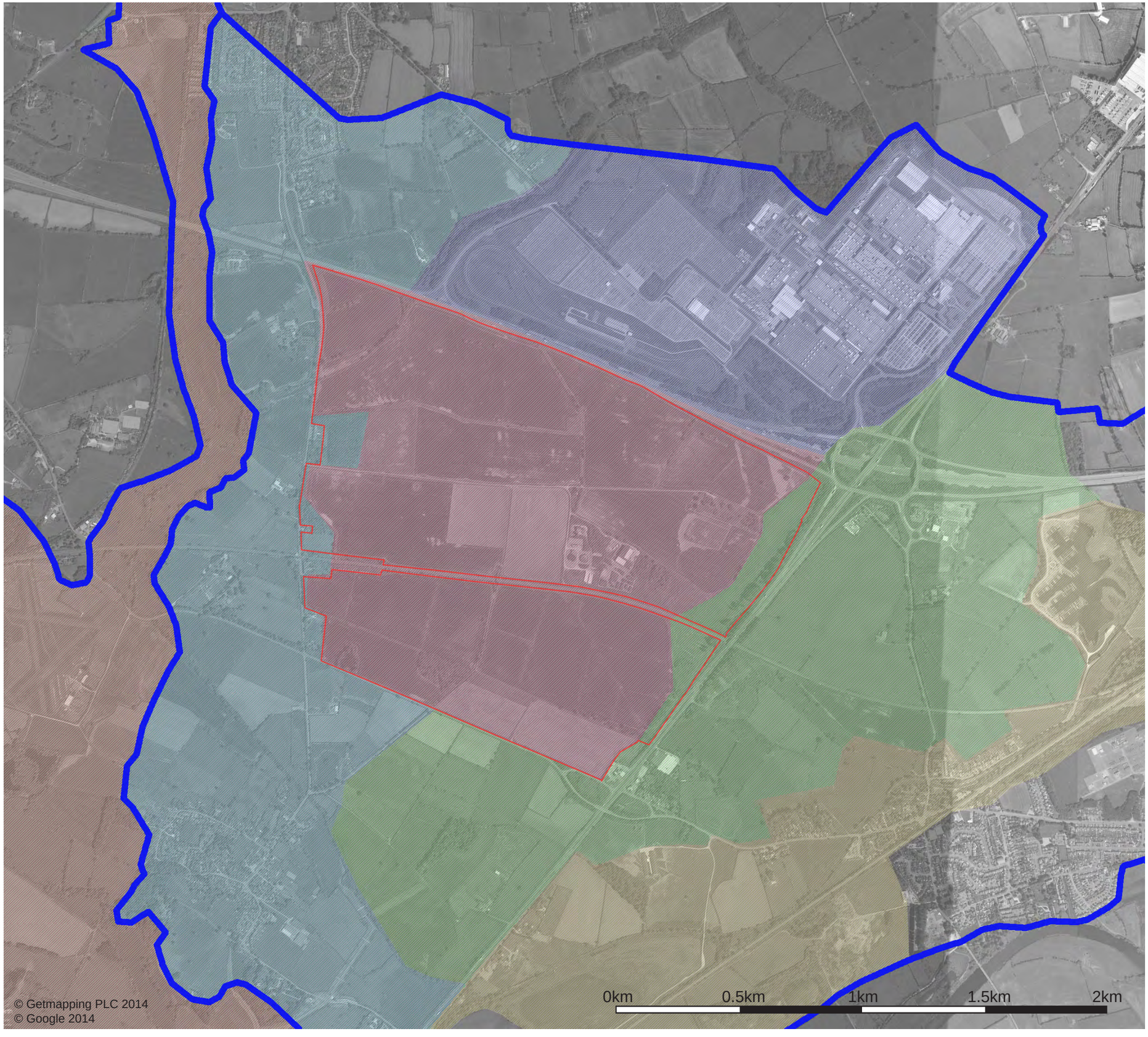

Key

- Large Arable Field Structure
- Riverside Meadows
- Canalside / Railway Corridor
- Patchwork Farmland / Residential
- Small Arable Patchwork
- Toyota
- Derbyshire County Character Areas
- Site Boundary

North

Appendix 7 - Figure 5
Local Character Areas

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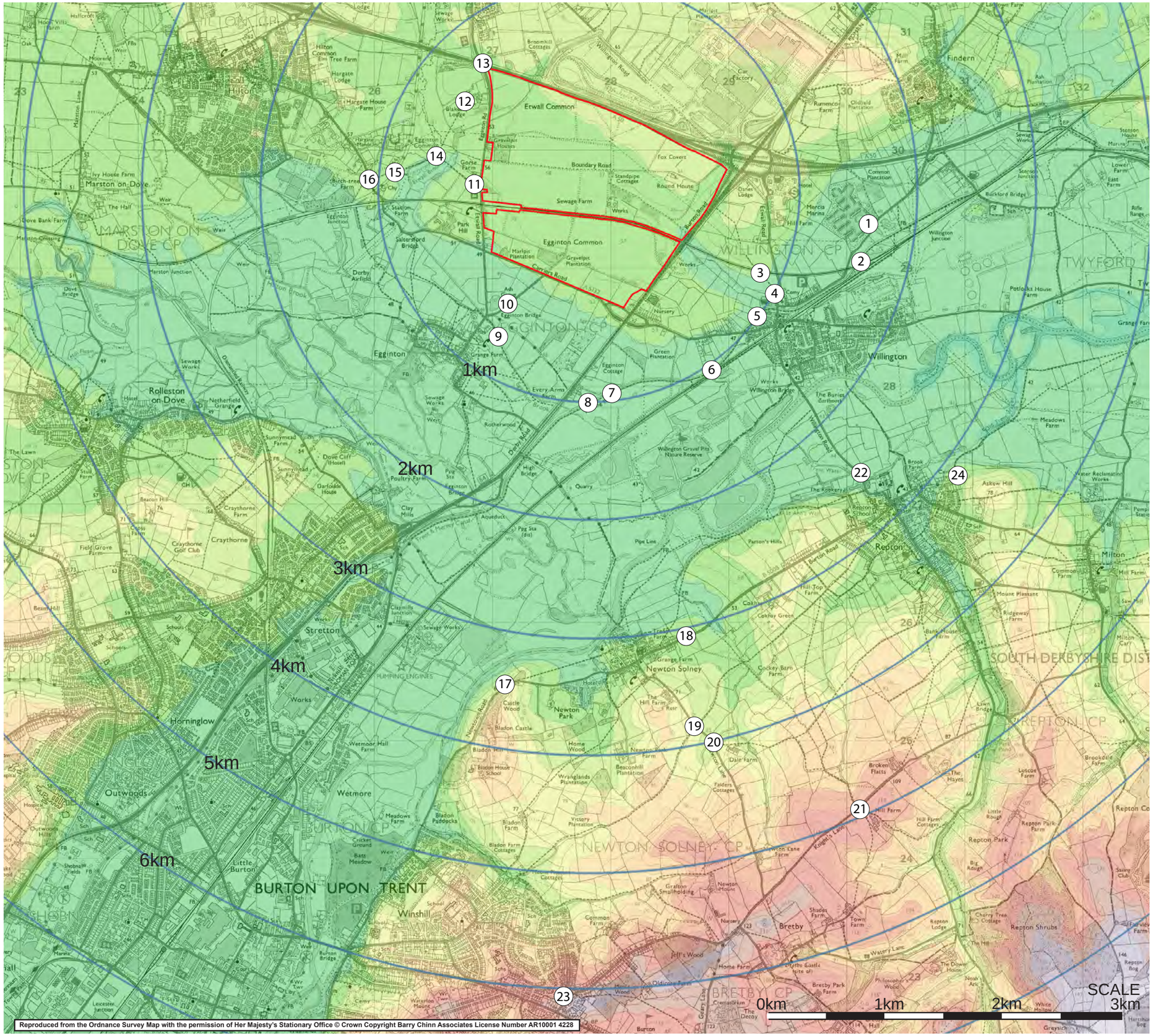
EMIPARK.CO.UK



Key

① Viewpoint Location

Site Boundary

North

Appendix 7 - Figure 6
Photographic Viewpoint Location Plan

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APPENDIX 9: EXTERIOR LIGHTING BASELINE INFORMATION

APPENDIX 9: EXTERIOR LIGHTING BASELINE REPORT

Survey

9.1 The areas immediately surrounding the Site and with views towards it were visited one evening during February 2014. The weather conditions were dry with some cloud. Existing lighting was observed and a photographic record made.

Observations and photographs

9.2 Figure 9.1 shows the locations visited and what was observed after dark. Of particular note is the high mast lighting within the Toyota plant. This lighting could be seen over a very wide area due to the combination of a high mounting height (at least 20 metres) and an elevated position just beyond the ridge.

9.3 Figures 9.2 to 9.6 show views from the locations marked on the plan. Daylight views are included to assist with orientation of the 360° panoramas. The night-time photographs have been slightly enhanced for printing purposes. It is not possible to convey a fully realistic impression in print but they serve to indicate what lighting is currently visible, both light sources and areas of sky glow.

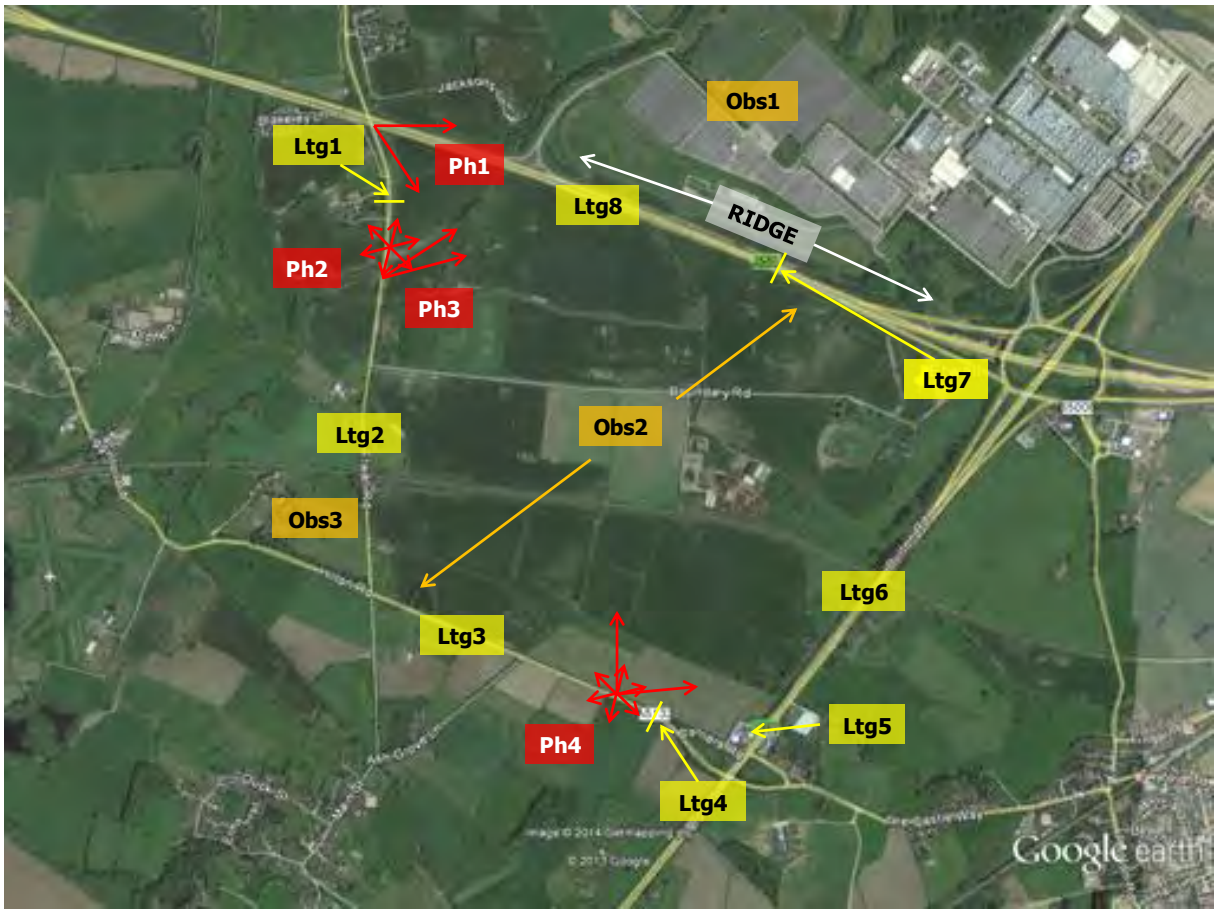

Figure 9.1 (N.T.S.)
Plan showing existing lighting, night-time observations and photograph locations

Notes for Figure 9.1:

Obs1: Toyota Burnaston high mast lighting is estimated to be at least 20m in height and is visible above the ridge for miles. **Obs2**: Sky glow is visible on horizon from many viewpoints and predominantly in these two directions, mainly attributable to Derby, Burton upon Trent and Birmingham. **Obs3**: All properties on Egginton Rd and Etwall Rd seem to be well screened on their east side by trees.

Ltg1: Egginton Rd lit northwards from this point (both low and high pressure sodium lighting). **Ltg2**: Etwall Rd lit with occasional post-mounted lights. **Ltg3**: Carriers Rd not lit. **Ltg4**: Carriers Rd lit eastwards from this point. **Ltg5**: Bright floodlights from petrol station visible from the west. **Ltg6**: A38 lit throughout. **Ltg7**: A50 lit eastwards from this point. **Ltg8**: A50 not lit.

Ph1: View from Egginton Rd/A50 overbridge towards the Site. **Ph2**: 360° view from Egginton Rd. **Ph3**: View from Egginton Rd towards the Site. **Ph4**: 360° and 90° views from Carriers Rd towards the Site.

Figure 9.2

View east→southeast from Egginton Rd/A50 overbridge (Ph1)

Toyota Burnaston high mast lighting is clearly visible left of centre, as is the sky glow over Derby.

Figure 9.3a
Daylight 360° view from Egginton Rd (Ph2)
The Site is towards the centre of this view.

Figure 9.3b
Corresponding darkness 360° view from Egginton Rd (Ph2)
Toyota Burnaston high mast lighting can be seen towards the centre, as can the sky glow over Derby.
The sky glow towards the right is due to Burton upon Trent and Birmingham.

x

Figures 9.4a and 9.4b

Wide and narrow views northeast from Egginton Rd (Ph3)

Toyota Burnaston high mast lighting is clearly visible, as is the sky glow over Derby.

Figure 9.5a
Daylight 360° view from Carriers Rd (Ph4)
The Site fills the left half of this view.

Figure 9.5b
Corresponding darkness 360° view from Carriers Rd (Ph4)
Toyota Burnaston high mast lighting is noticeable towards the centre.
The bright lights just right of centre belong to A38 facilities close to the junction with Carriers Rd and the junction lighting itself.

Figure 9.6

90° view north→east from Carriers Rd (Ph4)

Toyota Burnaston high mast lighting is clearly visible towards the left. Other lights mostly belong to the A38 and A38/A50 junction road lighting.

APPENDIX 10: HISTORIC ENVIRONMENT BASELINE INFORMATION

EAST MIDLANDS INTERMODAL PARK

County of Derbyshire

Historic Environment Baseline Information

August 2014

MUSEUM OF LONDON ARCHAEOLOGY

REGISTERED ORGANISATION IfA

Museum of London Archaeology
Mortimer Wheeler House
46 Eagle Wharf Road, London N1 7ED
tel 020 7410 2200 | fax 020 410 2201
www.museumoflondonarchaeology.org.uk
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East Midlands Intermodal Park
Derbyshire

Historic environment baseline information

NGR 427840 329530

Sign-off history:

Issue No.	Date:	Prepared by:	Checked by	Approved by:	Reason for Issue:
1	27.01.2014	Angus Stephenson (Archaeology) Juan Jose Fuldain (Graphics)	Jon Chandler (Lead Consultant)	Huw Sherlock (Contract Manager)	First issue
2	11.08.2014	Paul Riggott (Archaeology)			Client requested amendments

Y code: P0083

Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED
tel 0207 410 2200 fax 0207 410 2201 email:generalenquiries@mola.org.uk

Contents

Figures

Cover: East central part of the site from the air (Detail from Cambridge University Collection of Aerial Photography, photo AP YU053, Summer 1959, looking north-west)

Note: site outlines may appear differently on some figures owing to distortions in historic maps. North is approximate on early maps.

Executive summary

Goodman Shepherd has commissioned Museum of London Archaeology (MOLA) to carry out a historic environment assessment in advance of proposed development at the East Midlands Intermodal Park (EMIP) at Etwall in Derbyshire. The proposed development comprises a "Strategic Rail Freight Interchange" to include an intermodal terminal and commercial buildings for industrial and logistics use. Class B8 distribution units would be constructed with associated landscaping, planting, access, parking and servicing areas. New infrastructure would enable the exchange of freight between road and rail, including sidings connected to the adjacent railway line and an intermodal terminal incorporating overhead gantry cranes and external container storage. The site would be landscaped to create the development plots and would include balancing ponds. Access for trains would be by way of the Stoke-on-Trent to Derby Main Line with a new access road via the A38/A50 intersection.

This desk-based study assesses the impact on buried heritage assets (archaeological remains). A separate MOLA report assesses the above ground (built) heritage assets within the site, which include a Second World War pillbox associated with former RAF Burnaston airfield to the north of the site. Buried heritage assets that may be affected comprise:

- ***Prehistoric burial and settlement remains,** of medium or high heritage significance. The site has a high potential for such remains, some of which are visible as cropmarks on air photographs. The Trent Valley has long been known to have been densely settled during prehistoric times, often for lengthy durations, from the Mesolithic onwards. The underlying Gravels are the primary source of Palaeolithic artefacts in Derbyshire, typically hand axes, of low significance.*
- ***Medieval agricultural remains,** low significance. The site lay in the open fields beyond the known settlement centres. Poorly preserved remains of ridge-and-furrow ploughing survive within part the site.*
- ***Roman agricultural remains,** of low or medium significance. The A38 road, which forms the eastern boundary of the site, follows the line of a major Roman road. Whilst settlement close to road is possible, there is currently no evidence for it within the site. Remains of settlement, if present, would be of higher significance.*
- ***Post-medieval remains**. The site is located outside the main settlement areas and was open fields with some quarrying until the construction of a sewage works in the western part of the site in the late 19th century. Remains associated with the works, agriculture and quarrying would be of low or negligible significance. Evidence for the English Civil War Battle of Egginton Heath of 1644, part of which may have taken place on the site, would be of low significance, possibly higher for artefact concentrations.*

Post-medieval and modern quarrying and activities connected with the sewage works are likely to have removed any archaeological remains over slightly more than a third of the site.

Preliminary topsoil removal across the site, followed by ground disturbance from landscaping, construction activities, planting and new service and drainage would partially or completely remove any archaeological remains present, across an extensive area.

In the light of this and of the archaeological potential of the site, further evaluation would be necessary in order to clarify the nature, extent, date and significance of any archaeological remains present. At the time of writing an archaeological geophysical survey was in the process of being carried out. Further non-intrusive survey might also include fieldwalking (the surface collection of artefacts to identify areas of activity). The results of these surveys would inform the placement of archaeological trial trenches. Information from the evaluation would inform a mitigation strategy for any significant remains. This might include strip-map-and-sampling recording during topsoil removal, with targeted open area excavation in areas where significant features have been identified. Any such work would need to be carried out in consultation with the County Archaeological Officer and in accordance with an approved Written Scheme of Investigation (WSI).

1 Introduction

1.1 Origin and scope of the report

1.1.1 Goodman Shepherd has commissioned Museum of London Archaeology (MOLA) to carry out a historic environment assessment in advance of proposed development at the East Midlands Intermodal Park (EMIP), Etwall, Derbyshire (National Grid Reference 427840 329530: Fig 1). The proposed development comprises a "Strategic Rail Freight Interchange" to include an intermodal terminal and commercial buildings for industrial and logistics use, with associated landscaping, planting, access, parking and servicing areas. The site would be landscaped to create the development plots and would include balancing ponds. Access for trains would be by way of the Stoke-on-Trent to Derby Main Line with a new access road via the A38/A50 intersection.

1.1.2 This desk-based study assesses the impact of the scheme on buried heritage assets (archaeological remains). It may be used to form a technical appendix in support of an Environmental Statement, assessing the impact of the proposed development (hereafter referred to as the 'site') on the historic environment. It will enable the archaeological advisors to the local planning authority (LPA) to formulate an appropriate response in the light of the impact upon any known or possible heritage assets. These are parts of the historic environment which are considered to be significant because of their historic, archaeological, architectural or artistic interest.

1.1.3 This report deals solely with the archaeological implications of the development and does not cover possible built heritage issues, except where buried parts of historic fabric are likely to be affected. Above ground assets (ie designated and undesignated historic structures and conservation areas) on the site or in the vicinity that are relevant to the archaeological interpretation of the site are discussed. Whilst the significance of above ground assets is not assessed in this archaeological report, direct physical impacts upon them arising from the development proposals are noted. The report does not assess issues in relation to the setting of above ground assets (eg visible changes to historic character and views). These issues are discussed and assessed in the accompanying MOLA Historic Building Assessment report. The report does not include an assessment of historically important hedgerows as defined and protected by the *Hedgerow Regulations* of 1997. This impact is dealt with by the Ecology topic.

1.1.4 The assessment has been carried out in accordance with the requirements of the National Planning Policy Framework (NPPF) (DCLG 2012; see Section 10 of this report) and to standards specified by the Institute for Archaeologists (IfA Oct 2012/Nov 2012), English Heritage (2008, 2011). Under the 'Copyright, Designs and Patents Act' 1988 MOLA retains the copyright to this document.

1.1.5 Note: within the limitations imposed by dealing with historical material and maps, the information in this document is, to the best knowledge of the author and MOLA, correct at the time of writing. Further archaeological investigation, more information about the nature of the present buildings, or more detailed proposals for redevelopment may require changes to all or parts of the document.

1.2 Designated heritage assets

1.2.1 The site does not contain any nationally designated (protected) heritage assets, such as scheduled monuments, listed buildings or registered parks and gardens and is not specifically designated as an area of archaeological interest by the local planning authority.

1.3 Aims and objectives

1.3.1 The aim of the assessment is to:

- identify the presence of any known or potential buried heritage assets that may be affected by the proposals;
- describe the significance of such assets, as required by national planning policy (see section 9 for planning framework and Section 10 for methodology used to determine significance);
- assess the likely impacts upon the significance of the assets arising from the proposals; and
- provide recommendations to further assessment where necessary of the historic assets affected, and/or mitigation aimed at reducing or removing completely any adverse impacts upon buried heritage assets and/or their setting.

2 Methodology and sources consulted

2.1.1 For the purposes of this report documentary and cartographic sources, including results from any archaeological investigations in the site and a study area around it have been examined in order to determine the likely nature, extent, preservation and significance of any buried heritage assets that may be present within the site or its immediate vicinity and have been used to determine the potential for previously unrecorded heritage assets of any specific chronological period to be present within the site.

2.1.2 In order to set the site into its full archaeological and historical context, information was collected on the known historic environment features within a 2km-radius study area from the centre point of the site around the area of proposed development, as held by the primary repositories of such information within Derbyshire. These comprise the Derbyshire Historic Environment Record (HER) and the National Record for the Historic Environment (NRHE). The HER is the main source of archaeological information for Derbyshire, and is maintained by Derbyshire County Council. It includes information from past investigations, local knowledge, find spots, and documentary and cartographic sources. The NHRE is a separate, national, database maintained by English Heritage an accessed via the Pastscape website. It is not as comprehensive as the HER but can occasionally hold additional records. The study area was considered through professional judgement to be appropriate to characterise the historic environment of the site. Occasionally there may be reference to assets beyond this study area where appropriate, eg where such assets are particularly significant or where they contribute to current understanding of the historic environment.

2.1.3 In addition, the following sources were consulted:

- English Heritage – Geographical Information System (GIS) and other data on statutory designations including scheduled monuments and listed buildings
- Envirocheck/Landmark – historic Ordnance Survey maps from the first edition (1880s) to the present day;
- British Geological Survey (BGS) – solid and drift geology digital map; online BGS geological borehole record and mapping data
- Derbyshire Record Office, Matlock – historic maps and local history publications
- National Air Photograph Library at the National Monuments Record (NMR) in Swindon – vertical and specialist (oblique) air photographs and NMP cropmark transcriptions (see below)
- Defence of Britain – survey GIS data on known Second World War features
- Goodman Shepherd – Environmental Impact Assessment Scoping report (Goodman Shepherd Nov 2013) and a provisional masterplan layout (AJA Architects March 2009).
- Internet - web-published material including LPA local plan, and information on conservation areas and locally listed buildings.

2.1.4 Archaeological data and advice were obtained from Nichola Manning, Historic Environment Record Officer, and Steve Baker, Development Control Archaeologist, for Derbyshire County Council. The images used for Figs 11 and 12 were supplied by Alan Martin of the Cambridge University Collection of Aerial Photography. Clive Waddington of Archaeological Services Limited helped with recent information about the sites around Willington. The Battlefields Trust and Glenn Foard, Reader in Battlefield Archaeology at Huddersfield University, were consulted in relation to the battle of Egginton Heath.

2.1.5 The English Heritage National Mapping Programme (NMP) Ordnance Survey quartersheet was obtained for the area from the NMR. The NMP is an ongoing survey mapping and recording archaeological sites and landscapes from aerial photographs and other airborne remote-sensed data such as LIDAR, which are seen as earthworks and structures visible above the ground or as buried remains revealed as cropmarks. The Derbyshire and Peak District NMP mapping was carried out in conjunction with Archaeological Research Services Ltd, with funding through the Aggregate Levy Sustainability Fund (ALSF), which also funded the assessment report on aggregate extraction and archaeology (Brightman and Waddington 2011). Derbyshire, including the Peak District National Park, is the most heavily quarried area of the British Isles, due to its rich mineral resources including sand and gravel, Carboniferous Limestone, Millstone Grit and sandstone. Whilst the report on aggregate extraction and archaeology in the county is complete and published, the NMP is not and currently only covers the part of the site that falls within the area of Ordnance Survey quarter sheet SK22 NE (1989); the part which lies beyond this to the north, roughly a quarter to a third, does not appear on available maps, although the outlines of some of the features which began in SK22 NE were completed to the north into the next square. The mapped area of the NMP is shown on Fig 4, which shows interpretations of ditches, banks, buildings and stone walls, levelled ridge and furrow, extant ridge and furrow, large cut and area features and slopes. For the area of the site which is omitted from the NMP, copies of all available oblique and vertical aerial photographs were obtained from the NMR at Swindon for study and interpretations of them have been made for the purposes of this report. No additional archaeological features were identified.

2.1.6 The assessment included site visits carried out on the 12th September and 6th and 9th December 2013 in order to determine the topography of the site, its existing land use and the nature of the existing buildings on the site, and to provide further information on areas of possible past ground disturbance and general historic environment potential. Observations made during the site visits have been incorporated into this report.

2.1.7 The site has been the subject of archaeological geophysical survey carried out at the same time as the preparation of this report and its results will be incorporated into subsequent documentation, although they are not included in this draft of this report. The heritage value and significance of the buildings currently existing on the site have been assessed and are the subject of a separate Historic Buildings Assessment report.

2.1.8 Fig 2 shows the location of known historic environment features within the study area. These have been allocated a unique historic environment assessment reference number (**HEA 1, 2**, etc), which is listed in a gazetteer at the back of this report and is referred to in the text. Listed Buildings within the study area are included. Conservation areas are not shown. The site is not within any specific area of archaeological interest as designated by the local planning authority. All distances quoted in the text are approximate (within 10m).

2.1.9 Section 10 sets out the criteria used to determine the significance of heritage assets. This is based on four values set out in English Heritage's *Conservation principles, policies and guidance* (2008), and comprise evidential, historical, aesthetic and communal value. The report assesses the likely presence of such assets within (and beyond) the site, factors which may have compromised buried asset survival (ie present and previous land use), as well as possible significance.

2.1.10 Section 11 contains a glossary of technical terms. A full bibliography and list of sources consulted may be found in Section 13. This section includes non-archaeological constraints and a list of existing site survey data obtained as part of the assessment.

3 Site location, topography and geology

3.1 Site location

3.1.1 The site is situated in Derbyshire *c* 4km to the south-west of the outskirts of the City of Derby (NGR 427840 329530: Fig 1). The site is bounded by the A38 road on the east and the A50 road on the north, with the interchange raised roundabout for these two roads lying at the north-east corner of the site. The Etwall Road between the villages of Etwall and Egginton (called the Egginton Road in its northern part) forms the site's western boundary for most of its length, whilst the southern boundary is part of the A5132 road between the Derbyshire villages of Hilton and Swarkestone, which is called the Carriers Road in this area.

3.1.2 The site falls within the historic parishes of Etwall and Egginton, and lies within the county of Derbyshire within the administrative area of South Derbyshire District Council. The modern Toyota factory lies immediately beyond the A50 to the north on the site of the former RAF Burnaston airfield and Derby Municipal airport. The site is surrounded by the villages of Etwall, to the north-west, Egginton to the south-west and Willington to the south-east. The parish of Etwall is comprised of the former historic townships of Etwall and Burnaston.

3.1.3 The site lies *c* 1.5km to the north-west of the main channel of the modern River Trent. This has many extant tributaries, such as the River Dove which flows into it at Newton Solney, *c* 2.5km to the south of the site. Other streams in the district generally flow gently downhill to the south towards the Dove and Trent. These include the Hilton, Egginton, Etwall and Willington Brooks, all named after the villages through which they flow. These streams also have numerous small subsidiary channels flowing into them. Part of the waters of the Trent have been have been canalized and run close to and parallel with the river as the Trent and Mersey canal (**HEA44**).

3.1.4 The main part of the Etwall Brook flows around the western and southern edges of the site, *c* 370m to the west at its nearest point, but a small tributary channel rises on Etwall Common to the north of the site and crosses it in its north-west corner.

3.1.5 The small Willington Brook rises in the centre of the site near the former sewage treatment works and the Biffa Site, then flows to the south-east beyond the site through the village of Willington beside the Repton Road before joining the Trent near Willington Bridge.

3.2 Topography

3.2.1 Topography can provide an indication of suitability for settlement, and ground levels can indicate whether the ground has been built up or truncated, which can have implications for archaeological survival (see Section 5.2).

3.2.2 The 50m contour above Ordnance Datum (OD) runs across the site from west to east and ground level at the south-west corner of the site at the junction of Carriers Road and the Etwall Road is at 49.0m OD. There is a general rise up to the north from the direction of the Trent which is easily visible on the road from Willington, although the site itself generally looks fairly flat, particularly in its northern half. There is a slight rise from south-west to north-east along the A38 beside the site (which is exaggerated by the embankments at the junction with the A50), which can also be fairly easily seen in most of the southern half of the site. Ground level on the Etwall Road beside Blakeley Lodge near the north-western corner of the site is at 57.0m OD. Thus ground level can be seen to have risen from south-west to north-east across the site by *c* 8m over a distance of *c* 1.4km. Ground level along the A50 road is generally within a range of *c* 60.0m to 62.0m OD

3.2.3 The village of Etwall sits on the top of a small hill on the edge of the Trent Valley, as do other local settlements such as Burnaston and Sutton-on-the-Hill, all of which are

built on ground which is slightly higher than the surrounding flat land. Settlements such as these are served by the small springs which drain into the tributaries of the Trent. The site itself can be described as lying within the Trent valley near its northern edge.

3.3 Geology

3.3.1 Geology can provide an indication of suitability for early settlement, and potential depth of remains.

3.3.2 The underlying bedrock of the site comprises mudstones, siltstones and sandstones of the Triassic period, belonging to the mid–late Triassic Mercia Mudstone Group. The Triassic formations represent extensive accumulation of riverine, aeolian and chemical sediments in lowlands adjacent to the eroding mountain belts to the north. These Triassic rocks are generally in low-lying and gently rolling terrain and are typically covered with a variable thickness of unconsolidated Quaternary sediments, which are rarely exposed at the surface, unless activities like quarrying have taken place in the area. In contrast to the deeply incised gorges and river valleys in the limestone uplands to the north of the county, the sandstones and mudstones of southern Derbyshire are cut by broad and open river valleys that include the arterial Trent, where agricultural land-use has been well-developed with extensive areas of improved pasture and some arable cropping.

3.3.3 Within the site extensive ground disturbance mostly associated with quarrying but possibly also partly from the sewage works has meant that in places all of the superficial deposits will have been removed, so that the first geological layers which would be encountered below ground would be the bedrock mudstones.

3.3.4 The British Geological Survey (BGS) 1:50,000 scale online map shows the superficial deposits on the site as mostly being part of the Egginton Common Sand and Gravel Member in the southern and north-western parts of the site, and the Etwall Sand and Gravel Member in the northern and north-eastern parts, with patches of Findern Clay deposits also in the north-eastern part of the site. There are also three narrow bands of Head deposits (weathered bedrock) encroaching on to the northern part of the site and a narrow band of alluvium in the centre east, probably associated with former stream channels.

3.3.5 This general picture is shown in more detail on the BGS 1:10,000 geological map showing former land use (Fig 3). This shows extensive areas of worked ground, comprising unfilled, disused sand and gravel pits and sandstone and mudstone quarries and other general cuttings, and made ground, including embankments and raised ground, wholly or partly backfilled with quarry spoil and other waste material. These deposits are shown as covering areas where all superficial deposits have been removed down to the Gunthorpe Member (“Gun” on Fig 3), one of the Triassic mudstones.

3.3.6 The alluvium on the site is described here as buff to slightly reddish brown clayey silt with a gravel base. The head deposits are described as very variable brown to red stony silty sand and clay. The Egginton Common and Etwall Sand and Gravel are described as orange-brown river terrace deposits, whilst the Findern Clay is described as a glacial clay and silt deposit with abundant dropstones.

3.3.7 BGS online borehole data includes a very large number of examples carried out in the early 1990s in connection with road construction and upgrades, along the northern and eastern edges of the site.

3.3.8 Near the north-eastern corner of the site Borehole SK22NE 189 (1992), recorded 0.3m depth of topsoil, 1.7m of glacial till clay and a further 8.4m depth of lacustrine clay. These deposits represented the Findern Clay expected in the area.

3.3.9 A few hundred metres to the west geological trial pit SK23SE 243 (1990) recorded silty topsoil with occasional roots to a depth of 0.8m above medium to coarse sand and gravel, which would have represented the Etwall Sand and Gravel member.

3.3.10 Near the north-western part of the site, geological trial pit SK23SE 229 (1990) recorded topsoil to a depth of 0.3m with fluvio-glacial sand and gravel below to a depth of at least 5.0m below ground level (bgl), where the test pit was stopped, with evidence of reworking of the underlying mudstones. These deposits represented the Egginton Common Sand and Gravel Member.

3.3.11 Borehole data is similarly copious in the southern part of the site and, although direct access to it is restricted, it has formed the basis for the BGS 1:10,000 geological map (Fig 3). At the time of writing the final report on the geotechnical surveys that have been carried out by Applied Geology was in preparation.

4 Archaeological and historical background

4.1 Overview of past investigations

4.1.1 The archaeology of the East Midlands is generally quite well understood and has been the subject of several major studies of archaeological synthesis, with the *North Derbyshire Archaeological Survey* report (Hart 1981) being a pioneering study for the county (although not covering the southern part of it where the study site lies). Since then *The Archaeology of the East Midlands: An Archaeological Resource Assessment and Research Agenda* (Cooper *et al* 2006) and *Archaeology and Aggregates in Derbyshire and the Peak District: A Resource Assessment and Management Framework* (Brightman and Waddington 2011), also known as the Terrestrial Minerals Resource Assessment report (TMRA), have made major contributions to defining the archaeological context into which any proposed development site may be placed.

4.1.2 A large part of the southern area of Derbyshire is underlain by the mudstones of the Mercia formation around the Trent Valley with areas of river sand and gravel terracing beside it. Assessments of the density of archaeological sites in these areas suggest that historically there was a preference for the gravel terraces over the lower mudstone areas for settlement sites, with a higher density than the county average in these areas. In later historical periods these areas have often been heavily ploughed, so that underlying archaeological remains may have been disturbed or obscured, and originally the relative density in the gravel areas may have been higher. The majority of the study site is located over such gravel and sand terrace areas.

4.1.3 The Trent Valley has been traditionally exploited for the extraction of commercial quantities of sand and gravel and archaeological remains have been excavated and recorded in many of these areas (**HEA 2**–**5,12** etc) and there have been many observations of cropmarks and other evidence of archaeological sites identified from the air in the immediate area (**HEA 35**–**37** etc). Within the study site itself there have been no archaeological investigations as such, although potential archaeological remains can be clearly seen as cropmarks in aerial photographs (Figs 11 and 12).These are described below in the section discussing the Iron Age (Section 4.2.22), as some of the visible remains resemble typical features of this period.

4.1.4 The results of these observations and investigations, along with other known sites and finds within the study area, are assessed and discussed by period, below. The date ranges below are approximate.

4.2 Chronological summary

Palaeolithic and Mesolithic periods (800,000–4,000 BC)

4.2.1 The Lower (800,000–250,000 BC) and Middle (250,000–40,000 BC) Palaeolithic periods saw alternating warm and cold phases and intermittent perhaps seasonal occupation. During the Upper Palaeolithic (40,000–10,000 BC), after the last glacial maximum, and in particular after around 13,000 BC, further climate warming took place and the environment changed from steppe-tundra to birch and pine woodland. It is probably at this time that England first saw continuous occupation. Erosion has removed much of the Palaeolithic land surfaces and finds are typically residual.

Within the study area a Palaeolithic middle Acheulean pointed flint hand axe was found in the Trent gravels *c* 500m to the south of the site (**HEA 10**). Another hand axe was found during the construction of the Derby Southern By-pass in the 1990s *c* 600m to the east of the site (**HEA17**). These two examples may be considered as isolated individual examples but a larger collection, comprising some 70 Acheulean hand axes and 13 flakes have been found in gravel pits in the Willington area, which are now held in various private collections and in museums in Nottingham, Sheffield

and Cambridge (**HEA31**). The provenance of these artefacts is not particularly well established as they were objects which were discovered by chance in gravel workings but they can be identified as having come from the area immediately opposite the site on the east side of the A50, as indicated on Fig 2.

4.2.2 The Mesolithic hunter-gatherer communities of the postglacial period (10,000–4000 BC) inhabited a still largely wooded environment. River valleys such as the Trent Valley would have been favoured providing predictable source of water and food from hunting and fishing, as well as a means of transport and communication. Evidence of activity is more commonly characterised by flint tools rather than structural remains. There are no finds confirmed as dating to this period from within the study area, although it has been suggested that three struck flints found in 2008/2009 date to a transitional period at the end of this period or possibly to the beginning of the subsequent early Neolithic Period (**HEA14**). These objects came from another part of the Trent terrace gravel area *c* 800m to the south of the site.

Neolithic period (4000–2000 BC)

4.2.3 The Neolithic (4000–2000 BC), Bronze Age (2000–600 BC) and Iron Age (600 BC–AD 43) are traditionally seen as times of technological change, settled communities and the construction of communal monuments. Farming was established and forest cleared for cultivation. An expanding population put pressure on available resources and necessitated the utilisation of previously marginal land. This part of the Middle Trent valley is thought to have been particularly significant for the local Neolithic communities and several unusual monuments have been recorded in the area, including a “cursus” monument at Willington *c* 2.5km to the east of the site (Cooper et al 2006, 76, 96). A cursus is a very long elongated rectilinear earthwork enclosure defined by a bank and external ditch or lines of pits, which possibly served a communal ritual or ceremonial function.

4.2.4 There are alluvial deposits along the central line of the River Trent itself and sand and gravel terraces immediately beside them to the north and south in the river valley. Sand and gravel terraces tend to form settlement foci throughout Britain (eg RCHME 1960), in such other places as the Thames Valley (Fulford and Nichols 1992) and the Vale of York (Harding 2000). They are typically free-draining with fertile, light and tractable soils and often provide ideal locales for settlement positioned above the river floodplain but close to fresh flowing water. As these terraces typically lie on the margins of river channels they are also accessible by river transport and border the main arteries of communication both in the past and today.

4.2.5 The traditional view of there having been a sharp division between the Mesolithic and Neolithic periods represented by date and activities has been questioned in the light of the high incidence of later Mesolithic and earlier Neolithic material being found in the same location. The flintwork found at Castle Way on Willington Common (**HEA14**, *c* 400m to the south of the site) may be evidence of settlement in this transitional period.

4.2.6 Excavations and watching briefs carried out in 1998–1999 prior to the extension of the Willington sand and gravel quarries have produced evidence of prehistoric activity dating from the Early Neolithic to the Bronze Age, *c* 1.1km to the south of the site, in the floodplain of the River Trent itself (**HEA25**). Areas of low gravel islands surrounded by active streams appear to have been a focus of Neolithic activity in the 3rd millennium BC. Pits, post-holes and occupation layers along with many hearths and ovens from food preparation were recorded. Peterborough Wares were the predominant Neolithic pottery used on the site, and non-animal foodstuffs appeared to be dominated by wild resources, although evidence of dairying was also identified. Radiocarbon dating of the pottery supported the view that Peterborough Ware belongs mostly to the second half of the 4th millennium BC and was not a Late Neolithic tradition. In the latter half of the 3rd millennium BC there is

evidence of systematic fire clearance of the area which was to be repeated over several centuries into the 2nd millennium BC. In the late 3rd millennium BC a burnt mound was probably used seasonally for a number of years, as a cooking site within a clearing. The area appears to have been subsequently abandoned.

4.2.7 The stretch of the Trent between Stretton and Findern along the south-eastern edge of the study area, with Willington at its centre, has been particularly productive of remains of this date. The area has been the subject of intensive aerial survey and sites have usually been recognized in the first instance as a result of aerial photographs. Particularly large groups have been recorded to the north-east of Willington (**HEA35, 36, 37, 38, 39**) and around Willington Quarry (**HEA25** etc) to the south-west of the village. In some cases interpretations of the aerial photographs have been refined by geophysical survey, and recording has sometimes taken place subsequently under excavation and watching brief conditions, particularly in the face of imminent sand and gravel quarrying. When excavation has taken place it has often been found that settlement has taken place on the sites during a succession of archaeological periods. Although some cropmarks may be interpreted with a degree of confidence as representing monuments characteristic of particular periods, such as the cursus monuments at Aston-on-Trent and Willington, many of the more amorphous cropmarks are not as easily attributed to any exclusive period without excavation.

4.2.8 The features at Hill Farm, Willington ("The Mercia Marina site," **HEA39**), beginning *c* 700m to the east of the site, illustrate the way in which interpretation of a site such as this may be developed and how later features can mask the presence of earlier prehistoric features. Aerial photographs of the site were plotted on to a 1:10,000 scale map in 1989 as part of the NMP. Cropmarks identified at this stage included ring ditches, irregular enclosures, linear features and evidence of other cut features all overlain by medieval ridge-and-furrow and other later field boundaries.

4.2.9 An archaeological impact assessment carried out in 1992 suggested that the cropmarks indicated the presence of features of Bronze Age, Iron Age or Romano-British date as similar types of cropmarks had been previously excavated in other parts of Willington parish. In 1995, 19 trial trenches were excavated in order to examine the cropmark features. The central area of the site revealed clear survival of archaeological features. A circular feature was comparable with the Iron Age hut circles excavated to the west of Willington but the character of the fill appeared to be more compatible with that of a small ring-ditch which had silted up naturally. This suggested that the features may have been a funerary monument of late Neolithic or Bronze Age date. Other circular features, visible on aerial photographs, suggested the presence of a small cemetery. Sherds of early Neolithic pottery were found in a small pit suggesting an early prehistoric site of some importance. The fill of a nearby gully suggested a comparable date (Brightman and Waddington 2012).

4.2.10 In 1996 numerous small, shallow pits associated with Early to Middle Neolithic pottery and flint were excavated in various areas of the Willington site. Forty-nine of the pits contained pottery of Early to Middle Neolithic date. Several pits contained pottery of later prehistoric date, indicating re-use of the pits in the Late Bronze Age or Early Iron Age. Thermoluminescence dating of the pottery from the site revealed that some of the assemblages were of Bronze Age or Iron Age date but that most of the material was of earlier Neolithic date (Brightman and Waddington 2012).

4.2.11 There have been no findspots of Neolithic material within the large EMIP site itself but aerial photographs show the unequivocal presence of archaeological features within it, which are discussed further below (**HEA1A** and **HEA1B**). The example of Hill Farm, Willington, suggests that the possibility of some of the more amorphous cropmark features in the site being of earlier prehistoric date should not be discounted.

Bronze Age (2000–600 BC)

4.2.12 The Bronze Age is characterised by technological change, when copper and then bronze eventually replaced flint and stone as the main material for everyday tools. It is seen as a period of increasing social complexity and organised landscapes, probably due to increasing pressure on available resources.

4.2.13 There are a number of key sites relating to the Bronze Age for the Trent Valley sand and gravel terrace. These sites are all multi-period but with substantial amounts of Bronze Age remains. The Mercia Marina site (**HEA39**), near Willington, 700m to the east of the site, contained the remains of four post-built structures, one circular and three more-enigmatic triangular structures, with samples from all the structures but one returning Early Bronze Age dates. Accompanying these was a substantial ring ditch and a penannular ring ditch close to at least one cremation pit. The cremation pit appeared to have had three separate phases of use, all relating to the Early to Mid Bronze Age. Radiocarbon dates illustrated that the primary fill of the pit dated to 1890-1690 cal BC (3465±25 BP, NZA 30351) and the secondary cremation dates to 1610-1430 cal BC (3235±30 BP, NZA 30238)). Middle Bronze Age Deverel-Rimbury pottery was also recovered from a nearby lower terrace. Earlier evaluation work which took place in part of the Mercia Marina site also recovered Early Bronze Age pottery from posthole fills, which equates well with the later excavations and dating (Brightman and Waddington 2011, 177).

4.2.14 At Willington Quarry (**HEA24** and **25** etc) *c* 900m to the south of the site a major assemblage of pottery was excavated providing a reasonably complete sequence through the Late Neolithic and Early Bronze Age (Manby 1979). Though these finds were associated with a series of cut features including pits and postholes, there were no clear post-built structures identified (Wheeler 1979, 78). In the light of the ephemeral, truncated triangular post-built structures from the nearby Mercia Marina site, it is possible that Bronze Age post-built structures existed on the site but were masked by later features or truncated by later agriculture. The dense spread of pits and postholes on the Willington Quarry site meant that it was hard to identify patterning in the mass of postholes and which pits could belong to any one period.

4.2.15 The formation of cropmarks on sands and gravels is generally very good, and there are substantial amounts of cropmarks both already known and that have been recorded as new and amended sites as part of the TMRA project. The HER and NMR lists record 14 barrows or ring ditches on the sand and gravel terrace. Most of the known ring ditches sit on the gravel terraces relatively close to the river though some are found on raised ground above the valley floor. Barrows and ring ditches (ploughed out barrows in which only the perimeter ditch survives), where excavated, have shown to have a great variety of form and a long currency of usage as a monument type (Clay 2006, 81).

4.2.16 Most of the archaeological features and findspots in the study area dating from the Bronze Age have been located near to the River Trent in the lower-lying part of its floodplain but this has not been exclusively the case. Excavations in 1996 along the line of a construction haul road identified a small group of features 480m to the south-east of the site (**HEA47**). One of the pits had a possible post setting at its west end, whilst its fill produced a large fragment of a polished stone axe, thought to be from a Welsh source. Postholes to the east of the pit were identified, and one had a postpipe and packing cobbles. These features have been interpreted as being of Neolithic and Bronze Age date.

4.2.17 Much closer to the site two Middle Bronze Age cremation urns were found in 1937 in the Willington Gravel Quarry (**HEA7**), one of which is in the Derby Museum. These were described as being found near the London Midland and Scottish railway level-crossing on the Burton Road at Willington and are shown on Fig 2 in the position given in the HER, in an area shown as a quarry on BGS map data. This location is immediately across the A38 road from the site in an area where extensive cropmarks can be seen in aerial photographs. There is thus a strong possibility that

there may be remains of this date in some areas of the site.

Iron Age (600 BC–AD 43)

4.2.18 During the Iron Age the climate deteriorated with colder weather and more rainfall. The period is characterised by expanding population, which necessitated the intensification of agricultural practices and the utilisation of marginal land. Hillforts were established in lowland Britain, linked to tribal land ownership.

4.2.19 On the sands and gravel terraces, the principal form of known Iron Age remains are cropmark enclosures, pit alignments and field systems, though few of these have been clearly demonstrated to be of Iron Age date and such an attribution has rested often more on assumption than on demonstration. Pit alignments are known from the gravel terraces north-east of Willington, including an alignment on the Mercia Marina site (**HEA39**), 700m to the east. Pit alignments remain an enigmatic monument class though they are clearly an important part of the landscape and can date from the Neolithic through to early medieval periods, although usually date from the later prehistoric period.

4.2.20 A substantial number of linear features and enclosures identified through aerial photography have been ascribed a late prehistoric date. As with other periods, there are a number of key sites which illustrate the often complex and multi-period archaeology of the sands and gravel terraces. An unenclosed late prehistoric settlement formed part of the archaeological remains from Willington Quarry (**HEA41**; Wheeler 1979), 600m to the south-east of the site. The Willington Quarry remains were split through association with two typologically different styles of late prehistoric pottery into an early phase, probably dating to the Late Bronze Age to Early Iron Age, and a later phase dating to between the fourth and first centuries BC (Wheeler 1979, 78). Both phases consisted of post-and-trench roundhouses, pits, hearths and linear boundary features, though the roundhouses were unenclosed unlike other broadly contemporary sites.

4.2.21 The Mercia Marina site (**HEA39**) also contained a substantial number of linear features, with those on the lower terraces close to the canal forming a coherent division of the landscape that appeared to incorporate a pit alignment as part of the complex (Brightman and Waddington 2011, 179). Although no dates were obtained from these features, the form suggests that they are most likely to be Iron Age in date, which tallies well with the investigation of a site at Willington Power Station in 2006 which dated the fills of a number of linear features to the Late Bronze Age and Iron Age through finds. It is important to note here that dating of boundary features is notoriously difficult. Ditches and pits are difficult to date as organic samples within them would have arrived in the fill as residual material and primary usage deposits are often not present.

4.2.22 Figs 11 and 12 show the east central part of the site in the summer of 1959. These are two photographs from the Cambridge University Collection of Aerial Photography by Professor J.K. St Joseph, whose work forms the basis of that Photography. Fig 11 is looking north over a number of cropmarks suggesting multi-period activity (**HEA1A**) whilst Fig 12 shows the same part of the site from the south-east. The A38 is visible in the lower foreground of the photographs. There is a large regular circular cropmark enclosure in the lower left of the picture and what appears to be a number of rectilinear and linear features including the roughly right-angled corner of a possible enclosure in the upper right. All of these features are interpreted as being of Iron Age date in English Heritage's National Mapping Programme drawings (Fig 4) and represent typical monument shapes for the period, although they could conceivably be of earlier or later times.

4.2.23 There are several other cropmarks visible in the photographs which are likely to be of modern origin (eg field ditches). However, given the propensity of sites identified from aerial photographs in the Trent Valley region to be of multi-period date, it seems quite possible that some of the other features in the picture may also be of

archaeological origin. In particular the area north of the wood and south of the railway line has several potential archaeological features in it which appear to be pits and pit alignments. The linear feature comprised of two parallel west-east oriented ditches in this area is probably modern but has a passing resemblance to the ditches of the cursuses at Willington and Aston-on-Trent. A wide dark feature runs from the wooded area in the centre of the picture towards the right-angled enclosure which probably represents the course of a former stream channel. The area to the east of the wood in the centre of these photographs is shown on historic maps as an "old gravel pit" and as worked ground on BGS mapping data.

Roman period (AD 43–410)

4.2.24 The majority of known Roman sites on the sands and gravels are accounted for by the Roman road network which crosses the terraces and makes use of the natural routeways provided by the river valleys. The roads and other known Roman sites in Derbyshire, cluster around two known Roman centres, the fort of *Navio* at Brough-on-Noe (in North Derbyshire), and Roman Derby, specifically the fort and *vicus* of *Derventio* at Little Chester on the banks of the River Derwent, on the north-east side of modern Derby. The modern A38 follows the line of the Roman Ryknield Street, an important road running off from the Fosse Way from Cirencester in the south-west towards Derby, crossing the River Trent near Stretton. No significant Roman sites are known close to it within the study area and there have been no Roman finds from the area where it would have crossed the River Dove at Egginton Bridge, just to the south-east of the study area.

4.2.25 The most substantial Romano-British farming settlements so far known on the sand and gravel terraces are two farmsteads known from the multi-period Willington Quarry site (**HEA41**), 600m to the south-east of the site. The first overlay the Iron Age features noted above and consisted of three phases of Romano-British farming activity, including a series of rectilinear enclosures and pottery diagnostic of the first century AD, before falling out of use (Wheeler 1979, 105–7). The second farmstead was similar in form, including rectilinear enclosures and individual rectilinear compounds, and it was clear that this farmstead was in use until at least the third century AD, again through dating of diagnostic pottery (Wheeler 1979, 110-1).

4.2.26 With both the Iron Age and the Roman periods, it is likely that the relatively low number of sites in the HER and NMR is not a true reflection of the rich potential of the sand and gravel terraces to host archaeological remains from these periods. The substantial number of undated cropmark sites which are tentatively dated to the later part of the prehistoric period generally suggest that our knowledge of this period and the list of definite sites will grow as these sites are investigated.

4.2.27 Within the study area, evidence of possible Romano-British settlement has tended to come from near to the River Trent, with a cluster of findspots *c* 1.0km to the south of the site, including the farmsteads mentioned above (**HEA41**), a corn-drier 700m to the south-east (**HEA2**), and an enclosure and field boundaries 600m (**HEA46**) and 300m (**HEA47**) to the south-east, all in the same general area. Further cropmarks of possibly Roman date have been found north of Egginton, *c* 500m to the south-west of the site (**HEA52, 53**).

Early medieval (Saxon) period (AD 410–1066)

4.2.28 During the early medieval period, the south of Derbyshire and the Trent Valley was in the heartland of the kingdom of Mercia, which encompassed an area from the Welsh border to East Anglia in the late 8th century at the height of its power, and from the Humber almost to the south coast of England and including London (Hill 1981, 31). The church at Repton, *c* 2.5km to the south-east of the site with its surviving Anglo-Saxon crypt, was one of the key religious centres of the kingdom together with the short-lived archbishopric based at Lichfield and the surrounding area was also a royal centre for many years.

4.2.29 Whilst there is a noticeable lack of large Anglo-Saxon cemeteries from the Derbyshire lowlands, other counties in the East Midlands along the course of the Trent Valley are comparatively rich in Anglian burials (Vince 2006, 169). The contrast in burial practices between the uplands and lowlands may well indicate the route of advance of the early settlers up the arterial river valleys from the east, and lends credence to the idea that the upland tribes were of different or native ethnic stock to the groups that settled the Mercian heartlands via the Trent Valley. The Trent Valley does contain examples of Anglian insertions into earlier prehistoric burial mounds which suggests the recognition and appropriation of important ancient sites.

4.2.30 The archaeological resource assessment for early medieval settlement in the lowlands of the county is based on only a few excavated sites. At Willington Quarry, *c* 1.0km to the south-east of the site, three widely dispersed 'Sunken-Floored Buildings' (small earthfast structures commonly thought to have an industrial purpose) and a number of scattered postholes have been ascribed to the early Anglian period during the 6th century (**HEA4, 41**; Wheeler 1979), while at Catholme, in the extreme south of the county, a later Anglo-Saxon settlement is known.

4.2.31 The Scandinavian invasions of the late 9th century onwards subjugated all of the lowlands of Derbyshire controlled from the centre at Derby. There are scattered findspots known from the Anglo-Scandinavian period, though there has been very little settlement evidence outside of the known semi-urban areas. The only known Scandinavian cremation cemetery in the British Isles lies at Heath Wood, Ingleby, *c* 6.0km to the east of the site, where excavations have suggested that it could house the remains of the dead from the Great Army of AD 873–8. Within the study area, a fragment of the foot of a copper alloy cruciform brooch, probably of early medieval date was found by chance by metal detector from the site of a transmission aerial in the field behind the Toyota Works at Burnaston, *c* 1km north of the site (**HEA16**).

4.2.32 Etwall is mentioned in the 7th century AD. The manorial estate is recorded in the Domesday Book of 1086 with details of about eighty inhabitants and a church. The village developed on a higher sand outcrop that covers a local clay base, *c* 1.0km to the north of the site. It was easy to dig wells to get access to the water above the clay and the name of Etwall is sometimes thought to derive from the words Etta's Well, although the evidence for this is not conclusive (www.etwallhistory.org). The northern half of the site may have fallen within the Etwall Estate. To the south was the Saxon estate of Egginton, which is also mentioned in the Domesday survey, and as with the later medieval parish the manorial estate probably included the southern half of the site. The exact location of the Saxon settlement in Egginton is uncertain, but it probably grew up on or in the vicinity of the medieval church of St Wilfrid, 1.2km to the south of the site.

4.2.33 In at least the latter half of this period the site would have been in open fields or woodland beyond these main settlements.

Later medieval period (AD 1066–1540)

4.2.34 The site lies within the land of the two medieval parishes of Etwall and Egginton. The northern half lies within the former and the southern half of the site within the latter. Boundary Road crosses the site from west to east and later served as the main access route across the sewage workings. This marks the border between the two parishes, with its route being fixed by arbitration in 1791.

4.2.35 The medieval parish of St Helen's, Etwall, contained the townships of Etwall and Burnaston and they have formed the civil parish since the 19th century. Following the Norman conquest, the manor of Etwall was bestowed on the de Ferrars family and it was held by Henry de Ferrars at the time of Domesday Book in 1086. The de Ferrars (or de Ferrers) family subsequently became the Earls of Derby. The church passed to Welbeck Abbey in the mid 12th century and the manor to Beauvale Priory

in 1370. When the monastic land was appropriated by the Crown in 1540 King Henry VIII passed the manor and church to his former Solicitor General, Sir John Port, who had already inherited land in the village and had worked on legal aspects of the royal marriages. Sir John's son, also a lawyer called Sir John, left land and money in his will for a hospital or hospice and a school for the poor which became Etwall Almshouses and Repton School. The historic core was centred on the church 1.3km to the north of the site.

4.2.36 The manor of Egginton (*Eghintune*) was owned by someone called Tochi in the reign of Edward the Confessor and had passed to Geoffrey Alselin by the time of Domesday Book, when it had land for 6 ploughs, a priest, a church and a mill. Egginton passed through several owners over the years, including members of such notable families as the Talbots and de la Poles, and was subdivided many times for inheritance arrangements, while largely remaining a quiet and untroubled village. The manor of Hargate was carved out of Egginton in this way and lies just beyond the site of the west side of the site at Etwall Road. Several of the subdivided holdings in the manor were consolidated in the later medieval or early post-medieval periods into the hands of the Every family (Lysons 1817). The historic core was centred on the church 1.2km to the south of the site

4.2.37 In the medieval period, as now, the site lay between the villages of Etwall, Egginton and Willington, 1.3km to the south-east. It would have lain within the open fields of the villages where cultivation was carried out communally, with shared strips and areas of meadow and common. The NMP shows areas of levelled ridge-and–furrow cultivation originating from this process in the north-east (Etwall) and south-east (Egginton) parts of the site (Fig 4). Traces of medieval field systems, particularly ridge-and-furrow, are fairly common in varying degrees of preservation in the East Midlands area, with particularly good examples in East Leicestershire and Northamptonshire (Cooper et al 2006, 207), although they have been and are continuing to be eroded by modern ploughing on the sand and gravel terraces. Derbyshire HER records better preserved ridge-and-furrow between the north-west corner of the site and the village of Etwall (**HEA27**) and on the east side of Egginton, *c* 1.2km to the south of the site (**HEA19, 20**).

4.2.38 Archaeological work on sites dating to the later medieval period tends to have been concentrated on monastic settlements in the county, particularly in the Trent Valley. The contraction of rural settlement in the later 14th century is attested by shrunken and deserted villages and relict agricultural landscapes in the lowland areas of Derbyshire, often appearing as cropmarks, although there are none known in the immediate vicinity of the site.

Post-medieval period (AD 1540–present)

4.2.39 Throughout much of this period the site lay within open fields some distance from the main settlements. Following the dissolution of the monasteries in *c* 1540 there was a period of general lawlessness in the area. The Every family papers (see 4.2.40 below) of 5th July 1542 record the enquiry into five named individuals of Egginton who 'with sticks, swords and knives assembled at Egynton and under the order of Humphrey Babyngton Esq, broke in to the close of Thomas Rolleston of Egynton and riotously cut down and destroyed the grain growing and committed other enormities…against the Kings peace."

4.2.40 By the reign of Queen Elizabeth I the main landowners in Egginton were the Leigh family. They are recorded as giving £25 towards a collection to defy the Spanish Armada in 1588. On the death of Sir Henry Leigh, Egginton Hall passed to his daughter Anne, who had married a young man from Somerset, Simon Every. Simon Every came from an old family who had originally come from Ivry in Normandy. Having married Anne Leigh in 1628, he came into the estates of Egginton and Newton Solney. He became a magistrate for Derbyshire in 1636 and was later created a Baronet by Charles I in 1641 for services to the king.

4.2.41 When the Civil War began in 1642, Sir Simon is said to have been in charge of munitions and supplies for several Royalist Castles, including nearby Tutbury. The largest battle to be fought in Derbyshire was in 1644, known as the battle of Egginton Heath. The Royalists were returning victorious from a victory at Newark in Nottinghamshire and were surprised on Egginton Heath and put to flight by the forces of the Parliamentarian Sir John Gell of Hopton. The Royalists fled through the village of Egginton, with many being killed trying to ford the Dove and Trent to escape their pursuers (www.Egginton.org.uk). It was a serious disadvantage supporting the losing side, so that for the next two generations Sir Simon Every's family sought to avoid the Commissioners for Sequestrated Estates, eventually settling for a fine of £2,000.

4.2.42 The topographical details of the battle are not clear but the Derbyshire HER locates it at Egginton Common within the southern part of the site (**HEA1C**) where some of the action is likely to have taken place. The encounter is not included on the English Heritage Register of Historic Battlefields or in the Resource Centre database of the Battlefields Trust, although it is recorded as a skirmish in the Huddersfield University Battlefield Archaeology database (Glenn Foard, *pers comm*, 29.11.2013).

4.2.43 The archaeological record of the area generally is dominated by large-scale, though often gradual, change in the agrarian landscape and a growth in the size and reach of urban centres. Evidence of ridge-and-furrow field cultivation can be seen in many parts of the county and it is often not clear whether it should be attributed to the medieval or post-medieval periods (Brightman and Waddington 2011, 182).

4.2.44 Village life continued to revolve around the local church and larger estates. During the 18th century Egginton was a 'closed' village with all the houses and farms owned by the estate and let to tenants, most of whom would have worked on one of the 11 farms or supplied food, clothing or other services to the community.

4.2.45 The enclosure acts of the 18th century resulted in the replacement of much of the medieval farming landscape and laid the foundations for the countryside visible today across much of the Trent Valley. Until the early 1900s agriculture was the dominant local activity. There were farms at the very centre of the villages, some of them still identifiable by name, as well as those in the surrounding countryside. Dairy farming was always important in the area but with the advent of the railway it assumed a dominant position as it became possible to supply the London market via Egginton Junction Station (until the 1960s).

4.2.46 By the time of the enclosures in the 18th century the Every family finances had stabilized and by the time of the Tithe Commutation Act of 1836 they were the major landowners in both Etwall and Egginton. The Tithe Apportionment Maps and Awards of 1849 confirm this. The Egginton Tithe Apportionment map (Fig 6) shows all of the land within the site enclosed into relatively small plots and the award lists their ownership. Of the 81 plots of land, 68 are listed as belonging to "Sir Henry Bart", whose full title would not have been necessary locally, being Sir Henry Flower Every, 10th Baronet of Egginton. Of the remaining plots, six belonged to the church (as "glebe"), three to the Willington Friendly Society, two to other named individuals and one to the North Staffordshire Railway, with one unattributed.

4.2.47 The Tithe Apportionment map and award for Etwall shows most of the plots of land in that parish as belonging to Ashton Nicholas Every Mosley Esq, who was the High Sheriff of Derbyshire and also a baronet related to Sir Henry Every, whilst Sir Henry also continued to hold land on this side of the parish boundary also (Fig 5). The vast majority of the land in both parishes was classed as arable although a few fields were covered in woods and others used as meadow land.

4.2.48 The planning and company history of the railway's arrival in the 19th century is typically complicated. The North Staffordshire Railway (NSR) was a British railway company formed in 1845 to promote a number of lines in the Staffordshire Potteries and surrounding areas in Staffordshire, Cheshire, Derbyshire and Shropshire. The main routes were constructed between 1846 and 1852 and ran from Macclesfield to

Norton Bridge, just north of Stafford, and from Crewe to Egginton. The line crosses the centre of the site. Egginton Station was opened in 1848 and lay just outside the centre of the western boundary of the site but only lasted in operation until 1878, when the Etwall branch line was built. Egginton Station is not to be confused with Etwall Station, which was on the west side of that village and owned by the Great Northern Company (GNR) or Egginton Junction Station which opened in 1878 *c* 1.2km to the west of the site, although the GNR jointly ran Egginton Junction Station with the NSR) The NSR remained an independent company up to 1923 when it became part of the London, Midland and Scottish Railway Company. Egginton Junction Station has been closed since 1962.

4.2.49 The later history of the development of the site can be traced by the use of Ordnance Survey maps from the late 19th century. The Ordnance Survey 1st Edition 6":mile map of 1886 (Fig 7) shows the entire site as agricultural land with the North Staffordshire Railway line running through the middle of it in a cutting. The northern part of the site is labelled Etwall Common whilst the southern part is on Egginton Common. Egginton Common is sometimes called Egginton Heath and the south-east part of the site is called Heath Flat. Several small wooded areas are shown, two of which are labelled fox coverts and there are various quarry pits shown. There is a marl (locally meaning red clayey mudstone used for building works) pit at the south-west corner of the site and gravel pits near the Ryknield Street level-crossing and along the southern boundary and "Gravel pit Houses" in the centre of the western edge of the site, with the old gravel pits on the opposite side of the Etwall Road. These were the pits which were worked for the North Staffordshire Railway lines' track ballast. A few small ponds also shown are likely to have been former gravel pits. The only other substantial house shown is the Round House, in the north-east of the site, standing on the site of a former post-medieval windmill from which it derives its name. This is shown on the small scale Burdett county map of 1791 (not reproduced). The Burton Corporation Sewage Farm was established in Egginton in 1884 and extended into Etwall in 1895 but it does not appear marked on this map.

4.2.50 The Ordnance Survey 2nd Edition 6":mile map of 1901(Fig 8) shows the central area of the site labelled as "Sewage Farm, Burton upon Trent Corporation." The layout of the fields south of the railway line remains the same as in 1886 but there has been some minor modification made in the area around the sewage farm north of the railway line and Standpipe Cottage has been built in this area. Near the Round House, settling tanks and a filter tank are shown, suggesting that this part of the site was also being used by the sewage works. The gravel deposits were seen as an ideal filter for sewage which was piped from Clay Mills pumping station east of Burton-upon-Trent. A rectilinear pattern of drains was installed to facilitate removal of effluent. Although the farm was productive, the treatment of sewage was less than efficient and the smell was a public nuisance locally and on occasion as far afield as Repton School and Calke Abbey (www.etwallhistory.org).

4.2.51 Other small buildings in the north of the site are named as White cottage, Mosley Cottages and Botany Bay but the majority of the site remains agricultural land. The sewage works meant that the village of Etwall itself increased in size because of an influx of operators for it, from *c* 500 inhabitants in 1801 to 750 in 1931. Blakeley Lodge was the headquarters of the sewage works on the west side of Etwall Road, just outside of the site.

4.2.52 The Ordnance Survey 3rd Edition 6":mile map of 1924 (Fig 9) shows the field layout south of the railway line the same as before but the sewage farm north of the tracks much expanded. The field layout is much the same as in 1901 but tanks are labelled in almost the whole of the northern area and beyond it as far as the old road between Etwall and Willington, which has now been blocked by the Toyota factory and superseded by the A50. Egginton Old Railway Station is also labelled for the first time as a goods depot.

4.2.53 An airfield was opened at RAF Burnaston (**HEA59**) in 1939, immediately before the

Second World War during which it was used for flying training purposes. This was mostly in the area north of the existing A50 road and covered a large part of Sir Ashton Mosley's Burnaston Estate. Mosley's Burnaston House (**HEA34**), built in 1820, had originally been bought by Derby Council in 1936, so that a municipal aerodrome could be built with the house used as a clubhouse and terminal building. It was used as one of the RAF administrative buildings during the war. The airfield subsequently became Derby Municipal airport until 1965, when commercial services were transferred to the newly reconstructed East Midlands Airport. Private flying from Burnaston continued until 1989 when the site was taken over for car manufacture by the Toyota Company. Burnaston House was dismantled by the Toyota Company and put into storage at this time.

4.2.54 During the Second World War the eastern approaches to RAF Burnaston airfield were protected by a group of at least 11 cantilevered World War II pillboxes. These have all been removed by road construction and the Toyota factory during the later 20th century, except for one (**HEA1D**) which is thought to be the only example of this design of pillbox in the county and survived because of its position on the opposite side of the A50 road to the Toyota factory. The design and significance of this structure (and of the Round House (**HEA1E**) and Standpipe Cottages structures (**HEA1F** and **HEA1G**)) within the site are discussed further in the accompanying MOLA Historic Building Assessment report. The positions of the known former pillboxes around the airfield are shown on Fig 2 (**HEA60,** based on Defence of Britain project database). These were all located outside the site to the north and north-east.

4.2.55 The Ordnance Survey 1:10,000 scale maps of 1955 and 1973–6 (not reproduced) show very little change in the site from the period before the war, although the latter shows the extent of the gravel pits in the north-west corner of the site in more detail. The sewage works closed in the 1970s.

4.2.56 The Ordnance Survey 1:10,000 scale map of 1993–6 (Fig 10) shows part the Toyota factory to the north of the site in its early stages with the test track complete, which is now on the opposite side of the A50, which had been planned but had not built by this time. This part of the A50 was built in the 1990s. The field pattern south of the railway line remains the same, although it has been slightly rationalized on the north side of the line, and the Biffa compost processing plant has appeared in the centre of the site, where part of the sewage farm had been previously. (The BGS map showing former land use (Fig 4) has used this Ordnance Survey map as its base). The majority of the site is currently used as farmland (Figs 1 and 10).

5 Statement of significance

5.1 Introduction

5.1.1 The following section discusses past impacts on the site, generally from late 19th and 20th century developments which may have compromised archaeological survival, eg building foundations or quarrying, identified primarily from historic maps, the site walkover surveys, and information on the likely depth of deposits. It goes on to consider factors which are likely to have compromised asset survival.

5.1.2 In accordance with the NPPF, this is followed by a statement on the likely potential and significance of buried heritage assets within the site, derived from current understanding of the baseline conditions, past impacts and professional judgement.

5.2 Factors affecting archaeological survival

Natural geology

5.2.1 Based on current knowledge, the predicted level of natural geology within the site is likely to be at a very shallow depth. Borehole data along the northern and eastern edges of the site suggest that natural geological deposits can be found at a relatively shallow depth immediately below topsoil, which generally has thickness of *c* 0.3m–0.5m, although there are occasional deeper areas representing local topographic anomalies. It is most likely that archaeological remains would be found either at the interface of the topsoil and underlying subsoil or as features cut into the natural geological layers.

Past impacts

5.2.2 Archaeological survival potential is likely to be varied across the site. Some areas have remained rural and undeveloped and other than the impact of ploughing, which generally reworks the upper 0.3m of topsoil (0.4m for root crops) remains are likely to survive intact beneath the topsoil.

5.2.3 Elsewhere, archaeological remains are likely to have been removed from some areas of the site by previous human activities on it, particularly quarrying which has taken place extensively in the area for sand, gravel and marl. These areas are shown on the BGS geological former land use map (Fig 3), where they are classified as worked ground and made ground. Worked ground is defined as “unfilled, disused sand and gravel pits and sandstone and mudstone quarries and cuttings”, and made ground is defined as “mainly embankments, quarry spoil and raised ground: floodbanks are generally excluded.” There are also areas where the two are shown combined, which are described as “excavations partly or wholly backfilled with spoil, waste or fly ash”. Areas of extensive cut-and-fill landscaped ground have also been included, of which there is only one relatively small area in the middle of the site.

5.2.4 The numbers in the table below correspond to the areas of the worked made and landscaped ground as recorded on the BGS former land use survey map (Fig 3) with an approximate location in relation to the site and comment in relation to NMP and other information. The areas are shown with reference letters on them in Fig 18:

Table 1: Areas of Worked, Made and Landscaped Ground from BGS data.

Fig 18 Ref No.	Feature and location	Approx. area	Comment
A	Marl quarry pit at south-east corner of site on Carriers Road	5,000m^2	Shown as excavated to bedrock on BGS sheet. Does not appear on NMP mapping; appears on OS 1st edition map.

Fig 18 Ref No.	Feature and location	Approx. area	Comment
B	Gravel extraction pit in southern part of site near Carriers Road	7,800m^2	Shown as excavated to bedrock on BGS sheet. Does not appear on NMP mapping; shown as infilled plantation on OS 1st edition map.
C	Gravel pits in southern part of site adjacent to Carriers Road	41,150m^2	Shown as excavated to bedrock on BGS sheet. Does not appear on NMP mapping; shown as small open pit on OS 1st edition map.
D	Gravel pits in southern part of site adjacent to Carriers Road	46,750m^2	Irregular conjoined areas shown as excavated to bedrock on BGS sheet. Pitting shown in area on OS maps until 1970s. Partly shown as levelled ridge and furrow on NMP mapping; ridge- and-furrow area extends to north into area marked on modern mapping as “Area of sluices”.
E	Gravel pits in eastern part of site beside A38	10,850m^2	BGS mapping suggests that this pit was close to the ring ditch in CUCAP photos, as mapped by NMP, but probably stopped short of it. HER cropmark area extends well beyond gravel pits. (See para 4.2.23). Gravel pit area shown as excavated to bedrock in BGS data.
F	Railway lines running east–west in central part of site with widened former depot yard at west end.	47,800m^2	Railway lines and yard in shallow cutting in west and centre of site with slight embanking at east end, shown on BGS mapping.
G	Area of scrub land by north side of railway line	7,300m^2	Reason for designation unclear; not shown on NMP or historic mapping. Buried remains might survive beneath.
H	Embanked area in east centre of site beside A38	38,600m^2	Very modern embanked area beside A38, probably the result of road improvement works. Buried remains might survive beneath.
I	Gravel pits at west centre of site south of Boundary Road immediately east of Etwall Road	134,250m^2	Area of small scale gravel pitting shown on historic mapping and large scale quarrying from 1970s. NMP mapping shows Areas 9, 10, 16 and 17 as one “area feature”. Shown as excavated to bedrock in BGS data.
J	Gravel pits at west centre of site south of Boundary Road immediately east of Area 9	74,750m^2	Area of small scale gravel pitting shown on historic mapping and large scale quarrying from 1970s. NMP mapping shows Areas 9, 10, 16 and 17 as one “area feature”. Shown as excavated to bedrock in BGS data.
K	Gravel pitting in centre of site south of Boundary Road	81,850m^2	Gravel pitting not shown on NMP or historic mapping but visible in aerial photographs. Shown as excavated to bedrock in BGS data, probably as a result of sewage farm workings.

Fig 18 Ref No.	Feature and location	Approx. area	Comment
L	Landscaped area around Biffa composting plant area	11,200m^2	Modern landscaped area. Not shown on NMP or historic mapping.
M	Sewage farm workings (?) in north-east of site, south of Boundary Road	45,250m^2	Gravel pitting not shown on NMP or historic mapping. Shown as excavated to bedrock in BGS data, possibly as a result of sewage farm workings.
N	Sewage farm workings (?) in north-east of site, south of Boundary Road and Round House	49,450m^2	Gravel pitting not shown on NMP or historic mapping. Shown as excavated to bedrock in BGS data, possibly as a result of sewage farm workings.
O	Sewage farm workings (?) in north-east of site	9,800m^2	Gravel pitting not shown on NMP or historic mapping. Shown as excavated to bedrock in BGS data, possibly as a result of sewage farm workings.
P	Gravel pit workings adjacent to east side of Etwall Road, immediately south of Gravel pit cottages	4,800m^2	Area of small scale gravel pitting shown on historic mapping and large scale quarrying from 1970s. NMP mapping shows Areas 9, 10, 16 and 17 as one "area feature". Shown as excavated to bedrock in BGS data. The area to the north of this in the north-east corner of the site is shown as levelled ridge and furrow on the NMP mapping.
Q	Gravel pits at west centre of site north of Boundary Road immediately east of Etwall Road	82,750m^2	Area of small scale gravel pitting shown on historic mapping and large scale quarrying from 1970s. NMP mapping shows Areas 9, 10, 16 and 17 as one "area feature". Shown as excavated to bedrock in BGS data.
R	Gravel pit or sewage farm workings (?) in centre of site north of Boundary Road	154,200m^2	Gravel pitting not shown on NMP or historic mapping but most likely reason for being shown as excavated to bedrock in BGS data but possibly the result of sewage farm workings.
S	Gravel pit or sewage farm workings (?) in north-east of site north of Boundary Road	5,950m^2	Gravel pitting not shown on NMP or historic mapping but water-filled pond appears in aerial photographs, probably as a result of gravel pit workings. Only the pond area is shown as excavated to bedrock in BGS data but area may have been larger (See Fig 13).
T	Gravel pit workings adjacent to east side of Etwall Road, north-east of Gravel pit cottages	157,050m^2	Gravel pitting not shown on NMP or historic mapping but probably extension to north of gravel pit workings in Area Q. Shown as excavated to bedrock in BGS data.

5.2.5 By totalling up the areas involved, it can be seen that according to the BGS data somewhere between a third and a half of the site (*c* 36%, approximate figure only) would have already been truncated down to natural bedrock removing any archaeological remains which might otherwise have been there.

Likely depth/thickness of archaeological remains

5.2.6 Archaeological remains in the area are most likely to be relatively shallow. Taking data from the Mercia Marina site, for example (**HEA39**, Brightman and Waddington, 2012), topsoil tends to be to a depth of *c* 0.3m bgl with plough damage occurring even at this depth at the tops of features cut down into the underlying sub-stratum of glacio-fluvial sands and gravels. Cut features on that site were generally seen to go to a depth of less than 1.0m bgl and the same general range is most likely on this site. This depth has been confirmed in many of the boreholes sunk during road construction in the 1990s around the edges of the site.

5.3 Archaeological potential and significance

5.3.1 The nature of possible archaeological survival in the area of the proposed development is summarised here, taking into account the levels of natural geology and the level and nature of later disturbance and truncation discussed above.

5.3.2 Many of the prehistoric sites which are quite extensive in the Trent Valley are not closely defined by period and often continued to be settled over several of the conventional subdivided periods of the prehistoric era, sometimes continuously but not necessarily always so.

5.3.3 In a site as large as this it is quite likely that there may be areas of it where archaeological remains are quite dense and parts of the site which are archaeologically sterile (which would obviously include the areas where any possible remains have been removed by quarrying). In the assessment of significance below, the areas being considered are only those where archaeological survival is likely.

5.3.4 *The site has a high potential for remains of the prehistoric period(s).* Evidence from aerial photographs suggests that cropmarks visible in some parts of the site, (**HEA1A** and **HEA1B**)**,** are typologically virtually certain to indicate remains of prehistoric date. The Trent Valley has long been known to have been densely settled during prehistoric times particularly along the lower-lying part of the valley *c* 1km to the south-east of the site but settlement sites are also known to have spread up the sides of the valley, especially on its northern side. Antiquarian finds in the area have not always been precisely located but it is clear that prehistoric remains have been found close to the site including flintwork (**HEA6**) and Bronze Age cremation urns (**HEA7, 9, 11**). Remains of prehistoric settlement sites are likely to be of at least **medium or high** significance, derived from the evidential value, while such remains as cremation cemeteries would be of **high** significance and it should be noted that some prehistoric remains in the Trent Valley beyond the study area have been deemed to be of such significance as to be designated as Scheduled Monuments, such as the Aston-on-Trent cursus and several other settlement sites.

5.3.5 *The site has a low to moderate potential for remains dating to the Roman period.* Within the study area the only Roman remains recorded have been found in the lower-lying parts of the Trent Valley in the area of the multi-period settlement sites (**HEA5, 12, 41**), *c* 1km away to the south-east, which would suggest only a low potential for them. However, the A38 road, which forms the eastern boundary of the site follows the line of a former major Roman road, Ryknield Street (**HEA8**). This increases the potential for Roman remains on the site, since settlement sites were usually located fairly close to Roman roads, but only to moderate because it is not uncommon for Roman roads to run through the countryside for long distances without any recognizable settlements beside them. The Roman road itself was investigated at Pineview Gardens in the suburbs of Derby *c* 5km to the north-east of the site, where drainage ditches, construction pits and boundary ditches were found close to it. Such remains would be of **low to medium** significance, depending on their condition and extent because of their evidential value. Remains of settlement, if present, would potentially be of **high** significance.

5.3.6 *The site has a low potential for remains of early medieval (Saxon) date*. The site lay some distance from the likely settlement centres in the latter half of this period, and the only remains of this date to have been found in the study area have been located near the banks of the River Trent *c* 1km to the south of the site (**HEA4, 41**) and the chance find of part of a metal brooch in the fields where the Toyota factory now stands (**HEA16**). It has been suggested that the Trent formed a cultural barrier during the early Anglo-Saxon period as remains of settlements and burials of this period to the north of it in Derbyshire and Nottinghamshire are very rare, in spite of repeated attempts to identify new sites (Cooper et al 2006, 163–164). It seems therefore unlikely that any such remains should be found on the site, although it has been noted that secondary burials have occasionally been found in prehistoric barrows and new 7th century barrows were constructed along the line of the Derby to Buxton road. Chance finds of Saxon coins have also been found more commonly near the line of major Roman roads (*ibid* 172). Residual Saxon finds would be of **low** significance, whilst evidence of settlement or burials could be of **medium to high** significance depending on their condition and extent. This would be derived from the evidential and historical value of the remains.

5.3.7 *The site has moderate potential for later medieval remains.* The site lies at the heart of the triangle formed by the villages of Etwall, Egginton and Willington and lies partly within the two parishes of Etwall and Egginton. Most of the East Midlands region was “champion” landscape (ie nucleated villages surrounded by arable land organized as communal open strip field systems) and it has some of the best-preserved areas of ridge-and-furrow in the country, although it is continually under threat from modern agricultural methods and development. The site has areas which are classified as levelled ridge-and-furrow in the north-east and south-east corners but does not have any where it is well-preserved. Lying as it does at the edge of two parishes, the site would have been comprised of marginal agricultural land where the ridge-and-furrow may have been less well-developed and other finds would be likely to be residual artefacts associated with manuring or similar activities. The only medieval remains recorded in the HER in the study area comprise ridge-and-furrow field strips and possible headlands (**HEA19, 20, 21, 23, 27, 35** and **39**). Poorly preserved ridge-and-furrow and associated residual artefacts would be of **low** significance, based on the limited evidential and historical value.

5.3.8 *The site has low potential generally for remains of post-medieval date.* It comprised agricultural land at the edge of the two parishes until the enclosures of the 18th century. The site was split in two by railway construction in the mid 19th century, after which the area to the south continued to be used as agricultural land, whilst the area to the north was used as the site of sewage farm works from the late 19th century onwards. Parts of the site were subject to small-scale hang dug quarrying. The significance of the individual elements which comprise the post-medieval landscape are considered below.

5.3.9 *The Derbyshire HER indicates that the site contains the location of the battle of Egginton Heath in the English Civil War in 1644* (**HEA1C**). This was a relatively minor engagement involving Parliamentarian troops attacking Royalist troops returning from the siege of Newark and putting them to flight. The details of the battle are not fully known, although the fighting is thought to have spilled into the village of Egginton itself and a group of the Royalists were trapped and massacred on the banks of the Trent, both of which parts of the action would have fallen outside of the site. The site is not included in the English Heritage Register of Historic Battlefields (ie there is no formal designation/protection) or on the Battlefields Trust Database, although it does appear in the Huddersfield University Battlefield Archaeology Database. Currently insufficient detail is known about the topography of the battle to make any assessment of the site’s significance as the setting for the battle, but this might be improved by reference to 17th century primary sources, for example. The significance of the remains as physical objects, musket balls and other armament remains, for example, would be of **low** significance in themselves

but this significance might be increased to **moderate** if concentrations and distribution patterns could be traced.

5.3.10 *The site has high potential for agricultural ditches and evidence of quarrying.* Historic maps show evidence of field boundaries and quarry areas that are no longer extant. The buried remains of these would be of **low** or **negligible** significance.

5.3.11 *Buried elements associated with the late 19th and 20th century sewage works and the railway sidings may be assessed as having low to negligible significance.* The extant buildings are described further in the MOLA Historic Building Assessment report.

5.3.12 *The site has a moderate potential for evidence of historically "important" hedgerows*. Hedgerows are subject to the Hedgerow Regulations of 1997 and they may be classed as "important" if they have been in existence for 30 years or more and satisfy at least one of the criteria listed in Part II of Schedule I of the Regulations. The most relevant criterion of these is that "the hedgerow marks the boundary, or part of the boundary, of at least one parish or township, and for this purpose 'historic' means existing before 1850." Historic maps suggest that many of the hedgerows on the site may have been realigned or replanted but some of the field boundary lines have apparently remained the same for long periods, especially to the south of the railway line; the area to the north appears to have been changed more as a result of landscaping for the sewage works. It is most likely that the only hedgerows which would meet the historical criteria to be considered "important" for the purposes of the regulations would be those along the Boundary Road which marked the boundary between the parishes of Etwall and Egginton but it is recommended that a hedgerow survey be carried out. The evidential and historical values of such hedgerows could give them **low** heritage significance. Note: the presence of historically important hedgerows will be determined once the Ecology report is made available.

6 Conclusions

6.1.1 The site lies within the floodplain of the River Trent Valley towards its northern edge. This area is well-known for multi-period archaeological sites particularly near the River Trent itself, although with such sites also appear to have spread up the northern side of the floodplain, where the site lies. The remains excavated and recorded on these sites have generally included elements dating to one of the subdivisions of the prehistoric period and often to several of them. Roman remains have been less frequently found within the study area, although a major Roman road forms the eastern boundary of the site. Saxon remains have been found in the deeper parts of the river valley but have been uncommon on its north side. The site would have been in marginal agricultural land during the medieval period and was used in historic times for sand, gravel and marl extraction in post-medieval and modern times. The majority of the northern part of the site was also used as a sewage treatment works in modern times.

6.1.2 Post-medieval and modern quarrying and activities connected with the sewage works are likely to have removed any deposits potentially containing archaeological remains over an area of slightly more than a third of the site.

6.1.3 This report has been written at the same time as an archaeological geophysical survey has been carried out. The results of the two exercises should be compared and combined, to inform further phases of documentation, including the required Environmental Statement chapter.

7 Gazetteer of known historic environment assets

7.1.1 The table below represents a gazetteer of known historic environment sites and finds within the 2 km-radius study area around the approximate centre point of the site. The gazetteer should be read in conjunction with Fig 2.

7.1.2 Information on Historic Environment Records was obtained in the first instance from the Heritage Gateway website as maintained by English Heritage. This includes entries from the National Heritage List for England for Listed Buildings; Pastscape, the National Record of the Historic Environment; the National Monuments Record Excavation Index; the Parks and Gardens UK list of designed landscapes; and the Derbyshire Historic Environment Record (formerly the Derbyshire Sites and Monuments Record).The Derbyshire County Council GIS data contained in this material was supplied on 08/10/2013.

Abbreviations

HER: Historic Environment Record
MDR: Monuments of Derbyshire Record
TVARC: Trent Valley Archaeological Research Committee
SMR: (County) Sites and Monuments Record number
DOB: Defence of Britain project reference

HEA No.	Description	Site code/ HER No.
1A	**Cropmark of ringditch, Egginton Common** The dry summer of 1959 accentuated crop-marks in the well-drained area of the River Trent floodplain, and aerial photographs of a number of unsuspected sites were obtained by Dr JK St Joseph, whose photographs formed the initial basis for the Cambridge University Collection of aerial Photography. These include a cropmark of a ring ditch on Egginton Common, at approximately SK 284291. In 1966 the site was under crop and there was no visual evidence on the ground.	19601 - MDR2585
1B	**Cropmarks south of Boundary Road, Etwall** Cropmarks of a probably prehistoric rectangular enclosure and two linear features are visible on a NMR aerial photograph of 1959. Nothing was visible on later OS air photographs of 1967.	19621 - MDR2589
1C	**Civil War Battle, Egginton Heath** A battle took place on Egginton Heath in March 1644 which resulted in royalists approaching from Newark being driven back across the Rivers Trent and Dove by the forces of the parliamentarian Sir John Gell. The location of the site of the battle has not been precisely identified but part of the action is thought to have taken place within the southern part of the site and to have spread towards the village of Egginton to the south-west and towards the Trent to the east.	19607 - MDR2578
1D	**Pillbox near the Toyota factory, Etwall** One of a number of pillboxes designed and constructed in various parts of the country at the beginning of World War II by F C Construction Co. Ltd. This may be the only one of this type surviving in Derbyshire. They were of unique design, giving a 360 degree field of fire without any obstruction. This cantilever-type pillbox is one of the last remainders of the defences of RAF Burnaston airfield, just outside Derby. The airfield was destroyed to build the Toyota factory and this pillbox is believed to be the only one left out of twelve or so that were originally situated around the airfield. The cantilevered pillbox is circular in shape, and comprises a roof that is detached from the walls, and is instead supported by a central pillar. This	19806 - MDR7874 DOB S0000138

HEA No.	Description	Site code/ HER No.
	leaves an embrasure that allows a 360 degree field of fire. Below the embrasure is a curved rail on which machine guns would have been mounted. The pillbox can be seen on Bing Maps aerial photographs within a strip of rough grassland running parallel with the A50, which sits within a field currently used for arable farming. (See also **HEA59** and **HEA60**)	
1E	**Round House, Boundary Road, Etwall Common** A mid 19th century house in brick and tile with uPVC windows and later extensions and additions.	(N/A)
1F	**Standpipe Cottages, Boundary Road, Etwall Common** Late 19th early 20th century brick and tile semi-detached cottages, with uPVC windows and later additions. Western half vacant and boarded up (December 2013).	(N/A)
1G	**Hexagonal building, Boundary Road, Etwall Common** Hexagonal building, in engineering brick with the remains of a lead roof behind an up-stand parapet, which housed the pump and 'standpipe' from which the adjacent cottages are named.	(N/A)
1H	**Sewage treatment works and Biffa Composting Plant Site, Boundary Road, Etwall Common** A group of late 20th century sheds and sewage treatment plant in a landscaped setting.	(N/A)
2	**'Barrow 1', prehistoric barrow, Willington** Late Neolithic to Early Bronze Age barrow identified from aerial photographs. In 1970 investigations by TVARC of Barrow 1 commenced when the eastern half had already been lost to quarrying. The barrow was enclosed by a circular ditch 36m in diameter, an average width of 1.3m and depth of 1.m. In profile this was quite regular, and filled with brown loam. One flint flake was found. Later features, a possible Romano-British corn drier and an Iron Age ditch, cut the barrow ditch. A berm between the inner edge of the ditch and the central mound was identified, 8-9m wide. Within this were four small pits and the butt end of a ditch. One of the small pits, cut by the ditch, contained sherds of handmade pottery. The central mound consisted of piled turves under which was what appeared to be the original ground surface. Pottery from within the mound and the buried ground surface was late Neolithic, mainly Beaker Wares, with one sherd of Grooved Ware. A flint assemblage also recovered fitted in with the chronology indicated by the pottery. Where the centre of the mound would have been were two pits in the original ground surface. The acidity meant that no bones survived, but it was believed there were burials here.	27907 - MDR7058
3	**Willington Iron Age settlement, north of Egginton Brook, Willington** Complex of cropmarks in aerial photographs showing linear features and enclosures. The features were part excavated in 1972 by TVARC revealing Iron Age settlement with ring ditches and hut circles. The Iron Age at Willington was represented by a variety of features over a wide area, of which only a part was excavated. It included a ditch system apparently first laid out in the early Iron Age and probably continuing in use throughout the Iron Age occupation of the site. The many resettings of the three ditch complexes indicates the importance attached to their line in antiquity and they may well have formed part of a stable and long-lived division of land, a field system organised and maintained over many generations. A number of round houses were identified in the excavated areas, associated with pits and hearths. These appear to have been short-lived. All	29708 - MDR7088

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	were built with a continuous post-trench for the walls, the commonest type in the Trent Valley. It is probable that no more than one or two were in use at any one time. They were not served by their own enclosures but lie close to elements of the ditch system, sometimes tucked into the corner of a large enclosure. Their small size should be noted: the two largest were under 7m in diameter, three were closer to 5m and one was under 4m. In addition to the field system, a large palisaded enclosure (possibly a cattle pound) was also identified, as was a five-post structure, interpreted as a possible granary. The cropmarks have been plotted on a map overlay at a scale of 1:10,000 (1989).	
4	**Anglo-Saxon settlement, north of Egginton Brook, Willington** Excavations at Willington in 1970-72 uncovered evidence of a small settlement of the 6th century AD. Three sunken-featured buildings were found, together with pits and a few post-holes. Pottery was present in some quantity, some of it being fine ware. Several pits contained either raw or baked clay, perhaps connected with the manufacture of loomweights and possibly pottery. Animal bone evidence was scanty and in poor condition, but cattle and horse were represented. It was tentatively suggested that the buildings were short-lived and utilised the same field system as an earlier Romano-British settlement.	27910 - MDR7090
5	**Romano-British Farmstead II, north of Egginton Brook, Willington** A complex of cropmarks showing linear features and enclosures was partially excavated in 1972 by TVARC revealing, among other things, two farmsteads of the Romano-British period. Isolated Romano-British features and artefacts were found over the whole excavated area at Willington. However, in two areas the concentration of finds and features within enclosures suggested centres for farming activities, although the evidence for dwellings was in both cases poor. Both date to the 2nd century: Farmstead I may begin late in the 1st century [see SMR 27909] whilst Farmstead II may continue into the 3rd century. In the case of Farmstead II, the area selected for excavation in 1972 was based on what appeared from cropmarks to be a single discrete enclosure within a larger one; however, the cropmarks proved to be misleading and the area examined probably lay between two enclosures. The site did not appear to have been ploughed in medieval times, possibly as it lay close to the parish boundary between Willington and Egginton but perhaps as a result of more recent ploughing the features in general were very shallow. All the datable features excavated belonged to the 1st and 2nd centuries, or possibly early 3rd century AD. While no features contained large quantities of pottery or other material, many produced two or three sherds of Romano-British pottery. A number of small compounds by the stream, similar to those of Farmstead I, were identified. In addition, at the north of the site, was the only structure identified at Farmstead II. It comprised six parallel slots, the size of which indicated a building of approximately 6m square. Additional features included two post-holes. It was suggested that if these slots did in fact represent a structure, their close spacing and the evidence for additional supports indicated a heavy raised floor, suitable for a granary. To the south-east of the structure were five concentrations of large stones, each in a shallow setting. Two had post-holes dug through them, or perhaps contained posts, while the others gave the appearance of padstones, but they formed no coherent pattern and were quite unlike any other features found at Willington. Three of them contained Romano-British pottery. Other post-holes were revealed elsewhere in the excavated area, but they	27927 - MDR7093

HEA No.	Description	Site code/ HER No.
	formed no coherent plan. Two hearths were identified, one of which had traces of the raised floors of an oven. The general range of pottery from the site covered the late 1st and 2nd centuries, with an especial bias towards the period 120-200. A few stratified sherds may indicate occupation in the 3rd century but this is not certain.	
6	**Hand axe and disc core, Willington** A slim flake-type Palaeolithic hand axe was found in 1965 in a Willington gravel pit, prior to filling in. The hand axe is patinated white throughout and is little rolled. A disc or tortoise core patinated a deep iron brown was also found.	27925 - MDR2588
7	**Two Cinerary Urns, Burton Road, Willington** Two Middle Bronze Age cinerary urns were found in 1937 in the Willington gravel pit on the Derby-Burton road (Ryknield Street) near the LMS railway level-crossing. One of the urns is in Derby Museum. Willington gravel pits are now owned by Hilton Gravel. No person was contacted who had knowledge of these finds. No information in Derby Museum.	27914 - MDR2577
8	**Line of Ryknield Street, Roman Road** (The road has many variant spellings, such as Icknield Street and Ryknild Street. The later version of the spelling, Ryknield Street, is preferred in this report as the older Icknield Street is often used as a name to describe another Roman Road from East Anglia to Dorset.) The line of the road forms the western side of the Willington parish boundary. It is thought that the road may lie directly below the modern A38. The Roman road known as Ryknield Street seems to have been an important route running nearly due south-north through the Midlands, to give direct access from the Foss Way north-east of Cirencester to settlements at Alcester, Wall (at the junction with Watling Street), Derby and Templeborough in Yorkshire. Its route is described by Margary, with the relevant Derbyshire sections being his Roman road nos. 18c, 18d and 18e. In summary, the road would have crossed the River Dove into Derbyshire at Stretton, somewhere near its junction with the Trent. Although the present road curves westward, it is likely that the old road made a direct crossing which has long since been destroyed. From here it ran north-east to the Roman site at Little Chester on the northern edge of Derby. It then ran in a more northerly direction towards Chesterfield, its course being visible in some areas and uncertain in others. It probably passed just to the east of the modern core of Chesterfield, and then continued northwards towards the Roman site at Templeborough (Rotherham), although its exact route is less certain in northeast Derbyshire.	99016 – MDR10207
9	**Prehistoric pottery, Egginton Heath** "British pottery and other relics" were found a "few years ago (before 1878)" on Egginton Heath close to the Ryknield Street. [Possibly includes the cinerary urn - SMR 19606]. No further information.	19626 - MDR2582
10	**Acheulean hand axe, Egginton** A Palaeolithic middle Acheulean pointed flint hand axe was found at SK 277283 in the Trent gravels by Mr R Irons in August 1966. The axe can be seen on view at Derby Museum.	19602 - MDR2571
11	**Cinerary urn, Egginton Common** Fragments of a cinerary urn of uncertain date from the gravels of Egginton Heath were in the possession of W Molyneux in 1869. No further information.	19606 - MDR2576
12	**Ringditch (Barrow 2), North of Egginton Brook, Willington**	27922 - MDR7091

HEA No.	Description	Site code/ HER No.
	Ring ditch identified from aerial photographs and excavated partially by TVARC in 1972. It revealed at least 3 phases of construction, with subsequent (?) Iron Age - Roman activity on-site. No direct dating of the ring ditches was found. There was no surviving evidence for a central mound. Cropmarks confirmed in 1989.	
13	**Canal milepost, Egginton** Canal milepost made in 1977, a copy of the originals on the Trent and Mersey Canal. The distances shown are Shardlow 12 miles and Prestonbrook 80 miles.	19638 - MDR12304
14	**Flint artefacts, The Castle Way, Willington** Three unstratified flint artefacts were found during a watching brief in 2008/2009. They comprise a scraper, a small core and a primary flake. The three pieces are made of translucent flint typical of that seen in other collections from the Trent Valley, and are assumed to have been obtained from the local gravels. They could belong together in the Late Mesolithic/Earlier Neolithic and may indicate nearby prehistoric activity.	27943 - MDR12344
15	**Possible moated site, Egginton** Suggested to be the possible site of the original Egginton Hall which was moated, but the basis for this location is unknown and there is no evidence on the ground. Statements in the Every Papers (19th century) that the hall replaced in 1736 was moated and that the moat was filled in order to create a formal garden. It was the seat of the Leigh family in the 14th to 17th centuries. The site is now empty but would have been suitable for a wet moat.	19608 - MDR7699
16	**Brooch fragment, Toyota Works, Burnaston** A fragment of the foot of a copper alloy cruciform brooch, probably of early medieval date was found by metal detector from the site of a transmission aerial in the field behind the Toyota Works at Burnaston.	17619 - MDR12724
17	**Palaeolithic hand axe, Derby Southern Bypass, Derby** A Palaeolithic hand axe was found by A Brandon in July 1995 during the construction of the Derby Southern Bypass. Retained by the finder.	32677 - MDR13154
18	**Aerial photograph of enclosure and drove way, Willington** Cropmarks of two parallel lines, possibly a droveway and part of a late prehistoric rectangular enclosure. Cropmarks plotted on map overlay, 1:10,000 (1989).	27913 - MDR7694
19	**Ridge and furrow earthworks, south of Benby House, Egginton** Wide interval medieval ridge and furrow, oriented east–west, in two visible blocks. These are separated by an irregular area central to the field which appears to be devoid of earthworks.	19618 - MDR2602
20	**Ridge and furrow, south of Church Road, Egginton** Wide interval medieval ridge and furrow, oriented north-east to south-west, visible on 1971 aerial photographs as earthworks.	19620 - MDR2604
21	**Ridge and furrow, 500m north-west of Manor Farm** Wide interval medieval ridge and furrow, oriented north to south, visible on 1971 aerial photographs as earthworks.	19613 - MDR2597
22	**Cropmark features, Hargate Fields Farm, Hilton** Cropmarks of a prehistoric ring ditch and linear features visible on aerial photographs of 1967. Cropmarks plotted on map overlay at a scale of 1:10,000 (1989).	20601 - MDR2689

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23	**Ridge and furrow cropmarks at Egginton Common, Hilton** Medieval ridge and furrow cropmarks at Egginton Common. Cropmarks plotted on map overlay, 1:10,000 (1989).	20606 - MDR8116
24	**Potential archaeological features (site of), Willington Quarry** Geophysical survey in March 2003 identified a number of magnetic anomalies likely to reflect ditches and pits, and thought possibly to represent ancient field systems, an enclosure and a ring ditch. An airborne mapping technique (LIDAR - Light Detection and Ranging) was applied to an area of quarry extension at Willington Quarry. The data provided a picture of a broadly flat and eroded river terrace topography that has been heavily ploughed, especially in recent years. However, some positive and negative anomalies were identified that might relate to archaeological features. Areas of surviving ridge and furrow were identified to the north-west. To the south a low mound may represent the survival of a barrow. This would be in keeping with the remains of Bronze Age burial mounds found during excavations in nearby areas in 1970-2 and 1998. The topographic location on the edge of the terrace is a very plausible location for a burial mound with encircling ditch, although it is always possible that the mound is a remnant of a soil storage heap from the construction of a haul road and bridge over the Egginton Brook in 1997. Other potential archaeological features include slight curvilinear depressions about 26m long, possibly the remains of a burial mound and encircling ditch, bisected by a bank or ridge which extends at least 100m, continuing to the south-east.	27934 - MDR8152
25	**Multi-period settlement dating from the Early Neolithic to the Bronze Age, Willington Quarry** Excavations and watching briefs carried out between March 1998 and October 1999 prior to the extension of the sand and gravel quarry (Willington Quarry) have produced evidence of prehistoric activity on the floodplain of the River Trent. Areas of low gravel islands surrounded by active streams were a focus of Neolithic activity in the 3rd millennium BC. Pits, post-holes and occupation layers along with many hearths and ovens from food preparation have been recorded. Peterborough Wares seem to have been the predominant pottery used on the site, and non-animal foodstuffs appear to be dominated by wild resources. A burnt mound may have been used for feasting. A lithic assemblage may have had task specific elements. The landscape was littered with burnt areas and tree-throw pits, some of which had been burnt, indicating clearance activity. A number of tree-throws were immediately adjacent to areas of increased human activity suggesting a relationship between the two. A grave pit and ceremonial ring ditch were cut, probably during the Early Bronze Age at the latest. Some time later, probably in the 2nd century BC, a stream was the site of further burnt mound activity with surviving waterlogged remains, including a substantial rectangular roundwood-lined trough. The landscape subsequently started to become flooded and the site appears to have been abandoned. Additional features that were identified include numerous gullies that were probably post-medieval in date. They cut the alluvium and relate to 19th century attempts to drain poor land. Twelve palaeochannels of different periods have been recorded, demonstrating the dynamism of the watercourses and the changing topography. The later channels appear more ingressive and deeper than the earlier ones. The prehistoric channels are shallow and clay plugged, showing little evidence of migration. Watching briefs have demonstrated that channel activity has continued from	27932 - MDR8149

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	at least the early post-glacial period through until at least the Roman period. Peterborough Wares were the predominant Neolithic pottery used on the site, and non-animal foodstuffs appear to be dominated by wild resources, although evidence of dairying has also been identified. Radiocarbon dating of the pottery has supported the notion that Peterborough Ware belongs mostly to the second half of the 4th millennium cal BC and was not a Late Neolithic tradition. In the later half of the 3rd millennium cal BC there is evidence of systematic fire clearance of the area which was to be repeated over several centuries into the 2nd millennium cal BC. In the late 3rd millennium cal BC a burnt mound was probably used seasonally as a cooking site within a clearing for a number of years. The area appears to have been subsequently abandoned but was used for burial – a small ring ditch, with possible external bank but no mound encircled a grave cut into alluvial silts, probably in the later Early Bronze Age. Several hundred years later, in the late 2nd millennium cal BC, a stream was the site of renewed seasonal burnt mound activity in a partly wooded landscape with surviving waterlogged remains of outstanding quality, including a substantial rectangular roundwood-lined trough; this burnt mound was also used for a short period before abandonment and further woodland regeneration. A watching brief, in 2001, to the east of the site revealed four palaeochannels. In the north-east, part of the base of a small brick-built footbridge was exposed, 4m long by 1.5m wide. The bridge probably dates to the late 19th - 20th century. Five timbers were recovered from the palaeochannels, all were interpreted as not being part of any structures. An oak stake showed some signs of tooling and the discarded butt of a felled ash tree was part of the assemblage.	
26	**New Close Farm (site of), Etwall, probably 17th century, now demolished** The farmhouse was built in brick, the body of the house having two-storeys, with a wing consisting of cellar, upper floor and attic. The main part of the house was of two builds, with the earlier part to the east. This was probably completed before the erection of the barn in the late 17th century, on the same alignment, so presumably linked by buildings to the house. The sunken dairy dated to *c* 1800, and next the range between the house and the barn was rebuilt to make the cottage and stable. The western part of the house was extended and the front wall reconstructed to give a regular appearance, and at the same time upper storeys were built over the sunken dairy. A succession of outbuildings was built around two yards. The deeds of the farm show much of its history from *c* 1700 onwards. Ian Mitchell of Derbyshire Archaeological Society visited the farm in March 1991 to inspect the surviving farm machinery, producing a report in May 1991.	19807 - MDR10722
27	**Ridge and furrow to the south of Etwall** An area of medieval ridge and furrow within adjoining fields, all of which have 'reverse-S' field boundaries, is visible on an aerial photograph taken on October 6 1971.	19804 - MDR2691
28	**Park Hill, early 19th century villa estate and grounds, Hilton Road, Egginton** This is a two-storey mansion facing southeast across spacious grounds on the north side of the road from Willington to Hilton. It is built of red brick with stone dressings and a tiled roof. Standing back from the house runs a long low stable range that has been gutted, and on the east side of the house are footings for a projected extension. The general appearance of the main house from the outside is of an early 19th century villa, but the staircase is the only internal element in keeping with this date, the rest being Edwardian or later. (See **HEA33** for Listed Building description).	129629 - MDR10827

HEA No.	Description	Site code/ HER No.
29	**Former Egginton Station buildings** Egginton Junction Station Buildings. Ornate two-storey brick station building with slate roof and 'Gothick' chimneys dating from the opening of the GNR Derby Friargate line in 1878. This replaced a predecessor station to the east which served only the earlier Derby-Crewe line of the LNWR. The buildings are currently used by the National Federation of Anglers.	19630 - MDR11152
30	**Road bridge, Egginton Road, Hilton** Railway Bridge. Brick bridge taking the Hilton-Willington road over the trackbed of the former Derby Friargate line (Closed to passengers in 1964, to freight in 1968, and closed completely after use as a test track in 1971).	19631 - MDR11154
31	**Acheulean hand axes and flakes, former Willington North Gravel Pit, Willington** Some 20 Early Acheulean and 6 Middle Acheulean hand axes and 3 flakes have been found in a gravel pit north of the railway line at Willington. In private collections and the University Museum, Nottingham. The material from Willington has all been found in the northern of the two pits. The manager at the present gravel workings at SK 28502900 can remember certain implements being found in a gravel pit (now disused) centred to SK 29102950 but could offer no further information. Forty Palaeolithic hand axes, 1 of which was unfinished, and 9 flint flakes were found at Willington. These finds are now in the collection of Mr GH Turton and in Sheffield, Nottingham University and Cambridge (Archaeology and Ethnology) Museums. At Village Pit and No 2 Pit, Willington, a further 4 Palaeolithic hand axes and 1 flake were found. These are now in Sheffield Museum.	27920 - MDR2575
32	**Pinfold or Pound, Egginton** Grade II Listed Building. Village pinfold or pound. Possibly 17th century. Coursed squared sandstone. Small rectangular enclosure with walls about 4ft high with flat stone copings. Partly open to east and open to the ground to west, with 20th century gates and railings.	List entry 1096527
33	**Park Hill, Hilton Road, Egginton** Grade II Listed Building. Small country house, built by the Every family of Egginton Hall, as a dower house. Early 19th century. Red brick with sandstone dressings. Machine-tile hipped roof. Brick ridge stacks. Two storeys. First floor band, moulded cornice and blocking course, all in ashlar. L-plan. Symmetrical south elevation of five bays. Central Tuscan Doric porch with two steps up to a round-arched doorway. 19th century door with semicircular overlight. Flanked on each side by tall plain sashes. Five glazing bar sashes above under wedge brick lintels. West elevation of six bays. The right hand part has to the ground floor two tripartite sashes flanking a glazing bar sash and the first floor has three glazing bar sashes under wedge lintels. The left hand part is stepped forward and has to the ground floor a broad canted bay with three glazing bar sashes, and to the first floor a pair of canted bays with a balustraded parapet between (See **HEA28** for Drebyshire HER record).	List entry 1372020
34	**Burnaston House, built 1820, used as aerodrome buildings, before the erection of the Toyota factory, Burnaston** In 1820 Ashton Mosley built a new house to designs by Francis Goodwin. It was bought by Derby City Council in 1936 in order to make a municipal aerodrome, with the house used as clubhouse and terminal building. It was later bought by Toyota in 1989, who dismantled and stored the house before erecting a new factory. Burnaston House was built by Ashton Mosley as a home for himself and his	17611 - MDR10488

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	family, and was probably completed by 1825. The family continued to live there until about 1908, when it was let by Mosley's grandson Arthur. In 1936 the house and 382 acres were purchased by Derby Borough Council for an aerodrome, with the house used as a clubhouse and terminal building. In 1965, when Derby Airways relocated to East Midlands Airport, the house was sold as a dwelling. The service wing was occupied, but the main house fell into a state of neglect. In 1987 it was purchased with the intention of converting it into a nursing home, but shortly afterwards the estate was compulsorily purchased for development by Toyota as a car factory. The stonework was systematically dismantled and stored, the plan being to rebuild the house on a new site. However, between 1990 and 2008 three successive planning applications to rebuild it on three different sites were refused. As part of a new application in 2010, the surviving remains of the house were assessed by English Heritage and it was determined that too little of the original fabric and architectural detail survives to reconstruct the house in its original form. It was therefore delisted. The design of the house has been tentatively attributed to Francis Goodwin (1784-1835). It consisted of a main block with service wing to the north. Three elevations were built of ashlar sandstone; the east elevation was of rendered brick with stone dressings, while the service wing was of rendered brick. The roofs were slate. The house was designed in an austere neoclassical style, with hipped roofs concealed behind a low parapet, below which was a moulded eaves cornice. The main entrance was in the east elevation. Although the house was in a poor condition in the 1980s, surviving detail included reeded architraves, decorative cornices and a staircase with cast or wrought iron balusters. The only elements of this detail that survive are a plaster cast of a cornice and the staircase, reconstructed following damage and now installed in a new house.	
35	**Ridge and furrow east of Etwall Road, Willington** Medieval ridge and furrow earthworks visible on aerial photographs and plotted on a map overlay at a scale of 1:10,000 (1989).	27929 - MDR8085
36, 37	**Cropmarks, Etwall Road, Willington** Several ring ditches, a double ring ditch, part of a possible rectilinear enclosure, and some linear features recorded on various aerial photographs. Some of these features may be geological/periglacial. The cropmarks have been plotted on a map overlay at a scale of 1:10,000 (1989). The eastern half of this area was included in an aerial photographic assessment of the Willington Power Station site. In an area of periglacial cracks, a possible linear ditch was recorded, as were two circular features. The first of these, at SK29522876, was a single ringditch, possibly marking a Bronze Age burial site. The second, a double-ditched feature at SK29652881, may have been another but its irregular-width ditches with entrance gaps suggest that it may have been the remains of a Neolithic hengiform enclosure.	27904 - MDR7691
38	**Cropmarks, east of Dale Farm, Willington** Cropmarks. Parts of two concentric hexagonal (?) enclosures with smaller rounded and rectangular ones overlapping. Pit alignment intersects. (Aerial photograph by J.K. St Joseph, described in 1960). Under crop with no visual remains in 1966. Linear cropmark including short length of possible pit alignment, as well as small sub-rectangular enclosure. Further possible enclosure to north east (Aerial photograph 1970). Ridge and furrow to south-south west. Cropmarks plotted on map overlay, 1:10,000 (1989).	27903 - MDR2584

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39	**Neolithic and Bronze Age features, Hill Farm, Willington** Cropmarks are visible at Willington on air photographs: SK 300293: Part of an irregular enclosure; SK 300296: Linear features, probably part of an enclosure group, and approximately five small ring ditches; SK 302295: Linear feature; Traces of old field boundaries and rig and furrow ploughing visible on O.S. air photographs at SK 300295. Cropmarks plotted on map overlay at a scale of 1:10,000 (1989). The series of known crop and soil marks recognised by aerial photographs in the area form part of a much wider distribution of archaeological sites seen on the gravel terraces of the River Trent. Perhaps the most significant group of cropmarks at Hill Farm are located around SK 301296. The circular features suggest the presence of hut groupings. Pit alignments may indicate early territorial boundaries, while the triple ditched feature (SK 301294) appears to represent the remains of a substantial earthwork. A visit to the site in 1990 located the remains of ridge and furrow. An archaeological impact assessment carried out in 1992 suggests that the cropmarks indicate the presence of features of Iron Age or Romano-British date, as similar types of cropmarks have been excavated, for example at Willington. The semicircle of post-pits could be of Bronze Age date. A resistivity survey was carried out which highlighted a number of anomalies, although some are considered to be a consequence of the underlying gravel. A field visit in 1993 made the following observations: ridge and furrow to the north-east, west, and north-west of the area and a low bank at the north-east which may be a headland from medieval cultivation. Pronounced hollows close to the field boundary of the north-western fields were probably silted marl-pits. Flooding on the southern edge of the site probably represents a former alluviated channel. In 1995, 19 trial trenches were excavated in order to examine the cropmark features. The central area of the site revealed clear survival of archaeological features. A circular feature was comparable with the Iron Age hut circles excavated at West Willington. The character of the fill appeared to be more compatible with that of a small ring-ditch, which may have silted up naturally. This suggests that the features may have been a funerary monument of late Neolithic or Bronze Age date. Other circular features, visible on aerial photographs, may suggest the presence of a small cemetery. Sherds of early Neolithic pottery from a small pit suggest an early prehistoric site of some importance. The fill of a nearby gully suggests a comparable date. Fragments of charred material were also uncovered from within the features. In 1996, numerous small, shallow pits associated with Early to Middle Neolithic pottery and flint were excavated in various areas of the site. No fewer than 49 of the pits contained pottery of Early to Middle Neolithic date. Several pits contained pottery of later prehistoric date, indicating re-use of the pits in the Late Bronze Age or Early Iron Age. A circular ring-gully, associated with a group of internal features, including what appeared to be a central hearth and a ring of post-holes and Early Bronze Age pottery, was excavated. The southern edge of the ring-gully was clipped by a shallow, narrow linear gully which contained late Bronze Age or Early Iron Age pottery, as well as residual Neolithic material; this gully indicates later prehistoric activity. Luminescence dates from some of the pottery revealed the majority were of Neolithic or Early Bronze Age date. At the eastern edge	27902 - MDR4333

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	of the area was a former Medieval/modern boundary ditch, orientated northeast-southwest. Four linear land drains linked this former ditch to the existing field boundary. Two other substantial U-shaped ditches, approx. 2m wide and 1m deep were excavated, these were interpreted as the courses of former stream channels and are related to at least two of the linear cropmarks on the aerial photographs. Thermoluminescence dating of the pottery from Willington Farm revealed that some of the assemblages were of Bronze Age or Iron Age date; however, most of the material was of earlier Neolithic date.	
40	**Former Primitive Methodist Chapel, Duck Street, Egginton** There is a Primitive Methodist Chapel situated here on the 2nd edition 25" OS map of *c* 1900 that is not present on the 1st edition 25" OS map of *c* 1880. The Primitive Methodist Chapel at Egginton was built in 1894–5. It is a brick building, with stone dressings, and seats about 150 he building is still extant but is no longer in use as a place of worship [2011].	19634 - MDR11837
41	**Settlement dating from Late Neolithic to Anglo-Saxon periods, Willington** A settlement site with traces of occupation from Late Neolithic to Saxon times has been discovered at Willington. The site lies on a gravel terrace of the River Trent, and was located by Mr J Pickering in the course of air reconnaissance. Gravel quarrying is being carried out at the site and most of the areas examined in 1970 have already been destroyed. The Neolithic settlement is marked by a considerable number of post-holes, including several pairs, and by pits, some of which contained Beaker and Grooved Ware type sherds. To the east of the settlement site a quantity of Beaker sherds were found in the turf mound of a round barrow. This barrow was not dateable and a central pit, suitable in size for an extended inhumation was excavated without anything being found. A small group of post-holes and pits associated with Grooved Ware was found approximately 150m to the west of the main settlement, suggesting perhaps a second area of Late Neolithic settlement. In addition, circular huts of Bronze and Iron Age have been excavated. From the 2nd to 4th centuries an enclosed Roman farmstead of 5000 m^2 was in use, with post-structures, hearths, pits and probable cattle pounds. Romano-British pottery was recovered from two pits, and was also found scattered throughout the topsoil of the site. A small oven dateable to the 4th century was cut through the barrow/ditch. In the 6th century at least three Saxon grubenhauser were constructed. Excavations at Willington from 1970-1972 showed the site to have been occupied intermittently from Neolithic to Saxon times. There were two late Neolithic settlements shown by pottery, mostly Grooved Ware, found in post holes and pits. Two barrows were excavated, one of the Beaker period or later and the other of probable Bronze Age date although this is not certain. Other Bronze Age material was found in isolated situations including a small pit containing part of an urn. The Iron Age was represented by a field system and a settlement showing two phases of occupation, from the 8th-7th century BC and the 4th-1st century BC. Isolated Romano-British artefacts and features, mostly pits, were found over the whole excavated area. The most notable of these isolated features were an oval pit with the straight sides and flat bottom of a grain-storage pit, a Romano-British corn-drying oven of the later 3rd or early 4th century that had been dug through the ring ditch of Barrow 1, and a hearth dug through the ditches of Barrow 3. In two instances, enclosures were excavated where the density of features suggested the sites of two 2nd century Romano-British farmsteads [SMR 27909 and SMR 27927], although no dwellings were identified. A 6th century Saxon agricultural settlement of three grubenhauser was also excavated. Finds from the excavation are now in Derby Museum.	27928 - MDR2586

HEA No.	Description	Site code/ HER No.
	Cropmarks plotted on map overlay, 1:10,000 (1989).	
42	**Post-medieval parkland, Egginton** Parkland associated with Egginton, later Egginton Hall, at SK 2636 2814. A fish pond is named on early Ordnance Survey maps at SK 26302800. Egginton Hall [SMR 19628] is shown (but not named) on the 1976 OS map; the parkland is depicted as open ground with trees, with some residential development along street frontages; an area of the fish pond is shown as marsh. Woods and fishponds of the old, now derelict [in 1984] Egginton Hall. A mixed wood originally planted with native and exotic trees, shrubs and plants, but left wild since the late 1940s or early 1950s, with adjacent ponds originally kept stocked with fish. The wood includes many items of natural history including a mature Cedar of Lebanon, a number of stands of yews, several mature holly trees, a stand of 5 large hornbeams, horse chestnuts, willows and ash trees of various sizes. In 1984 it was described as deteriorating due to vandalism, especially near to Fishpond Lane, with problems including tipping, damage to trees, trampling, removal of timber and motorcycle damage. According to notes assembled at the beginning of the 20th century from family papers and memories, a moat 'in the Park' was filled in at the end of the 17th century as a result of garden building. The 50 acre park, landscaped in *c* 1700 for Sir Henry Every by Lawrence Squibb of Derby, was relandscaped in the 1780s with much new planting and, making much use of the Dove which ran to the west of the house, a lake and cascade were created. The latter was crossed by a very pretty Chinoiserie footbridge, replaced in 1812. The orangery, arbour and temple, all of the 18th century, have now gone. The great drawback of the park was that it was relentlessly flat, but contemporary views establish that its embellishment was highly successful, and it could well be the work of William Emes, who frequently worked in tandem with the Wyatts after the death of Joseph Pickford. An icehouse lurked in a plantation called The Triangle until World War One, when it was destroyed. A fine pair of Wyatt Lodges once graced the drive from Ryknield Street.	19623 - MDR7912
43	**Pinfold, Main Street, Egginton** Stone built pinfold at the corner of Main Street and Duck Street, Egginton, described in 1973 as being in good condition but used for parking. By 1979 the rectangular enclosure had been adorned with modern wrought-iron gates.	19636 MDR12302
44	**The Trent and Mersey Canal** In 1755 the idea was first proposed of a canal linking the Mersey with the Trent, so opening a waterway across the whole island. The scheme was taken up by Josiah Wedgwood in particular, as well as by several important iron manufacturers. The Trent and Mersey Canal Bill received royal assent in May 1766, with the canal to start at the River Trent 'near Wilden Bridge, below an ancient ferry called Wilden Ferry'. In fact it started further east, at Derwentmouth, possibly to avoid the obstruction to navigation on the Trent caused by the central pier of Cavendish Bridge, south of Shardlow. The canal was surveyed and engineered by James Brindley and, after his death, by his brother-in-law Hugh Henshall. Work began in 1766 and the section of canal between Derwentmouth and Shugborough (Great Haywood) was opened in 1770, although the whole route was not completed until 1777. It was immediately successful, with trade in goods such as coal, limestone, freestone, gypsum, bar-iron, lead, pottery, ale, cheese, deal, pig-iron from Scandinavia, cotton from Manchester, flint, chert, malt and barley. Passenger boats also operated between the various settlements along the	99002 - MDR7892

HEA No.	Description	Site code/ HER No.
	line of the canal. Trade began to decline in the 1840s, however, because of competition from the railways in general and in particular from the alternative route provided by the Cromford and High Peak Railway, which linked the Cromford Canal to the Peak Forest Canal. However, commercial traffic continued until at least the early 1950s in the Shardlow area, supplying animal feedstuff mills with grain. From the 1960s positive action was taken for the preservation of the canal and for its use by pleasure craft.	
45	**Enclosure and linear features, Willington** A roughly rectangular enclosure of uncertain date, possibly with an entrance to the south, and several linear features have been identified from an aerial photograph.	27912 - MDR7693
46	**Romano-British enclosure, Willington Quarry, Willington** During 1996 a watching brief with capacity for controlled excavation was carried out during the construction of a haul road at Willington Quarry. Following the identification of a number of features, excavations by the University of Leicester Archaeological Services revealed a group of Romano-British features. They comprised a series of ditches forming the north-west corner of a possible enclosure (mainly under or destroyed by the railway); the ditches contained mid-2nd to 4th century AD material (Mancetter-Hammerhead Mortarium), Derbyshire Ware (mid-2nd on), and Grey Ware (1st - 4th), as well as sherds of undated coarseware.	27924 - MDR7148
47	**Neolithic and Bronze Age features, Willington Quarry haul road, Willington** Excavations by the University of Leicester Archaeological Service along the line of a haul road identified a small group of features at *c* SK28552840. One of these features, a pit measuring 1.75m by .7m, had a possible post setting at its west end. Initial excavation of the fill produced a large fragment of a polished stone axe, thought to be from a Welsh source. Postholes to the east of the pit were identified, and one had a postpipe and packing cobbles.	27923 - MDR7147
48	**Circular and linear cropmarks, Willington** Cropmarks representing a possible Bronze Age barrow and an Iron Age/Romano-British field boundary have been identified on aerial photographs. Cropmarks plotted at a scale of 1:10,000 (1989).	27911 - MDR7692
49	**St Wilfrid's Church, Church Road, Egginton** The manor of Egginton possessed a priest and a church at the time of the Domesday Survey. The present church, which is dedicated to St Wilfred, consists of chancel, with modern north vestry, nave, aisles, and low west tower. There is apparently no trace of the fabric of the old Norman church that doubtless stood at this site. The oldest work appears to date to circa 1290-1300, at which time the church seems to have been rebuilt nearly throughout. The church has since had Decorated and Perpendicular alterations and additions. St Wilfrid's Church, Egginton is a small church, mostly of *c* 1300, with later additions and alterations. Restoration work was carried out in 1891 by Evans & Jolly. The pulpit is made from panelling from Egginton Hall [SMR 19628]. The church contains fragments of 13th–15th century stained glass. A Grade I listed parish church dating to circa 1300, and the 15th, 16th and 17th centuries. Restoration work was carried out in 1891 by Evans & Jolly. The church is built of coursed squared sandstone with sandstone dressings. It has lead and plain tile roofs, with stone coped gables. It comprises west tower, nave with aisles, chancel and north vestry. The west tower is of three stages divided by chamfered stringcourses. Inside there are 17th, 18th and 19th century monuments. Under the tower is a 19th century octagonal font. See list description for more details.	19604 - MDR2581

HEA No.	Description	Site code/ HER No.
	St Wilfrid's Church dates largely to *c*1300, despite there being a church at this site at the time of the Domesday Survey. The tower is late Perpendicular, and there are some fragments of 14th century glass in the east window. There is also a late Tudor window in the south wall. The church was restored in 1891 by Evans & Jolley. The south aisle roof was replaced by A Short & Partners in 2000. In 1999, the same company had added an innovative Swedish Biolet (composting toilet) to solve the problem of the church's distance from the water mains.	
50	**The Birmingham to Derby Junction Railway** In 1835 George Stephenson was chosen to survey the route for a new railway to run between Birmingham and Derby. Following this, the Birmingham and Derby Junction Railway Bill passed through Parliament on March 30 1836, receiving the Royal Assent on the May 19 1836. Stephenson's survey revealed that, for the most part, the route was fairly straight and level, but that it would require a cutting on the approach to Derby together with a total of seventy eight bridges and two viaducts. George Stephenson's son Robert took over the post of Engineer in 1839, and on May 29 he took the locomotive 'DERBY' for a test run from Birmingham to Derby and back declaring that, in his opinion, everything was in order. The 'Official' first train left Curzon Street Station at 10.20 a.m. on August 5 1839, carrying the Board of Directors. It was hauled by the locomotive 'TAMWORTH'. The train arrived at Derby at 1.10 pm where the party was entertained with refreshments at a local hotel before returning to the station for the 4.00 pm departure for Birmingham. The public opening occurred on August 12 1839. The Birmingham and Derby Junction Railway remained independent until May 10 1844, when it combined with the North Midland and the Midland Counties railways to form the Midland Railway. In 1921 all the railways in the country were reduced to four groups and the Midland Railway was absorbed into the London, Midland and Scottish Railway (L.M.S.), remaining so until 1948 when railways were nationalized and named British Railways. At the present time the railway track and the stations are owned by 'Railtrack', and the trains on this route are owned by Virgin Trains and Central Trains.	99053 - MDR11690
51	**Derbyshire & North Staffordshire Extension (dismantled), Great Northern Railway** The Great Northern Railway started to plan their 'Derbyshire lines' in 1872 in order to tap the coalfields with outlets to both east and west. Eastwards the lines would link up with the main GNR system. The western outlets would be at Stafford and Burton-on-Trent. While the driving force behind the railway's construction was the desire to break the Midland Railway's monopoly of the Derbyshire-Nottinghamshire coalfield, the towns of Ilkeston, Derby, Burton and Stafford were also an attraction. The line was opened in 1878, to goods in January and to passengers in April. GNR westbound trains ran in to Derby Friargate station. This was nearer to the town centre than the Midland station and the GNR provided a competitive service. The Burton and Stafford services ended on December 4 1939 although holiday trains and excursions ran west of Derby until 1964. East of Derby passenger trains continued to run until September 1964. The line has now been dismantled. A section of the former GNR line was used as a test track by British Rail, known as The Mickleover Test Track. The line had closed in 1967 and the Test Track ran the 5¼ miles between Egginton Junction and Mickleover with a maximum line speed of 65 miles/hr and was equipped with facilities to introduce track defects for test purposes. A run-round loop was provided at both the Egginton and Mickleover ends of the line and there was an additional siding at Mickleover approximately 660ft long with platform level loading available at the buffer stop end. There were two further sidings	99013 - MDR10005

HEA No.	Description	Site code/ HER No.
	leading into a 2TS train shed which was approximately 160ft long. There was a permanent building at the Mickleover Depot incorporating a laboratory, mess room and control office. The line was closed and lifted in 1990 following the announcement of the building of the A50 M1 to M6 link road. An archaeological evaluation was carried out in March and April 2007 by University of Leicester Archaeological Services on land at the former Bristol Street Motors, Alfreton Road, Derby, in advance of housing construction by George Wimpey Ltd. Remnants of the Great Northern Railway embankment were located near the north-east boundary of the site. The western limit of this embankment was delineated by a reinforced brick-concrete wall, perhaps intended to hold back flood waters from the river to the west. The eastern limit was also observed.	
52	**Cropmarks northwest of Egginton** Cropmarks of Iron Age or Roman curvilinear and rectilinear enclosures and a field boundary have been identified at this location using aerial photographs (1990).	19639 - MDR13325
53	**Cropmarks north of Egginton** A series of Iron Age or Roman field boundaries and a rectilinear enclosure have been identified at this location from aerial photographs. Circular enclosures of later prehistoric date have also been identified (1992).	19640 - MDR13326
54	**Willington Hill Farmhouse, Etwall Road, Willington** Grade II Listed Building. Farmhouse. Mid 18th century and mid 19th century. Red brick, Welsh slate hipped roof with three brick ridge stacks. Two and three storeys. West elevation of four bays has to the ground floor four 3-light segment headed casement windows. The right hand one is blind. Four similar windows above. Three bay symmetrical south elevation. Central 19th century wooden porch on chamfered columns. Raised and fielded panelled door with rectangular overlight with margin lights. Flanked by 19th century canted bay windows. Three single bar sashes above in 19th century painted surrounds, with 18th century segmental arches above. Three casement windows above, the centre one narrower in painted surrounds.	List entry 1038328
55	**Whitehouse Farmhouse, Main Street, Egginton** Grade II Listed Building. Farmhouse. Early 19th century. Painted brick. Half hipped plain tile roof with three brick ridge stacks. Dentil eaves cornice. Two storeys. Three bay west elevation has a central moulded doorcase with panelled door and rectangular overlight with intersecting glazing bars. Flanked on each side by 2-light casement windows under shallow pointed arches. Three similar windows above. The south elevation has to the ground floor French doors, a 2-light casement and a 4-light casement, all with similar heads. A 2-light and a 4-light window above under flat arches.	List entry 1040052
56	**The Green Man, Canal Bridge, Willington** Grade II Listed Building. Public House. Mid 18th century and early 19th century. Painted brick and render. Plain tile roof with brick gable and ridge stacks. Dentil cornice to 19th century part. Two storeys. East elevation of six irregular bays. The ground floor from left to right has double doors to garage, a small segment headed window, segment headed doorway with plank door, doorway with wedge lintel and half glazed door. To the right, a pair of glazing bar sashes, doorway with wedge lintel and 20th century door, a glazing bar sash, a flat roofed 20th century porch, a glazing bar sash and a small square window. The first floor has five sashes, the left two with single bars. To the right is a small rectangular window. Return range to right has one small window. Rear elevation has to the older part an outshut	List entry 1096519

HEA No.	Description	Site code/ HER No.
	under a catslide roof.	
57	**Canal Bridge at OS 279 279, Derby Road, Egginton** Grade II Listed Building. Bridge carrying a farm track over the Trent and Mersey Grand Trunk Canal. *c* 1777. James Brindley engineer. Red brick with later repairs in red and blue brick. Single segmental pointed arch. The walls curve out to the ends and have end piers. Plain parapet walls ramped to centre and with stone copings. Above the arch on each side is an oval metal plaque giving the number of the bridge. The Trent and Mersey Grand Trunk Canal was sanctioned by an act of 1766, opened to a point near Stafford in 1770 and completed in 1777.	List entry 1096522
58	**Manor Farmhouse, 44 Fishpond Lane, Egginton** Grade II Listed Building. Farmhouse. Mid 18th century. Red brick with plain tile roof and brick gable stacks. Dentil eaves cornice. Two storeys. Symmetrical three-bay south elevation has a central painted doorcase with fluted pilasters. Raised and fielded panelled door with rectangular overlight. Flanked by 3-light casements under segmental wedge brick arches. The first floor has two similar windows either side of a similar 2-light window. Three hipped roof dormers above, the centre one of 2-lights, the outer ones of 3-lights. The east gable end has three tiers of two segmental headed 3-light casements, the top tier smaller.	List entry 1096526
59	**Former RAF Burnaston Airfield** This RAF airfield operated between 1939 and 1965, on the north side of the A50 road. In the Second World War it was used for flying training purposes. After World War II it became Derby Municipal airport until 1965 when commercial services were transferred to the newly reconstructed East Midlands Airport. Private flying from Burnaston continued until 1989 when the site was taken over for car manufacture by the Toyota Company.	DOB S0003925
60	**World War II pillboxes around RAF Burnaston airfield** A group of 11 cantilevered concrete World War II pillboxes protecting the eastern approaches to RAF Burnaston airfield. These are believed to have all been destroyed by road construction and the Toyota factory during the later 20th century. **HEA1D,** above**,** is believed to be the only surviving example of this design of pillbox in the county.	DOB S0000164 S0000165 S0008079 S0008080 S0012440 S0008077 S0008078 S0008081 S0008082 S0015809
61	**Former Egginton Railway station, Etwall Road** This railway station was built by the North Staffordshire Railway and opened in 1848. It stayed in operation only until 1878 when it was superseded by Egginton Junction Station located further to the west. (See **HEA51** above).	19630-MDR11152

8 Planning framework

8.1 National Planning Policy Framework

8.1.1 The Government issued the National Planning Policy Framework (NPPF) in March 2012 (DCLG 2012). One of the 12 core principles that underpin both plan-making and decision-taking within the framework is to 'conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations' (DCLG 2012 para 17). It recognises that heritage assets are an irreplaceable resource (para 126), and requires the significance of heritage assets to be considered in the planning process, whether designated or not. The contribution of setting to asset significance needs to be taken into account (para 128). The NPPF encourages early engagement (i.e. pre-application) as this has significant potential to improve the efficiency and effectiveness of a planning application and can lead to better outcomes for the local community (para 188).

8.1.2 NPPF Section 12: Conserving and enhancing the historic environment, is produced in full below:

> **Para 126**. Local planning authorities should set out in their Local Plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. In doing so, they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance. In developing this strategy, local planning authorities should take into account:
>
> - the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
> - the wider social, cultural, economic and environmental benefits that conservation of the historic environment can bring;
> - the desirability of new development making a positive contribution to local character and distinctiveness; and
> - opportunities to draw on the contribution made by the historic environment to the character of a place.
>
> **Para 127**. When considering the designation of conservation areas, local planning authorities should ensure that an area justifies such status because of its special architectural or historic interest, and that the concept of conservation is not devalued through the designation of areas that lack special interest.
>
> **Para 128**. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.
>
> **Para 129**. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.
>
> **Para 130**. Where there is evidence of deliberate neglect of or damage to a heritage asset the deteriorated state of the heritage asset should not be taken into account in any decision.

Para 131. In determining planning applications, local planning authorities should take account of:

- the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
- the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and
- the desirability of new development making a positive contribution to local character and distinctiveness.

Para 132: When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

Para 133. Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- the nature of the heritage asset prevents all reasonable uses of the site; and
- no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
- conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and
- the harm or loss is outweighed by the benefit of bringing the site back into use.

Para 134. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.

Para 135. The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

Para 136. Local planning authorities should not permit loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred.

Para 137. Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.

Para 138. Not all elements of a World Heritage Site or Conservation Area will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 133 or less than substantial harm under paragraph 134, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole.

Para 139. Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

Para 140. Local planning authorities should assess whether the benefits of a proposal for enabling development, which would otherwise conflict with planning policies but which would secure the future conservation of a heritage asset, outweigh the disbenefits of departing from those policies.

Para 141. Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

8.2 Local planning policy

8.2.1 Following the Planning and Compulsory Purchase Act 2004, Planning Authorities have replaced their Unitary Development Plans, Local Plans and Supplementary Planning Guidance with a new system of Local Development Frameworks (LDFs). UDP policies are either 'saved' or 'deleted'. In most cases archaeology policies are likely to be 'saved' because there have been no significant changes in legislation or advice at a national level.

8.2.2 The site lies within the administrative area of South Derbyshire District Council. South Derbyshire Local Plan was adopted in 1998. The Secretary of State issued a Direction under paragraph 1(3) of Schedule 8 to the Planning and Compulsory Purchase Act 2004 in respect of the policies in this plan. Accordingly, the policies set out in the table on the website of South Derbyshire District Council (www.south-derbys.gov.uk) are 'Saved' until such time they are superseded by relevant Local Development Framework documents. The policy relating to archaeology was saved thereby in September 2007.

Environment Policy 14: Archaeological and Heritage Features

A. Development will not be permitted which would result in:

(1) Any disturbance to Scheduled Ancient Monuments, their setting or amenity value;

(2) Significant disturbance to other known archaeological or other heritage features of major significance.

B. Where exceptionally there is an overriding need for development which would affect sites of archaeological or heritage importance, measures will be undertaken to minimise its impact and to preserve sites in situ, wherever possible.

Where necessary, the Council will impose conditions on planning permissions or will negotiate planning obligations under Section 106 of the Town and Country Planning Act 1990 to ensure appropriate investigation and recording prior to, and during development.

C. Where there are known concentrations of important archaeological remains, applicants for planning permission, which would involve ground disturbance will normally be required to submit:

(1) An archaeological evaluation of the site; and

(2) A statement demonstrating how it is intended to overcome the archaeological constraints of the site.

Justification

The sites and Monuments record compiled by the County Council includes scheduled and other sites of acknowledged archaeological importance. There are known concentrations of archaeological features at Melbourne and Repton. (A list of Scheduled Ancient Monuments in the District is included but omitted here as none of them fall within the study area).

It is important to consider the need to preserve, conserve, interpret and investigate archaeological and other heritage features where they are affected by development proposals. In the case of many sites, including those listed above which are scheduled, any disturbance will have an adverse effect. In other cases, the degree of disturbance will determine whether or not the feature is adversely affected. Where development proposals would be likely to affect an area of archaeological potential or an important heritage feature, the Council may request the submission of an archaeological evaluation prior to determining the application. In exceptional circumstances, where there is an overriding need for development, the District council will ensure that its impact is minimised and that sites are recorded before and during such developments.

Implementation

D. Through the use of development control powers by the District Council negotiating planning obligations under Section 106 of the Town and Country Planning Act 1990 and by reference to the Sites and Monuments Record.

8.2.3 From the 27th September to 15th November 2013 South Derbyshire District Council consulted on their proposed replacement document, the Draft Local Plan Part 1. The council issued the Pre-Submission Local Plan Part 1 in March 2014 and this draft document is yet to be adopted, so that the 1998 policies, saved in 2007 are still currently applicable. The new proposed policy relating to archaeology reads as follows:

Policy BNE2 Heritage Assets

Development that affects South Derbyshire's heritage assets will be expected to protect, conserve and enhance the assets and their settings in accordance with national guidance and supplementary planning documents which the authority may produce from time to time. These assets include:

- Conservation Areas
- Scheduled Monuments
- Listed buildings
- Registered historic parks and gardens
- Undesignated heritage assets on the local list

Particular attention will be paid to:

- the heritage of the Trent Valley, including its prehistoric remains, ancient crossing points and the transport heritage of the Trent Navigation, Trent and Mersey Canal, and the railways.
- the complementary relationship that exists in many cases between estate parklands and villages. Often they are integral parts of a conservation area, or form part of a conservation area setting. The management and care of these landscaped grounds is material to the character of the adjacent villages.
- the industrial heritage of Melbourne, Shardlow, Swadlincote and Ticknall. Most of this historic industry has now gone, but the surviving structures and landscape evidence continue to exert a huge influence on the character of these places.

The Council will promote the respect for, and protection and care of, the historic environment by:

- developing a local list of undesignated heritage assets, covering the same categories as the designated assets in the national list, in accordance with the best practice guidance issued by English Heritage.
- considering the further use of Article 4 directions, reinforced through grant schemes where possible and enforcement action where necessary.
- periodic production and updating of conservation area appraisals and management plans
- measures to tackle heritage "at risk", including service of urgent works and repairs notices where necessary

The District Council will work with private owners and developers to bring forward opportunities to secure the long-term future, sensitive use or re-use of under-utilised buildings, and the development of gap sites in conservation areas where

development is beneficial to the character and appearance of the area. The District Council will also seek opportunities to improve public access to existing heritage features associated with new development schemes.

Explanation

The historic environment is central to the identity of the South Derbyshire district. There are:

- 22 Conservation Areas including the Trent and Mersey Canal (which is a conservation area along its entire length).
- Four conservation areas subject to an Article 4 Direction (Shardlow, Ticknall, Twyford and Melbourne).
- 711 listed buildings, of which 49 are grade 1 and 51 are grade 2* listed. 42 listed buildings are recorded on the national and local at risk registers.
- 22 Scheduled Monuments
- 5 registered historic parks and gardens comprising Calke Abbey (Grade II*), Elvaston Castle (Grade II*), Melbourne Hall (Grade I), Swarkestone Hall (Grade II*) and Bretby Hall (Grade II)

Unlike the scattered settlement patterns in certain areas of the country, most South Derbyshire settlements have a focal point of some kind, typically a church, a public house or an open space. Most settlements also have clearly defined limits. In some cases, historic identity has been eroded by large residential estates, as at Aston, Etwall, Findern, Hilton and Willington. Ribbon development has eroded local character as at Overseal and between Woodville and Hartshorne, and there are some large industrial estates. However, with some exceptions, the historic settlement pattern and prevailing landscape character remain clear and legible.

The historic parklands of the district are a mixture of man-made and natural features. Some are publicly accessible in part e.g. Calke, Melbourne, Elvaston, while others are experienced by passing by or through them eg Repton Hayes and Repton Park, Newton Park (Newton Solney), Catton, Bretby and Radbourne. In many cases their care and management is material to the character of the adjacent villages. Often they are integral parts of a conservation area, or form part of a conservation area setting.

The historic buildings of the district are predominantly of brick, with relatively few buildings over 300 years old except for the parish churches. During the peak period of building activity from the late 18th century to the First World War, most roofs were covered with Staffordshire blue tiles or Welsh slate. There is some local variation in materials; outcrops of limestone at Calke and Ticknall, and of gritstone at Stanton by Bridge and Melbourne, are reflected in the extensive use of these materials locally, often in conjunction with brick. In the Swadlincote area there is extensive use of smooth red moulded brick, terracotta and glazed brick.

The arable lands of the Melbourne area gave rise to a distinctive market garden landscape in the 19th century, of which only fragments remain. Meanwhile, the extensive pasturelands in the south and north-west areas of the district supported a pattern of smaller settlements producing cream and cheese.

The Trent Valley in South Derbyshire is rich in prehistoric remains (some of them scheduled ancient monuments) which are both important and vulnerable because of the mineral value of the Trent valley gravels. Swarkestone Bridge is the longest piece of mediaeval bridgework in the country. In the 18th and 19th centuries the Trent Valley was developed as a transport corridor first by the Trent Navigation (from 1699), then the Trent and Mersey Canal (1766-77) and then the railways.

To help ensure that the special architectural and historic interest of listed buildings is preserved and enhanced, the Council assists in updating the Derbyshire County Council and English Heritage lists of listed buildings “at risk” of loss or damage through decay or neglect. Where possible, action is taken to secure the preservation of those most at risk.

Community facilities, such as a pub, school or chapel, may be of as much importance to social and cultural life as they are to heritage. The Council encourages communities to register these as “assets of community value”, thereby giving the community an option to assemble a purchase plan before they can be openly marketed for sale.

Where appropriate, studies will be undertaken to inform and understand the contribution that heritage assets make to the District's character, identity and history. These may include:

- the production and review of Conservation Area appraisals and management plans
- the application of design and heritage guidance (for example, Area Action Plans, Supplementary Planning Guidance or design briefs)
- formulation of a local list of heritage assets

Where enabling development is proposed the District Council will expect the applicant to demonstrate that this development is necessary to secure the long-term use or protection of the site or heritage asset and demonstrate that the benefits of the scheme outweighs the harm of allowing development which would ordinarily be unacceptable when considered against relevant policies set out in this plan.

To supplement this strategic policy the Council will look to develop further heritage polices through the Part 2 Local Plan and other relevant planning documents such as supplementary planning documents. This will ensure that clear policies are included within the Council's development framework to guide how the presumption in favour of sustainable development will applied locally in respect of heritage issues.

Implementation & Monitoring

- Number of designated heritage assets at risk on the national register
- Number of listed buildings on Derbyshire BAR
- Number of conservation area character appraisals and management plans adopted or reviewed more than ten years ago.

9 Determining significance

9.1.1 'Significance' lies in the value of a heritage asset to this and future generations because of its heritage interest, which may be archaeological, architectural, artistic or historic. Archaeological interest includes an interest in carrying out an expert investigation at some point in the future into the evidence a heritage asset may hold of past human activity, and may apply to standing buildings or structures as well as buried remains. Known and potential heritage assets within the site and its vicinity have been identified from national and local designations, HER data and expert opinion. The determination of the significance of these assets is based on statutory designation and/or professional judgement against four values (EH 2008):

- *Evidential value*: the potential of the physical remains to yield evidence of past human activity. This might take into account date; rarity; state of preservation; diversity/complexity; contribution to published priorities; supporting documentation; collective value and comparative potential.
- *Aesthetic value*: this derives from the ways in which people draw sensory and intellectual stimulation from the heritage asset, taking into account what other people have said or written;
- *Historical value*: the ways in which past people, events and aspects of life can be connected through heritage asset to the present, such a connection often being illustrative or associative;
- *Communal value*: this derives from the meanings of a heritage asset for the people who know about it, or for whom it figures in their collective experience or memory; communal values are closely bound up with historical, particularly associative, and aesthetic values, along with and educational, social or economic values.

9.1.2 Table 2 gives examples of the significance of designated and non-designated heritage assets.

Table 2: Significance of heritage assets

Heritage asset description	Significance
World heritage sites Scheduled monuments Grade I and II* listed buildings English Heritage Grade I and II* registered parks and gardens Protected Wrecks Heritage assets of national importance	Very high (International / national)
English Heritage Grade II registered parks and gardens Conservation areas Designated historic battlefields Grade II listed buildings Burial grounds Protected heritage landscapes (e.g. ancient woodland or historic hedgerows) Heritage assets of regional or county importance	High (national/ regional/ county)
Heritage assets with a district value or interest for education or cultural appreciation Locally listed buildings	Medium (District)
Heritage assets with a local (ie parish) value or interest for education or cultural appreciation	Low (Local)
Historic environment resource with no significant value or interest	Negligible
Heritage assets that have a clear potential, but for which current knowledge is insufficient to allow significance to be determined	Uncertain

9.1.3 Unless the nature and exact extent of buried archaeological remains within any given area has been determined through prior investigation, significance of is often uncertain.

10 Non-archaeological constraints

10.1.1 It is anticipated that below-ground field drains and possibly other pipes will be present on the site, the locations of which have not been identified by this archaeological report. The northern part of the site is crossed by a line of above-ground electricity pylons. Other than this, no other non-archaeological constraints to any archaeological fieldwork have been identified within the site.

10.1.2 Note: the purpose of this section is to highlight to decision makers any relevant non-archaeological constraints identified during the study, that might affect future archaeological field investigation on the site (should this be recommended). The information has been assembled using only those sources as identified in section 2 and section 14.4, in order to assist forward planning for the project designs, working schemes of investigation and risk assessments that would be needed prior to any such field work. MOLA has used its best endeavours to ensure that the sources used are appropriate for this task but has not independently verified any details. Under the Health & Safety at Work Act 1974 and subsequent regulations, all organisations are required to protect their employees as far as is reasonably practicable by addressing health and safety risks. The contents of this section are intended only to support organisations operating on this site in fulfilling this obligation and do not comprise a comprehensive risk assessment.

11 Glossary

Alluvium	Sediment laid down by a river. Can range from sands and gravels deposited by fast flowing water and clays that settle out of suspension during overbank flooding. Other deposits found on a valley floor are usually included in the term alluvium (eg peat).
Archaeological Priority Area/Zone	Areas of archaeological priority, significance, potential or other title, often designated by the local authority.
Brickearth	A fine-grained silt believed to have accumulated by a mixture of processes (eg wind, slope and freeze-thaw) mostly since the Last Glacial Maximum around 17,000BP.
B.P.	Before Present, conventionally taken to be 1950
Bronze Age	2,000–600 BC
Building recording	Recording of historic buildings (by a competent archaeological organisation) is undertaken *'to document buildings, or parts of buildings, which may be lost as a result of demolition, alteration or neglect',* amongst other reasons. Four levels of recording are defined by Royal Commission on the Historical Monuments of England (RCHME) and English Heritage. Level 1 (basic visual record); Level 2 (descriptive record), Level 3 (analytical record), and Level 4 (comprehensive analytical record)
Built heritage	Upstanding structure of historic interest.
Colluvium	A natural deposit accumulated through the action of rainwash or gravity at the base of a slope.
Conservation area	An area of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance. Designation by the local authority often includes controls over the demolition of buildings; strengthened controls over minor development; and special provision for the protection of trees.
Cropmarks	Marks visible from the air in growing crops, caused by moisture variation due to subsurface features of possible archaeological origin (i.e. ditches or buried walls).
Cut-and-cover [trench]	Method of construction in which a trench is excavated down from existing ground level and which is subsequently covered over and/or backfilled.
Cut feature	Archaeological feature such as a pit, ditch or well, which has been cut into the then-existing ground surface.
Devensian	The most recent cold stage (glacial) of the Pleistocene. Spanning the period from *c* 70,000 years ago until the start of the Holocene (10,000 years ago). Climate fluctuated within the Devensian, as it did in other glacials and interglacials. It is associated with the demise of the Neanderthals and the expansion of modern humans.
Early medieval	AD 410 – 1066. Also referred to as the Saxon period.
Evaluation (archaeological)	A limited programme of non–intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area.
Excavation (archaeological)	A programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological remains, retrieves artefacts, ecofacts and other remains within a specified area. The records made and objects gathered are studied and the results published in detail appropriate to the project design.
Findspot	Chance find/antiquarian discovery of artefact. The artefact has no known context, is either residual or indicates an area of archaeological activity.
Geotechnical	Ground investigation, typically in the form of boreholes and/or trial/test pits, carried out for engineering purposes to determine the nature of the subsurface deposits.
Head	Weathered/soliflucted periglacial deposit (ie moved downslope through natural processes).
Heritage asset	A building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. Heritage assets are the valued components of the historic environment. They include designated heritage assets and assets identified by the local planning authority (including local listing).
Historic environment assessment	A written document whose purpose is to determine, as far as is reasonably possible from existing records, the nature of the historic environment resource/heritage assets within a specified area.
Historic Environment Record (HER)	Archaeological and built heritage database held and maintained by the County authority. Previously known as the Sites and Monuments Record
Holocene	The most recent epoch (part) of the Quaternary, covering the past 10,000 years during which time a warm interglacial climate has existed. Also referred to as the 'Postglacial' and (in Britain) as the 'Flandrian'.

Iron Age	600 BC – AD 43
Later medieval	AD 1066 – 1500
Last Glacial Maximum	Characterised by the expansion of the last ice sheet to affect the British Isles (around 18,000 years ago), which at its maximum extent covered over two-thirds of the present land area of the country.
Locally listed building	A structure of local architectural and/or historical interest. These are structures that are not included in the Secretary of State's Listing but are considered by the local authority to have architectural and/or historical merit
Listed building	A structure of architectural and/or historical interest. These are included on the Secretary of State's list, which affords statutory protection. These are subdivided into Grades I, II* and II (in descending importance).
Made Ground	Artificial deposit. An archaeologist would differentiate between modern made ground, containing identifiably modern inclusion such as concrete (but not brick or tile), and undated made ground, which may potentially contain deposits of archaeological interest.
Mesolithic	12,000 – 4,000 BC
National Monuments Record (NMR)	National database of archaeological sites, finds and events as maintained by English Heritage in Swindon. Generally not as comprehensive as the country SMR/HER.
Neolithic	4,000 – 2,000 BC
Ordnance Datum (OD)	A vertical datum used by Ordnance Survey as the basis for deriving altitudes on maps.
Palaeo-environmental	Related to past environments, i.e. during the prehistoric and later periods. Such remains can be of archaeological interest, and often consist of organic remains such as pollen and plant macro fossils which can be used to reconstruct the past environment.
Palaeolithic	700,000–12,000 BC
Palaeochannel	A former/ancient watercourse
Peat	A build up of organic material in waterlogged areas, producing marshes, fens, mires, blanket and raised bogs. Accumulation is due to inhibited decay in anaerobic conditions.
Pleistocene	Geological period pre-dating the Holocene.
Post-medieval	AD 1500 – present
Preservation by record	Archaeological mitigation strategy where archaeological remains are fully excavated and recorded archaeologically and the results published. For remains of lesser significance, preservation by record might comprise an archaeological watching brief.
Preservation in situ	Archaeological mitigation strategy where nationally important (whether Scheduled or not) archaeological remains are preserved *in situ* for future generations, typically through modifications to design proposals to avoid damage or destruction of such remains.
Registered Historic Parks and Gardens	A site may lie within or contain a registered historic park or garden. The register of these in England is compiled and maintained by English Heritage.
Residual	When used to describe archaeological artefacts, this means not *in situ,* ie Found outside the context in which it was originally deposited.
Roman	AD 43 – 410
Scheduled Monument	An ancient monument or archaeological deposits designated by the Secretary of State as a 'Scheduled Ancient Monument' and protected under the Ancient Monuments Act.
Site	The area of proposed development
Site codes	Unique identifying codes allocated to archaeological fieldwork sites, eg evaluation, excavation, or watching brief sites.
Study area	Defined area surrounding the proposed development in which archaeological data is collected and analysed in order to set the site into its archaeological and historical context.
Solifluction, Soliflucted	Creeping of soil down a slope during periods of freeze and thaw in periglacial environments. Such material can seal and protect earlier landsurfaces and archaeological deposits which might otherwise not survive later erosion.
Stratigraphy	A term used to define a sequence of visually distinct horizontal layers (strata), one above another, which form the material remains of past cultures.
Truncate	Partially or wholly remove. In archaeological terms remains may have been truncated by previous construction activity.
Watching brief (archaeological)	An archaeological watching brief is '*a formal programme of observation and investigation conducted during any operation carried out for non–archaeological reasons.*'

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12.2 Other Sources

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British Geological Survey online geological data

Internet – web-published sources

National Monuments Record, Swindon

National Air Photograph Library, Swindon

Derbyshire Record Office
Derbyshire Historic Environment Record
English Heritage website (www.english-heritage.org.uk, accessed 17.01.2014)
Heritage Gateway website (www.heritagegateway.org.uk, accessed 17.01.2014)
Defence of Britain website (archaeologydataservice.ac.uk/archives/view/dob/, accessed 17.01.2014)

12.3 Cartographic sources

Tithe maps and award documents:
Plan of the Township of Etwall in the Parish of Etwall and County of Derby, 1849
Plan of the Parish of Egginton in the County of Derby referred by the Instrument of Tithe Apportionment, 1849

A Terrier of several Parcels of Inclosed and Field Land Lying in the Parish of Egginton in the County of Derby, the Estate of Sir John Every Baronet, Surveyed in May 1764 by J Beighton

Plan of the Egginton Estate, Derbyshire, for Sale by Auction by Messrs Fox and Sons, 1940

National Mapping Programme, sheet SK 22 NE

Ordnance Survey maps
Ordnance Survey 1st edition 6":mile map (1886)
Ordnance Survey 1st edition 6":mile (1901)
Ordnance Survey 1st edition 6":mile map (1924)
Ordnance Survey 1:10,000 scale map (1955)
Ordnance Survey 1:10,000 scale map (1968)
Ordnance Survey 1:10,000 scale map (1973–6)
Ordnance Survey 1:10,000 scale map (1993–6)
Ordnance Survey 1:10,000 scale map (2006)
Ordnance Survey 1:10,000 scale map (2013)

Geology map
British Geological Survey online and 1:10,000 mapping, and online borehole data

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AJA Architects drawing: New Rail Freight and Inter-Modal Logistics Park, Etwall, South Derbyshire, Draft Masterplan, Indicating A50 Roundabout Access and Retained Biffa Works, dwg no. 4586-23, dated 24.03.2009

12.4 Available site survey information checklist

Information from client	**Available**	**Format**	**Obtained**
Plan of existing site services (overhead/buried)	Not Known	N/A	N
Levelled site survey as existing (ground and buildings)	Not Known	N/A	N
Contamination survey data ground and buildings (inc. asbestos)	Not Known	N/A	N
Geotechnical report	Not Known	N/A	N
Envirocheck report	Not Known	N/A	N

Information obtained from non-client source	**Carried out**	**Internal inspection of buildings**
Site inspection	Y	Some

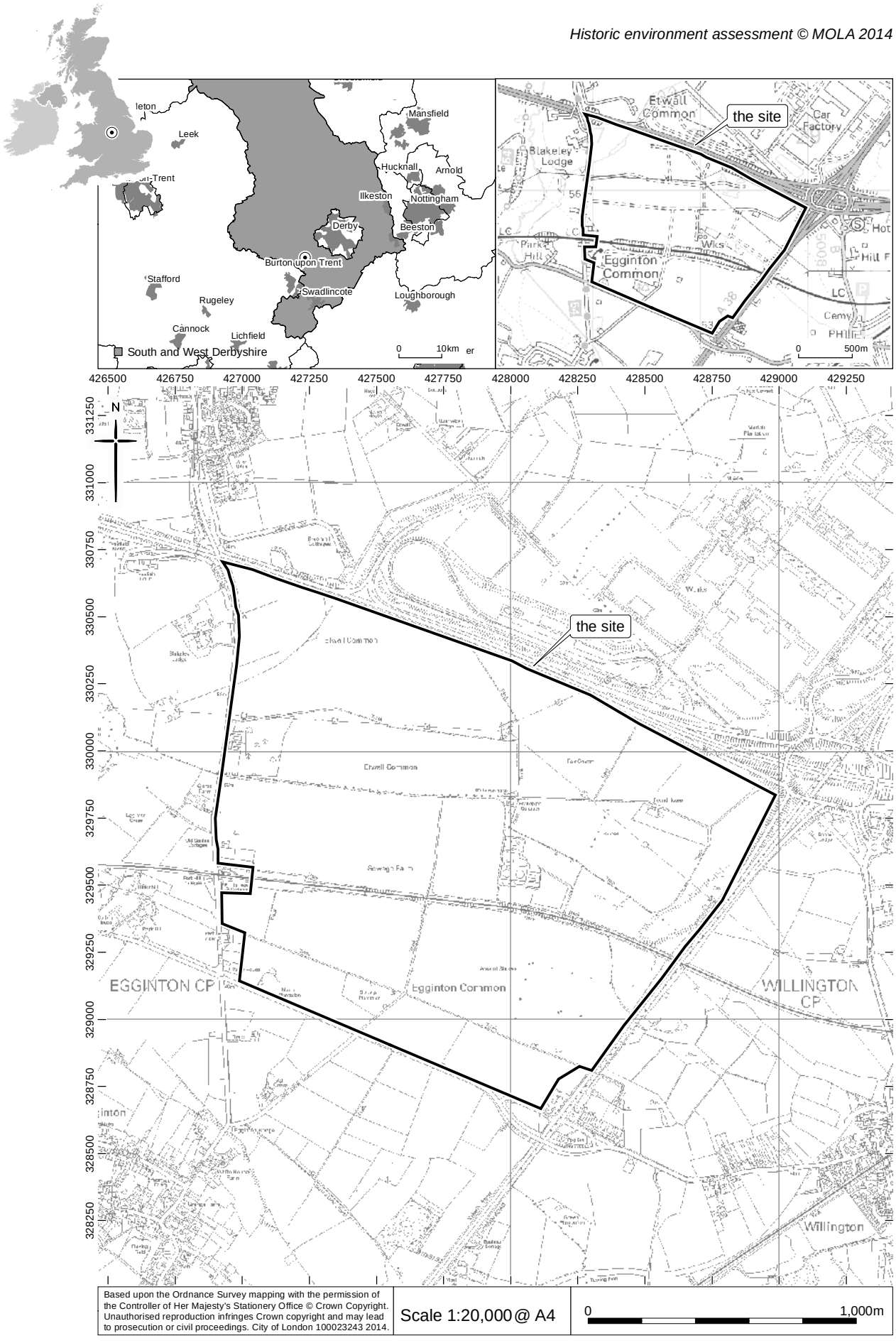

Fig 1 Site location

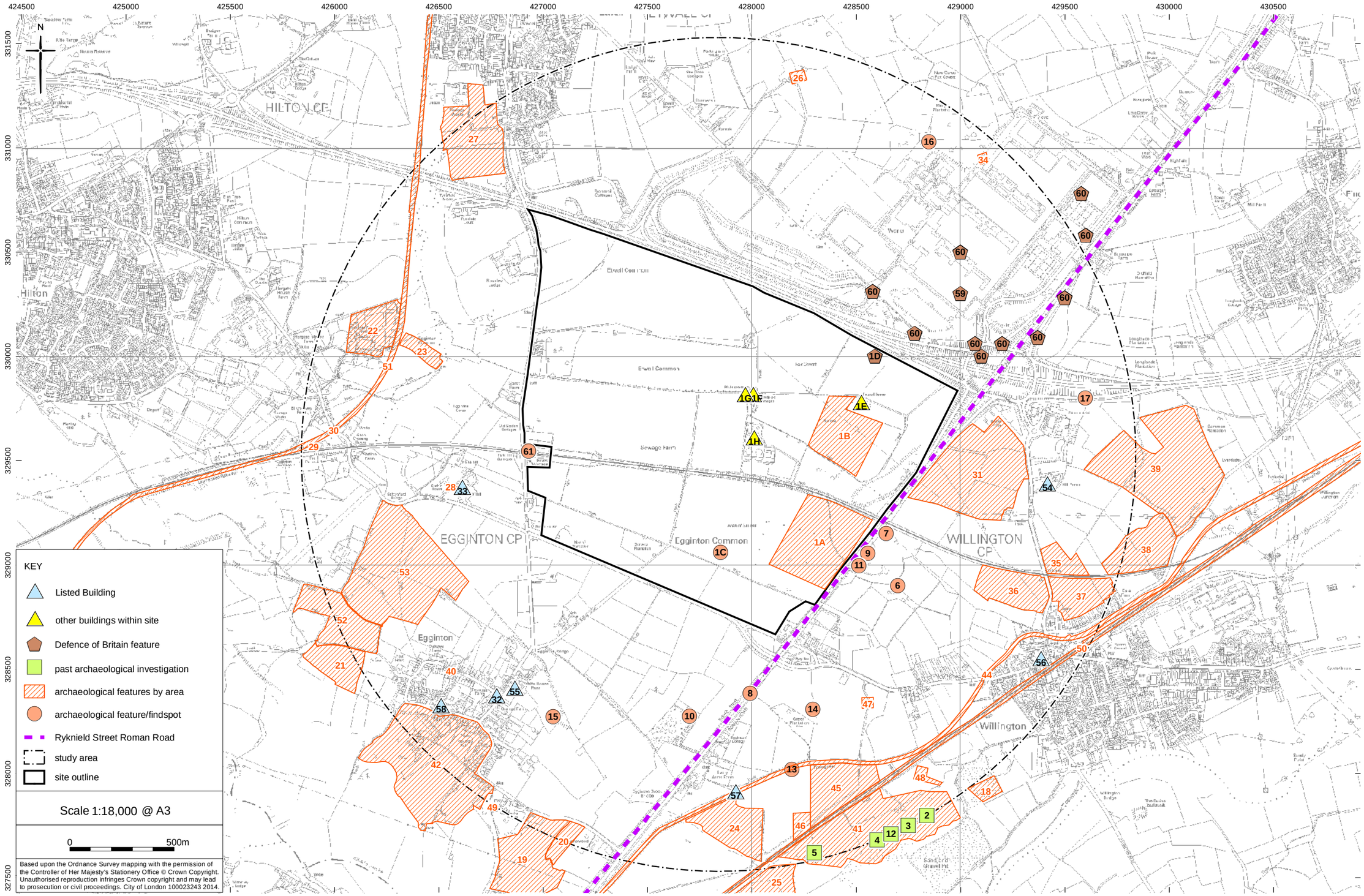

Fig 2 Historic environment features map

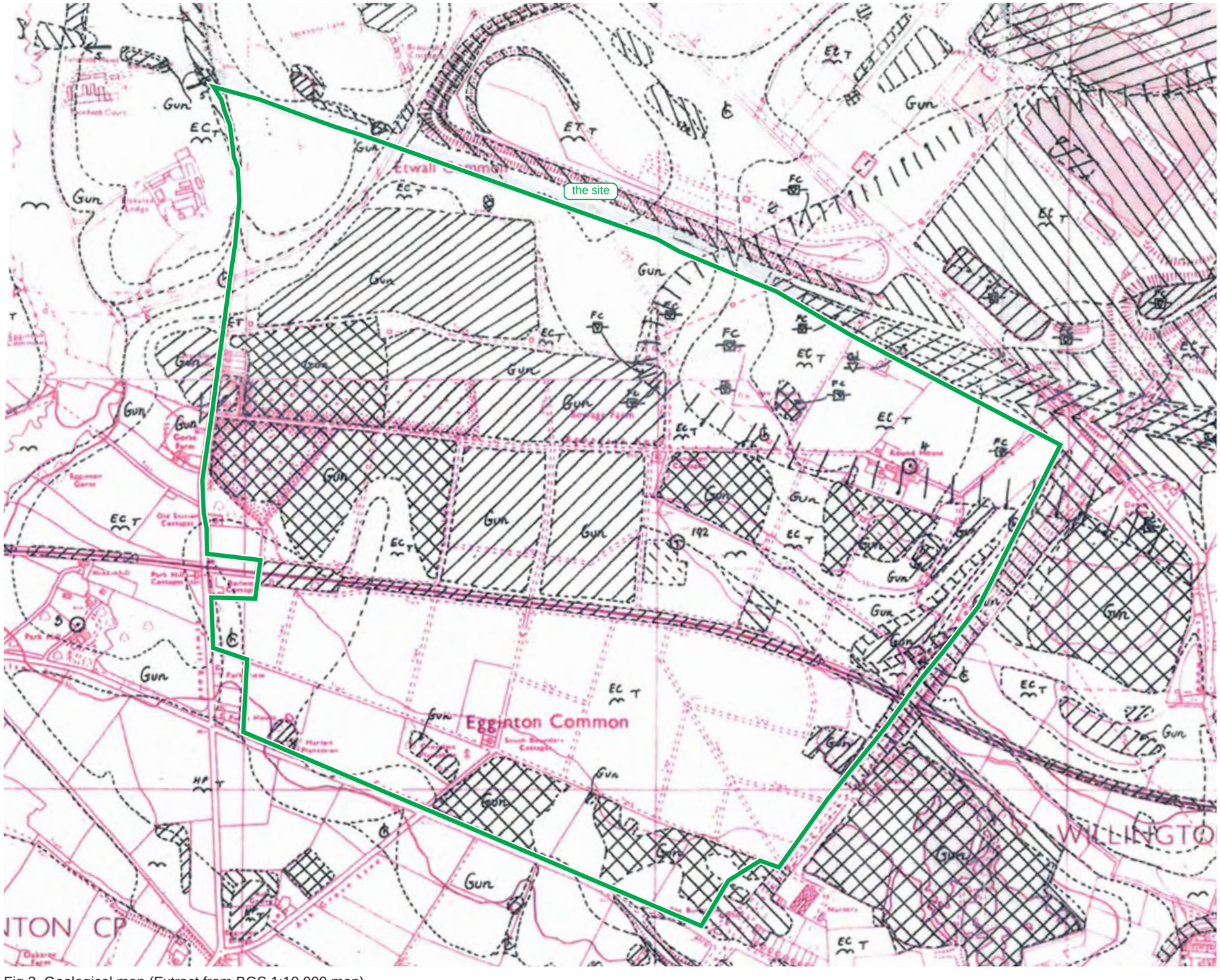

Fig 3 Geological map (Extract from BGS 1:10,000 map)

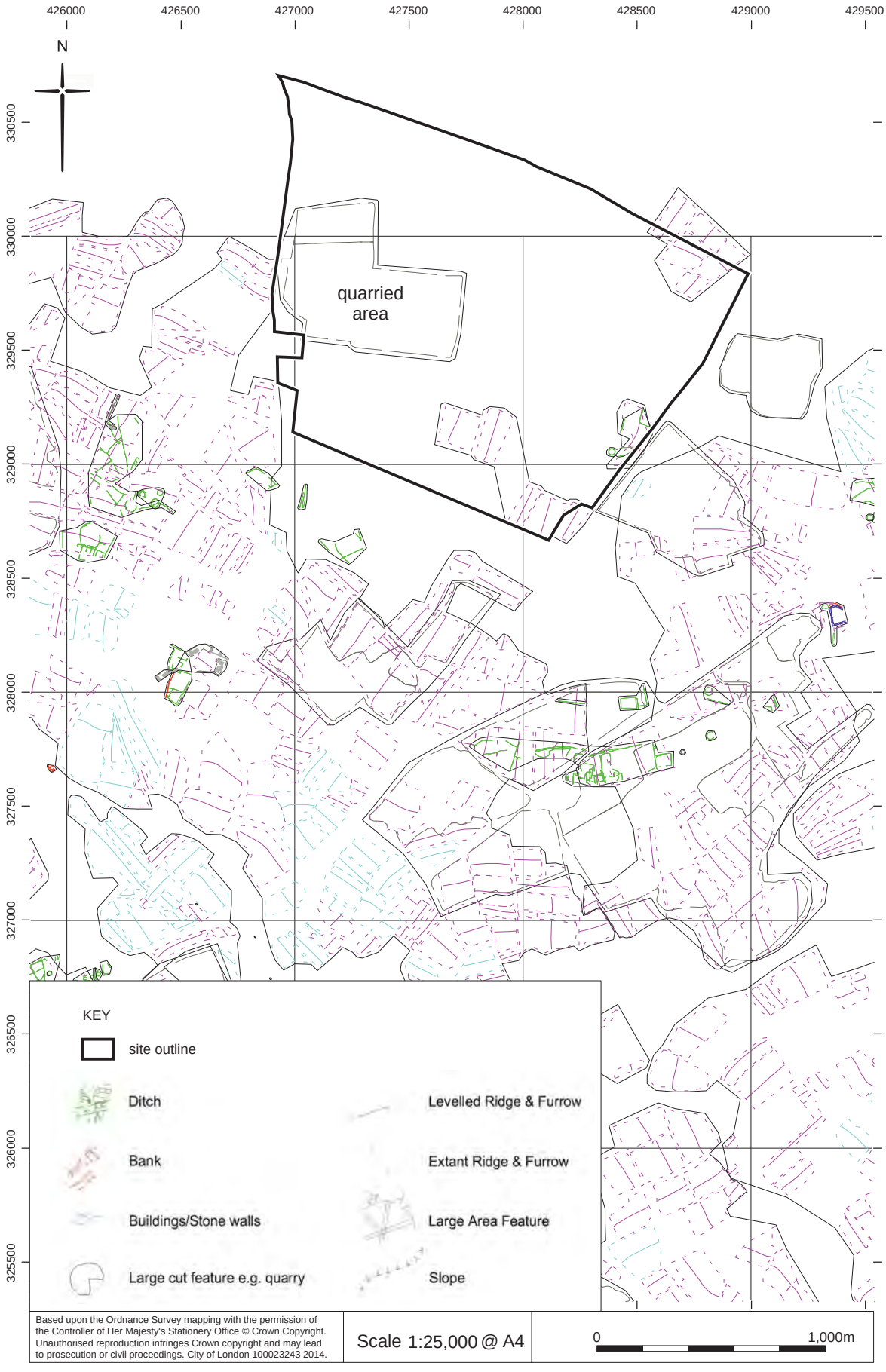

Fig 4 National Mapping Programme map (Extract from map for Grid Square SK 22 NE)

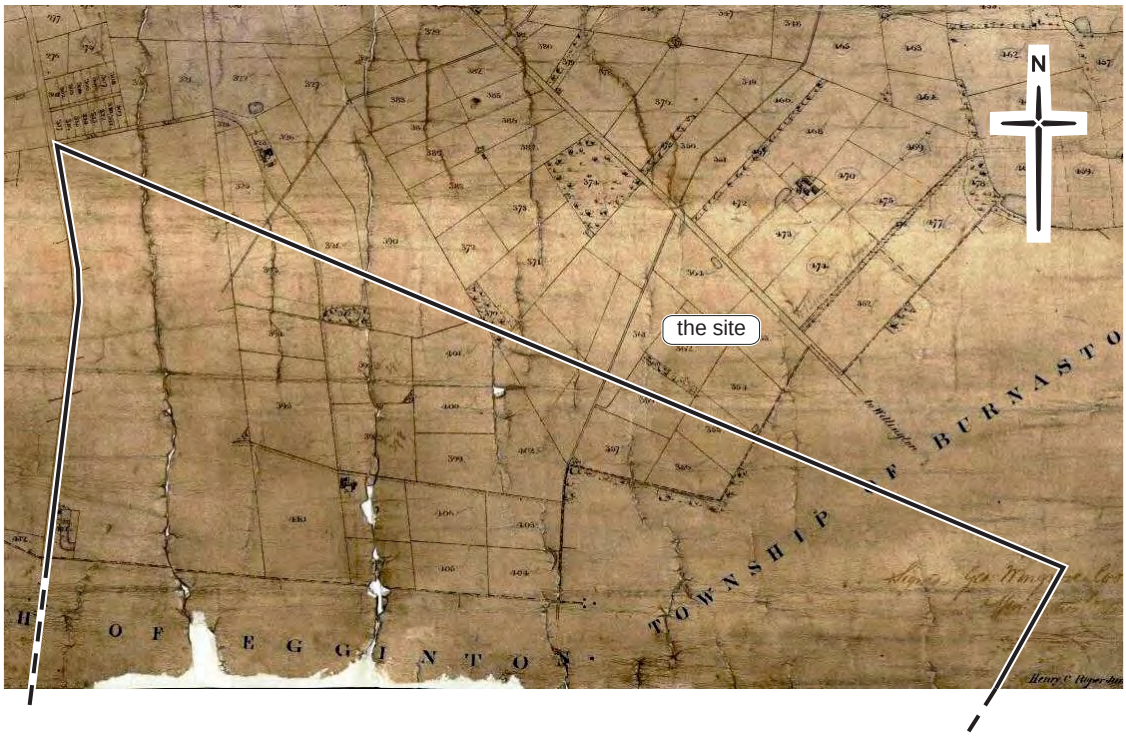

Fig 5 Extract from Etwall Parish Tithe map of 1849

Fig 6 Extract from Egginton Parish Tithe map of 1849

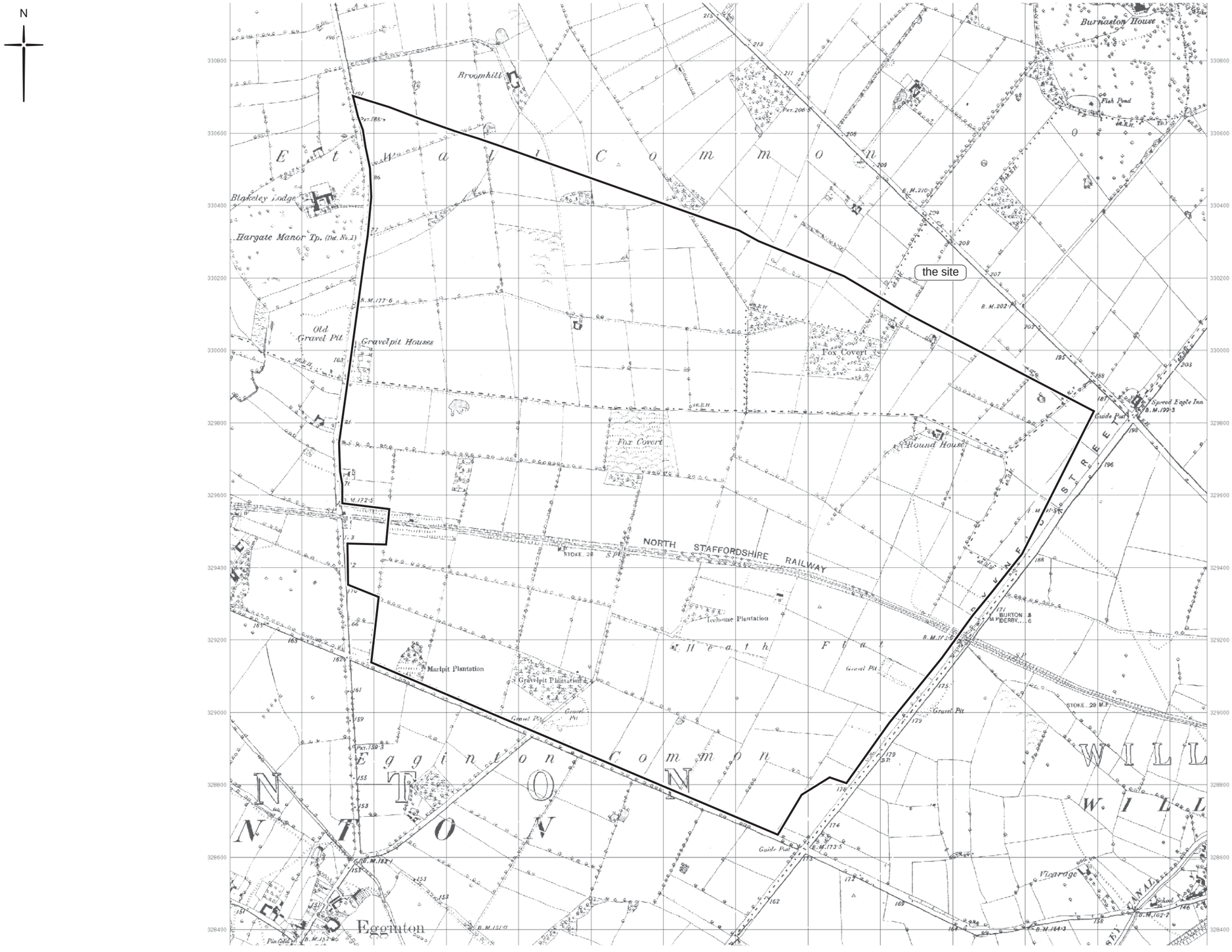

Fig 7 Ordnance Survey 1st Edition 6":mile map of 1886 (not to scale)

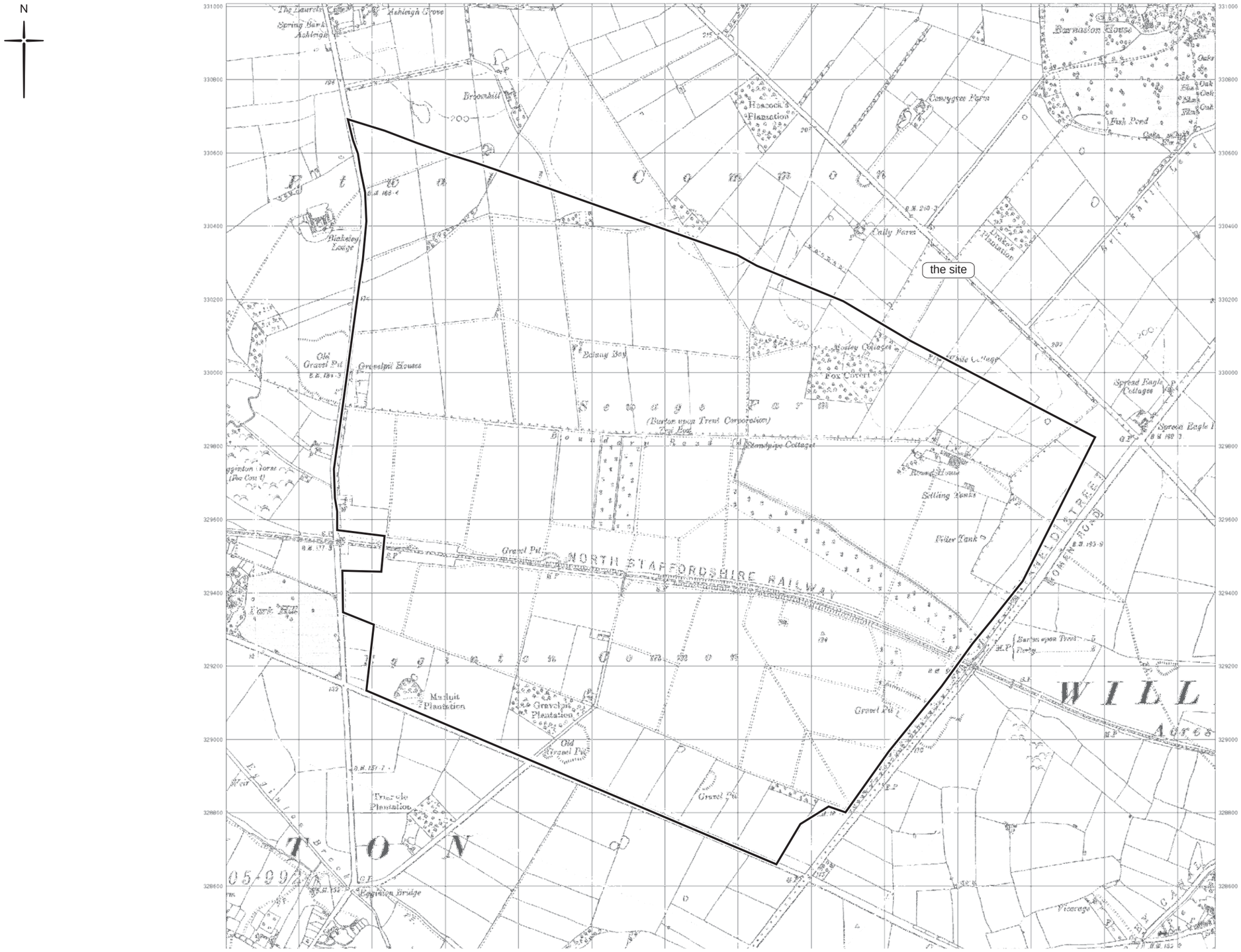

Fig 8 Ordnance Survey 2nd Edition 6":mile map of 1901 (not to scale)

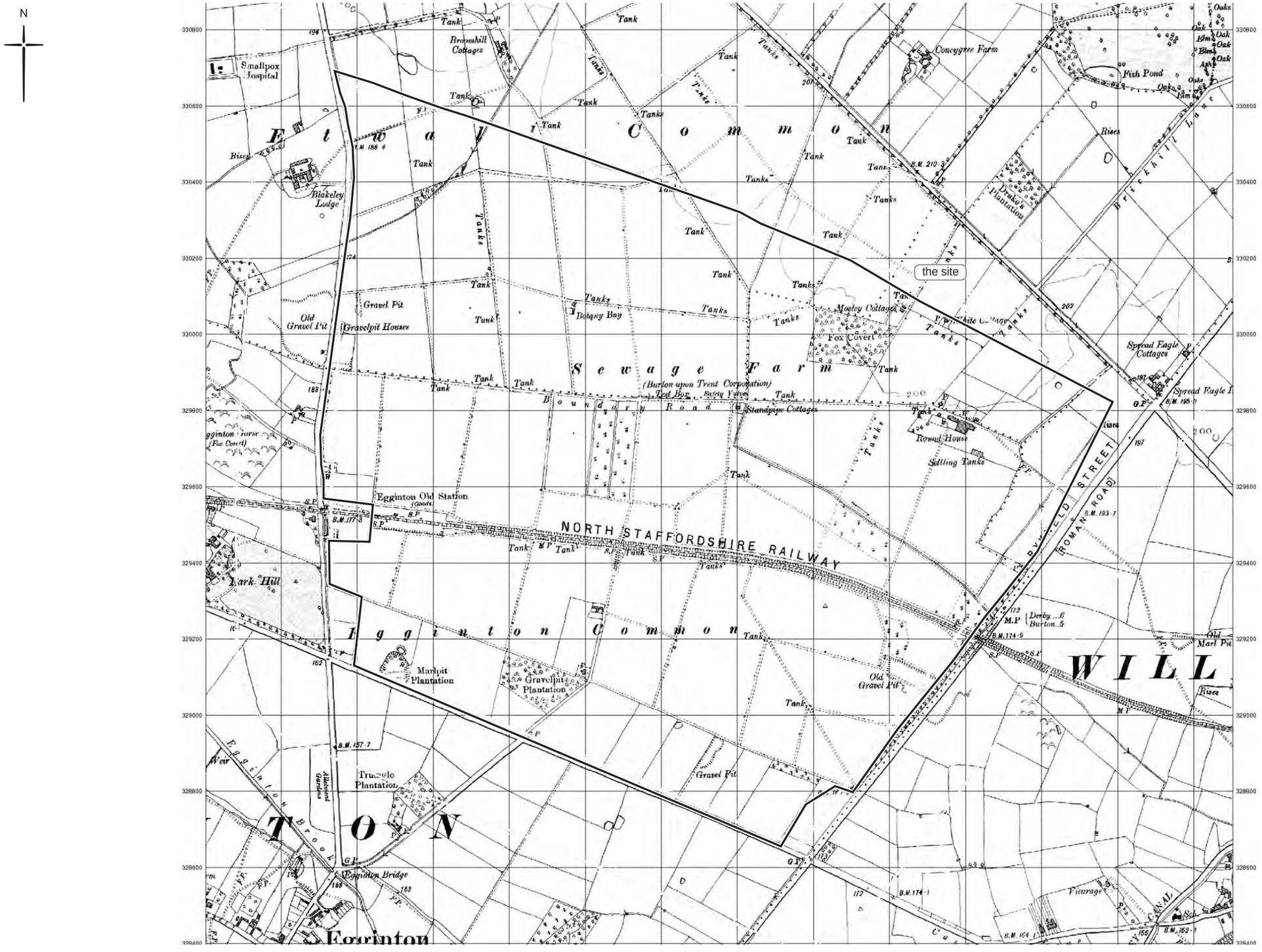

Fig 9 Ordnance Survey 3rd Edition 6":mile map of 1924 (not to scale)

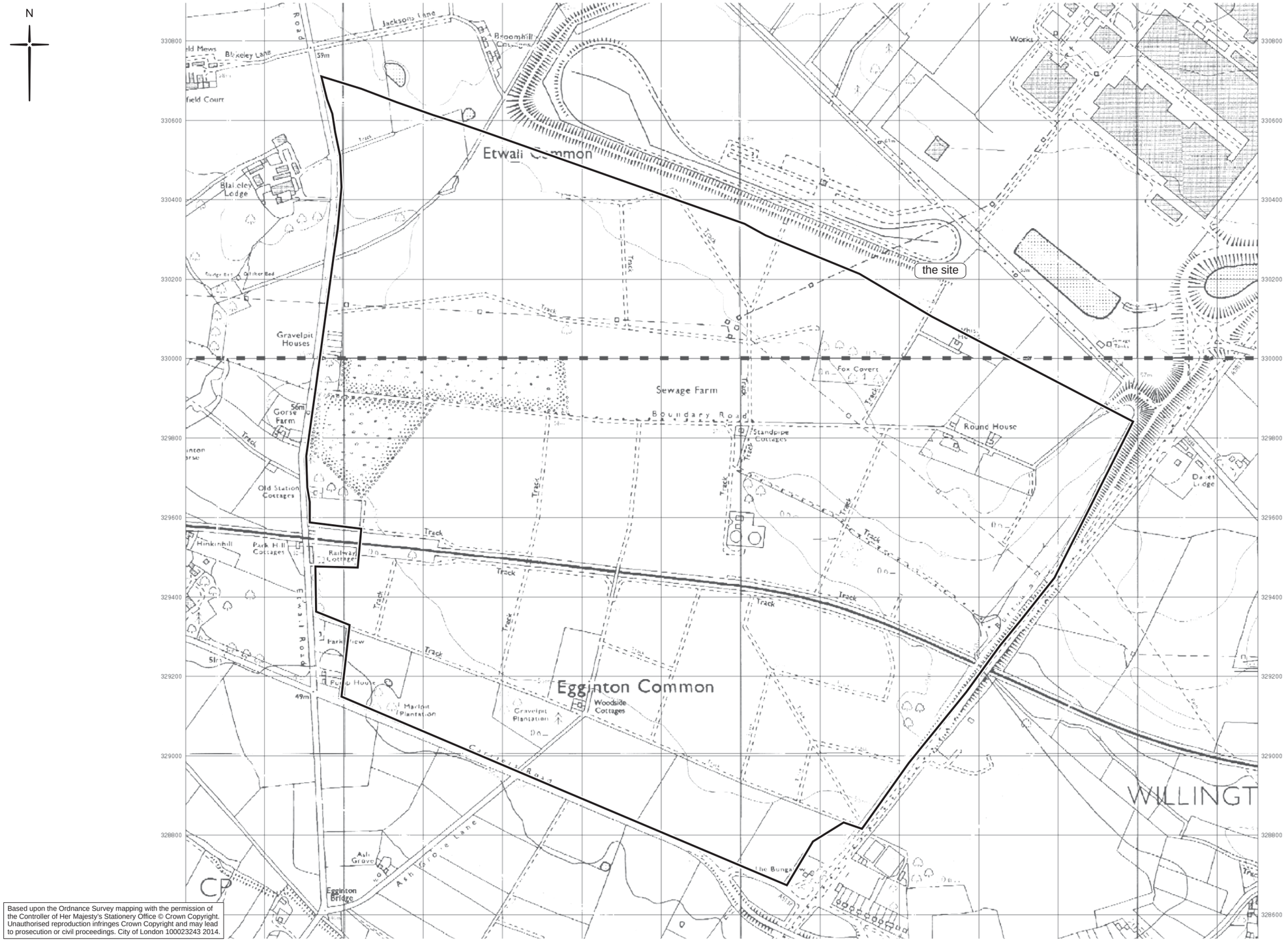

Fig 10 Ordnance Survey 1:10,000 map of 1993–6 (not to scale)

Fig 11 East central part of site looking north (Cambridge University Collection Aerial Photograph AP YU054, Summer 1959)

Fig 12 East central part of site looking north-west (Cambridge University Collection Aerial Photograph AP YU053, Summer 1959)

Fig 13 Fields to the north-west of the Round House (National Monuments Record aerial photograph OS/89142/396, May 1989)

Fig 14 Boundary Road looking east (MOLA photo 12.09.2013)

Fig 15 Boundary Road looking west (MOLA photo 12.09.2013)

Fig 16 North-eastern part of site looking north from Boundary Road (MOLA photo 12.09.2013)

Fig 17 World War II pill box looking north (MOLA photo 12.09.2013)

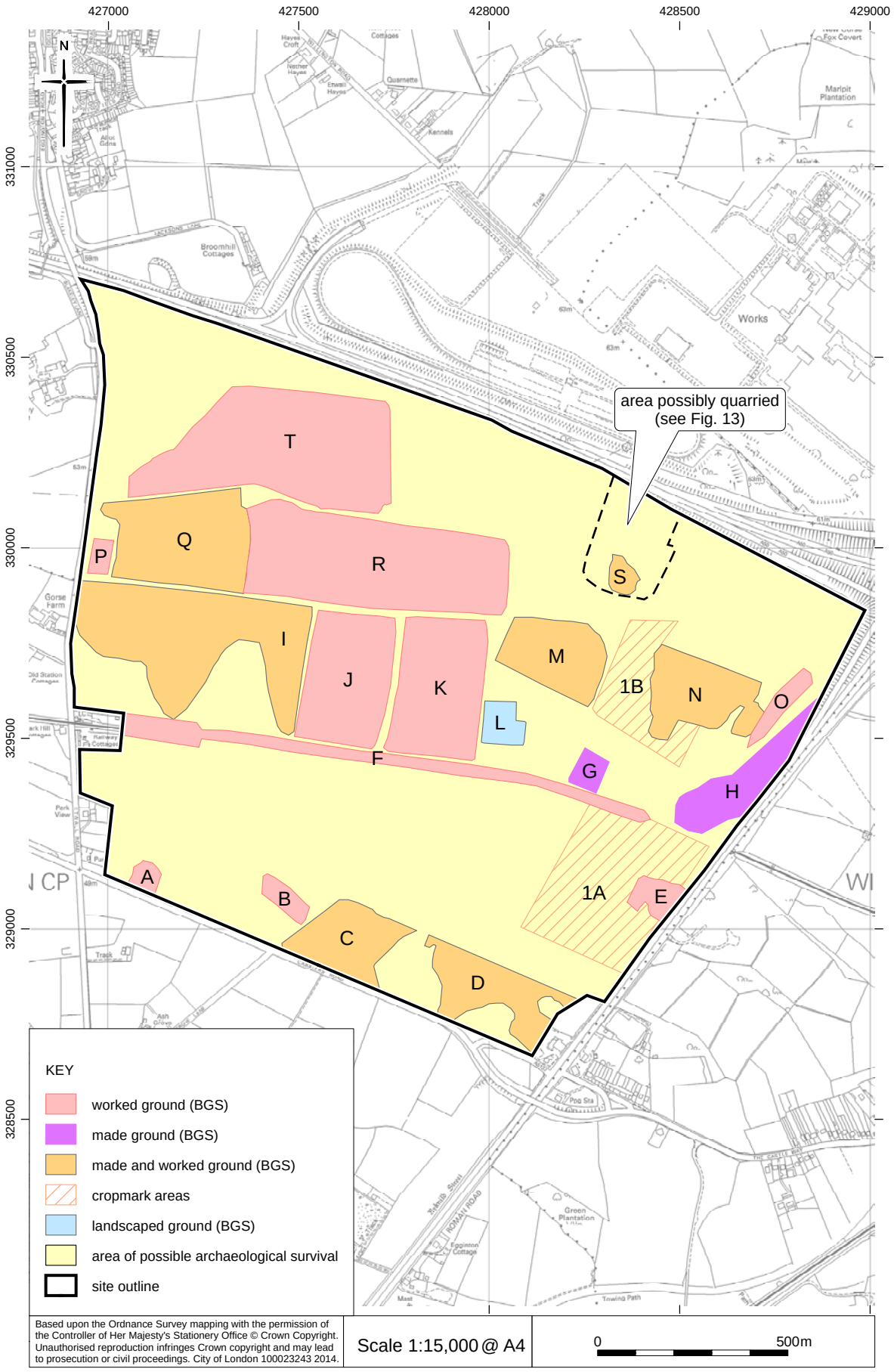

Fig 18 Map showing areas of possible archaeological survival

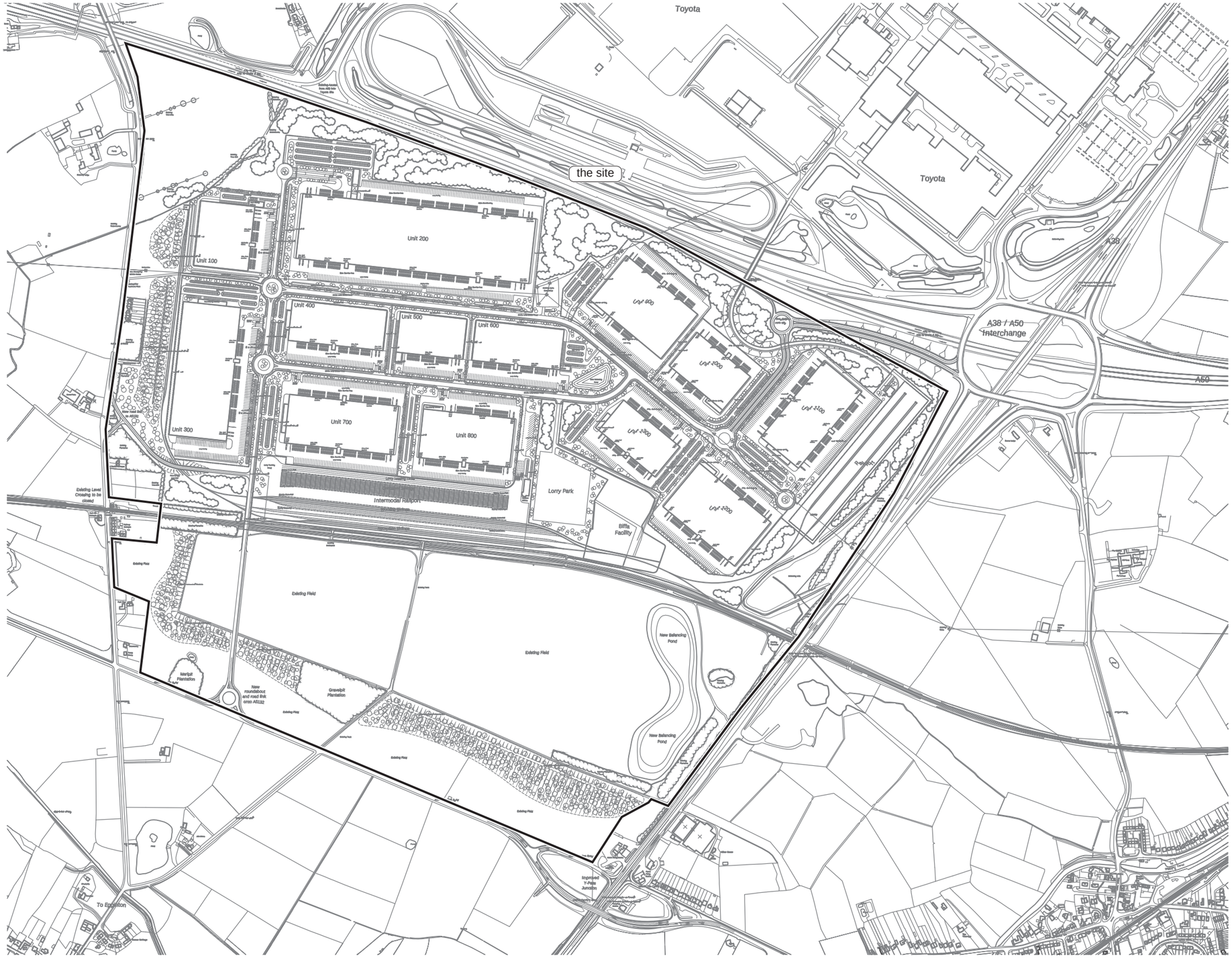

Fig 19 EMIP Draft masterplan of proposals (AJA Architects dwg 4586-23, 24.03.2009)

APPENDIX 11: GEOPHYSICAL SURVEY

Geophysical Survey of land at the proposed site of East Midlands Intermodal Park Etwall, Derbyshire (September - December 2013)

Report No. 14/32

Author: Ian Fisher

Illustrators: Ian Fisher
Amir Bassir

Project Manager: Mark Holmes
Site Code: DBYMU 2013-105
NGR: SK 278 295

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Geophysical Survey of land at the proposed site of East Midlands Intermodal Park Etwall, Derbyshire September - December 2013

DBYMU.2013.105

Report No. 14/32

Quality control and sign off**:**

Issue No.	Date approved:	Checked by:	Verified by:	Approved by:	Reason for Issue:
1	06.02.14	Pat Chapman	Mark Holmes	Andy Chapman	Draft for client review
2	11.02.14	Pat Chapman	Mark Holmes	Andy Chapman	Final report

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Illustrations:	Ian Fisher & Amir Bassir BSc

OASIS REPORT FORM

PROJECT DETAILS	OASIS No: molanort1_170814	
Project name	Geophysical survey of land at the proposed site of East Midlands Intermodal Park, Etwall, Derbyshire, September to December 2013	
Short description	Northamptonshire Archaeology (now trading as MOLA) was commissioned to carry out an archaeological geophysical survey on *c*109ha of land at the proposed site of East Midlands Intermodal Park (EMIP), south of Etwall, Derbyshire. The survey identified features relating to modern land use.	
Project type	Geophysical survey	
Site status	None	
Previous work	Desk-based assessment (Stephenson 2014)	
Current Land use	Arable	
Future work	Unknown	
Monument type/ period	Prehistoric ring ditch and enclosure cropmarks	
Significant finds	None	
PROJECT LOCATION		
County	Derbyshire	
Site address	Boundary Lane, Etwall	
Study area	*c*260 ha (109ha surveyed)	
OS Easting & Northing	SK 27840 29530	
Height aOD	*c*52 - 63m aOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (now trading as MOLA)	
Project brief originator		
Project Design originator		
Director/Supervisor	Ian Fisher	
Project Manager	Mark Holmes	
Sponsor or funding body	MOLA	
PROJECT DATE		
Start date	September 2013	
End date	December 2013	
ARCHIVES	Location	Content
Physical		
Paper	DBYMU2013.105	Site survey records
Digital		Geophysical survey & GIS data
BIBLIOGRAPHY		
Title	Geophysical survey of land at the proposed site of East Midlands Intermodal Park, Etwall, Derbyshire, September to December 2013	
Serial title & volume	MOLA 14/32	
Author(s)	Ian Fisher	
Page numbers	25 (including figures)	
Date	7 February 2014	

Contents

Figures

Front cover: Overall survey results

GEOPHYSICAL SURVEY OF LAND AT THE PROPOSED SITE OF EAST MIDLANDS INTERMODAL PARK, ETWALL, DERBYSHIRE SEPTEMBER TO DECEMBER 2013

Abstract

Northamptonshire Archaeology (now trading as MOLA) was commissioned to carry out an archaeological geophysical survey on c109ha of land at the proposed site of East Midlands Intermodal Park (EMIP), south of Etwall, Derbyshire. The survey identified features relating to modern land use.

1 INTRODUCTION

Northamptonshire Archaeology (now trading as MOLA) was commissioned to carry out an archaeological geophysical survey on c109ha of land at the proposed site of East Midlands Intermodal Park (EMIP), Etwall, Derbyshire (Fig 1). The fieldwork was conducted from September to December 2013 and comprised the detailed magnetometer survey of *c*109ha of arable land.

2 TOPOGRAPHY AND GEOLOGY

The survey area is located south of Etwall, *c*4km south-west of Derby, centred on NGR SK 27840 29530. It comprises a block of predominantly arable farmland bounded by the A5132, Carriers Road, in the south, the A50 in the north, the A38 in the east and Etwall Road in the west (Fig 1). The site is relatively flat with a gentle southwards slope. It lies at 63m aOD in the north and slopes down to 52m aOD in the south. A 19th-century railway line bisects the survey area from east to west.

The underlying solid geology is mapped as Triassic mudstones, siltstones and sandstones of the mid-late Triassic Mercia Mudstone Group. Superficial deposits of Eggington Common Sand and Gravel Member are mapped in the southern and north-western parts, whilst Etwall Sand and Gravel Member are to be found in the northern and north-eastern parts. Finder Clay deposits are also mapped in patches in the north-east (Stephenson 2014).

Within the survey area there are extensive areas of worked (unfilled, disused sand and gravel pits and sandstone and mudstone quarries) and made ground (wholly or partly backfilled with quarry spoil and other waste material) (Stephenson 2014).

3 ARCHAEOLOGICAL BACKGROUND

A desk-based assessment of the survey area has been undertaken and provides the main source for this summary (Stephenson 2014).

The earliest known remains from the survey area are prehistoric. Cropmarks have been identified from aerial photographs of the site. These indicate a ring ditch on Eggington Common (19601-MDR2585, SK 284291) and a rectangular enclosure with two linear features, south of Boundary Road, Etwall (19621-MDR2589) (Fig 1).

Within the survey area, no evidence for the Roman period has been recorded. However, the A38, which forms the eastern boundary of the site, follows the line of Ryknield Street, a former Roman Road.

No evidence for early medieval to post-medieval remains has been recorded within the survey area. However, quarrying (post-medieval and modern) and sewage farm work installations over approximately a third of the site may have removed deposits containing archaeological remains (Fig 2).

4 METHODOLOGY

The magnetometer survey was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanoTesla (nT).

An independent network of 30m grid squares was established within each of the fields to be surveyed. The grids were set out with a tape measure and optical square and were tied in to the Ordnance Survey National Grid by means of a Leica 1200 dGPS. The gradiometers were carried at a brisk but steady pace through each grid square,

collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per square.

All fieldwork methods complied with the guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; IfA 2011).

The survey data were processed using Geoplot 3.00v software. The striping was removed using the 'Zero Mean Traverse' function and destaggering of the data was performed where necessary.

The processed data is presented in this report in the form of greyscale plots at a range of +4nT (black) to -4nT (white). These have been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping in Figures 3, 5, 7, 9, 11 and 13. Interpretative overlays are presented in Figures 4, 6, 8, 10, 12 and 14.

5 SURVEY RESULTS

5.1 **Summary** (Figs 3 & 4)

Anomalies relating to modern land uses dominate the survey results and although cropmarks suggest the presence of archaeologically significant remains none have been detected. Areas of made and worked ground were not targeted to be surveyed. However, the results do indicate small areas of made and/or worked ground within the survey area.

5.3 **Ridge and furrow** (Figs 11 & 12)

In Field 8, parallel sinuous linear anomalies indicate the remains of remnant furrows of medieval ridge and furrow cultivation. These anomalies are magnetically weak and are not visible across the whole field.

5.3 **Field boundaries** (Figs 7-10 & 13-14)

Former field boundaries have been recorded in Fields 3, 4, 6 and 9-11. These are weak positive linear anomalies and have been identified from Ordnance Survey maps. The north-west to south-east boundary in Field 3 is partially surviving.

5.4 Pipelines and trackways (Figs 5-14)

The survey results indicate a network of pipelines and former trackways throughout the survey area. The pipelines mainly run along existing field boundaries and tracks. However, a herringbone pattern of pipelines and tracks has been identified in Field 8 (Figs 11-12). The pipelines served the sewage farm works and the trackways provided access to the pipelines. The trackways in Field 8 have been since removed. The pipelines identified in Field 3, are most likely to be modern services not related to the sewage farm works.

5.5 Land drains (Figs 5-12)

Sets of parallel linear anomalies have been identified as land drains in Fields 2, 3, 6 and 8. The anomalies are characteristic of land drains.

5.6 Ferrous noise/disturbance (Figs 5-14)

Several areas of ferrous noise/disturbance have been identified by the survey. A rectangular area of magnetic disturbance in Field 2 indicates a former landfill site (Figs 2, 5 & 6). This area was occupied by woodland, Fox Covert, prior to the landfill.

A linear band and an amorphous area of magnetic noise/disturbance in Field 3 may indicate the former groundworks for a pipeline installation (Google Earth) (Figs 7 & 8). A small circular area of disturbance in the data corresponds to a standing tree in the north-east corner of the field. On the northern edge of Field 3, a circular area of noise indicates debris surrounding a surviving World War II pillbox (MDR7874 DOBS10000138) (Fig 1).

The majority of Field 4 has been subjected to groundworks and consists of made ground (Figs 7 & 8). This is evident in the data. An area of noise on the eastern edge of the field correlates with a concentration of rubbish and indicates a mapped area of worked and made ground. An area was unsurveyable due to raised and overgrown ground that supports a pylon base. Cropmarks have been recorded on the south-western edge of the unsurveyable area (MDR2589) but the subsequent groundworks have removed them.

Two areas of modern litter and rutted ground on the eastern edge of Field 6 account for two small areas of noise in the data here (Figs 9 & 10).

On the eastern edge of Field 8, an area of worked ground has been mapped (Figs 2, 11 & 12). The survey data has recorded several small areas of magnetic/noise and disturbance on the eastern edge of the survey area. The eastern edge of the field was not surveyed as it was overgrown. Air photographs record a ring ditch (MDR2585) in this area close to the junction of natural and worked ground (Fig 1). The survey did not survey the entire area of the cropmarks but the groundworks may have removed them.

5.7 Ferrous objects (Figs 5-14)

The small magnetic dipoles which are scattered across the survey area will mostly have been caused by small pieces of ferrous debris within the topsoil.

6 CONCLUSION

The geophysical survey did not identify any significant archaeological features. Cropmarks have been recorded within the survey area in areas that are mapped as worked and/or made ground but are not surveyable. However, the ground works have probably since removed them. The survey was successful in recording features of modern origin.

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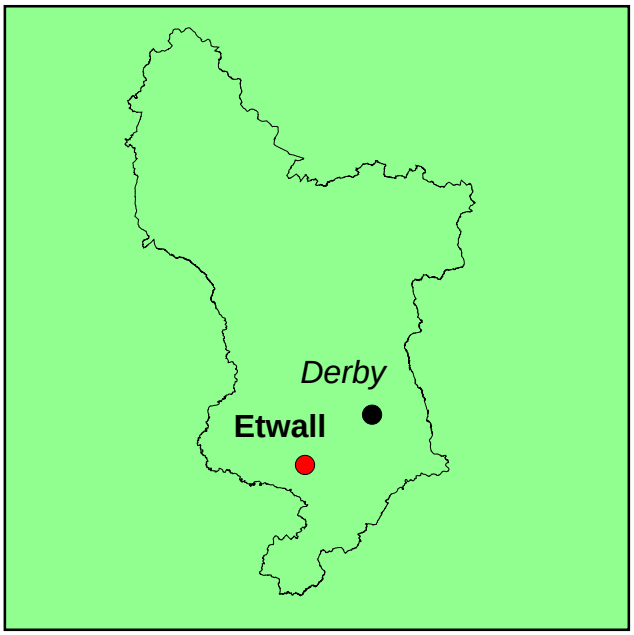
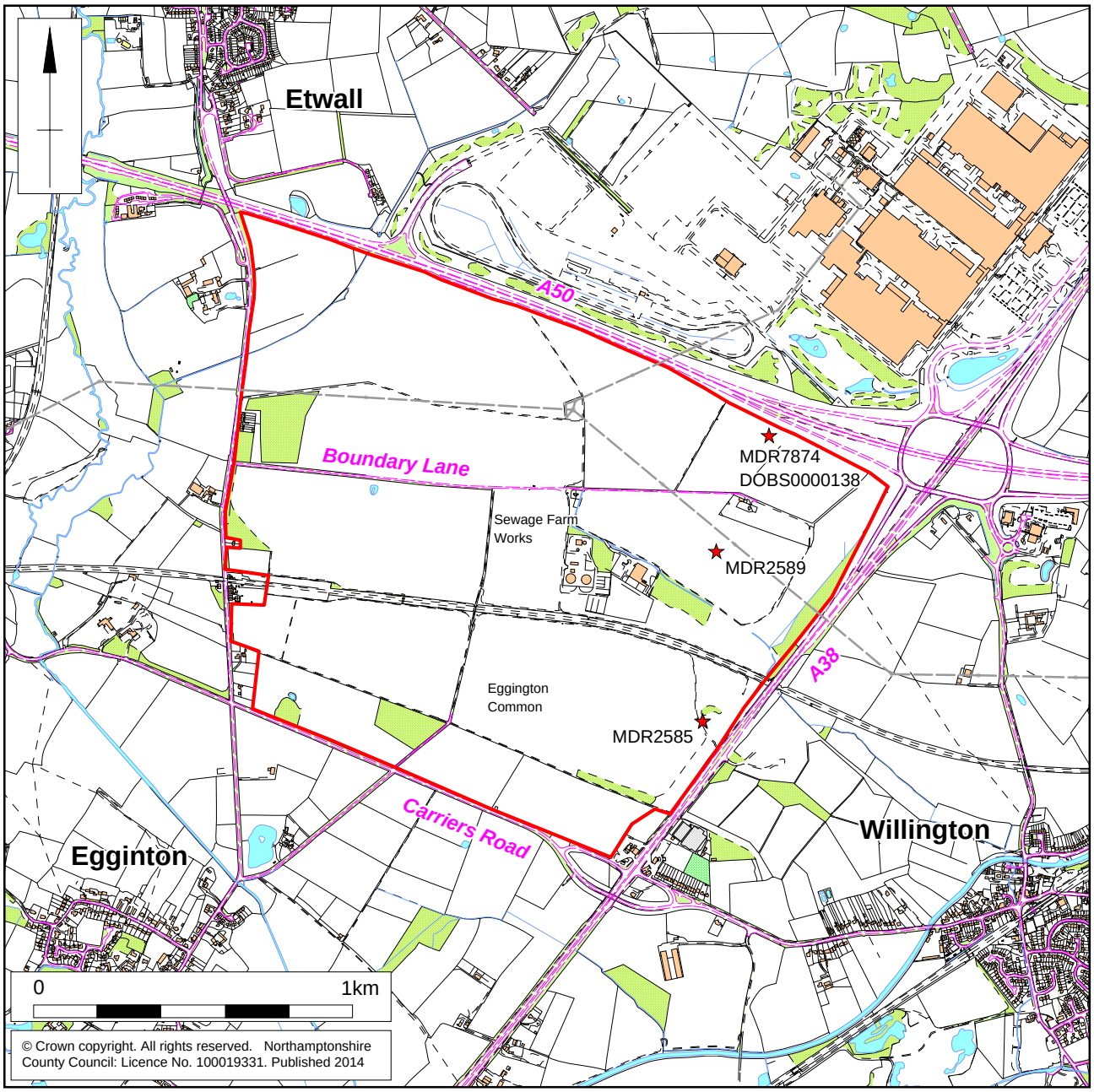
IfA 2011 *The Use of Geophysical Techniques in Archaeological Evaluations*, Institute for Archaeologists

Stephenson, A, 2014 *East Midlands Intermodal Park, Etwall, Derbyshire An Historic Environment Assessment January 2014,* Museum of London Archaeology

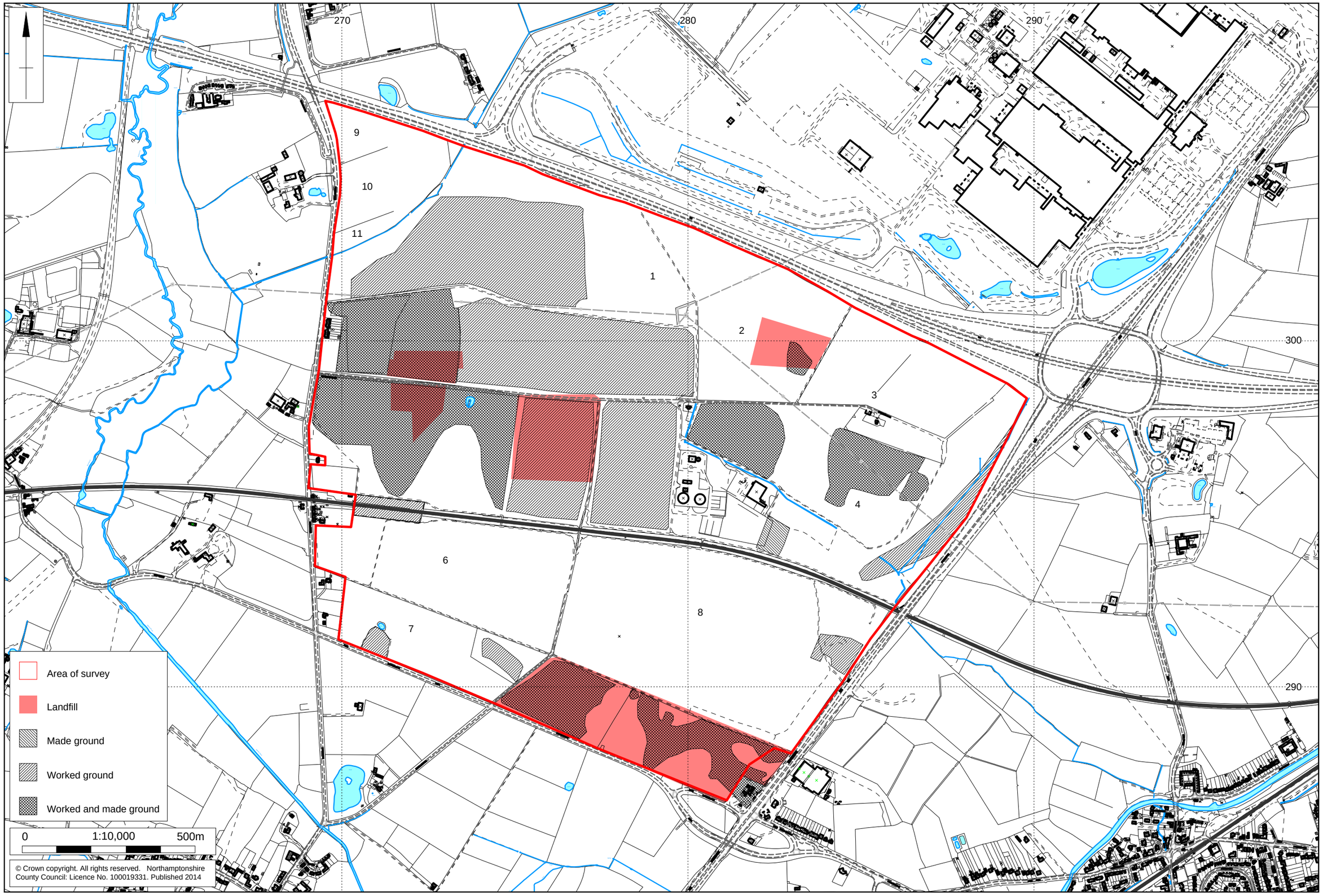
MOLA 14 February 2013





Scale 1:20,000

Site Location Fig 1



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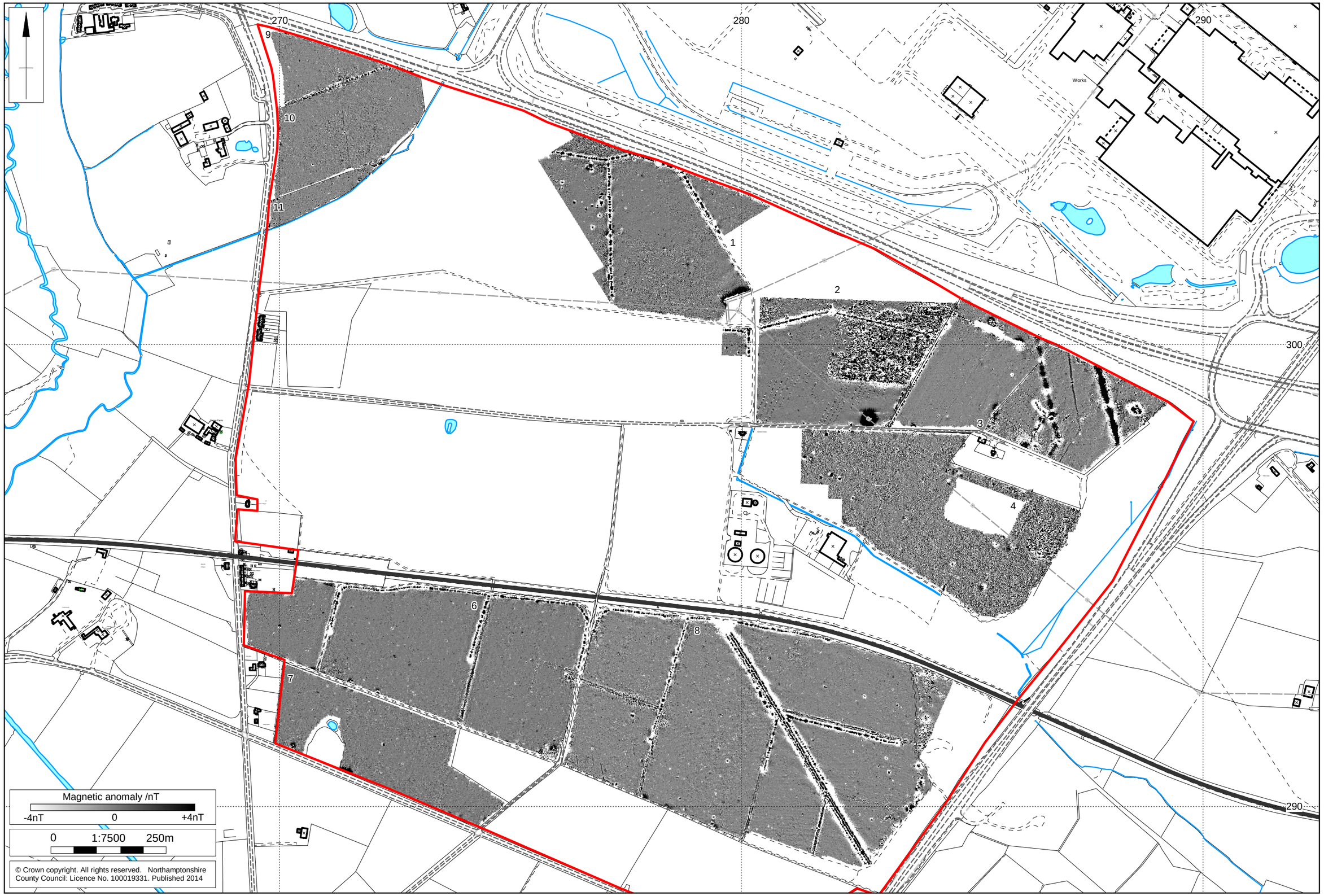
Extent of Previous Impacts Fig 2



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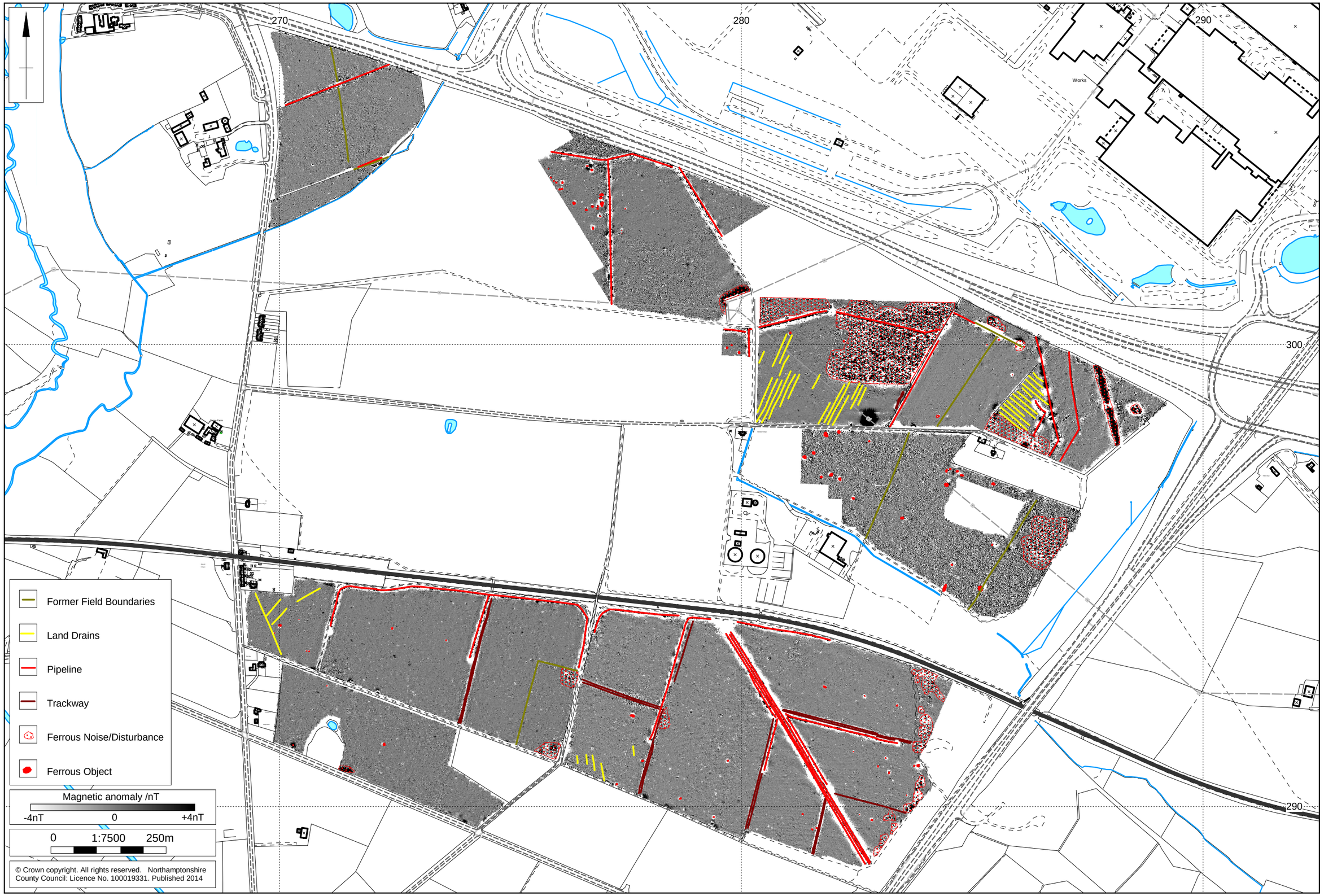
Etwall, Overall Geophysical Survey Results Fig 3



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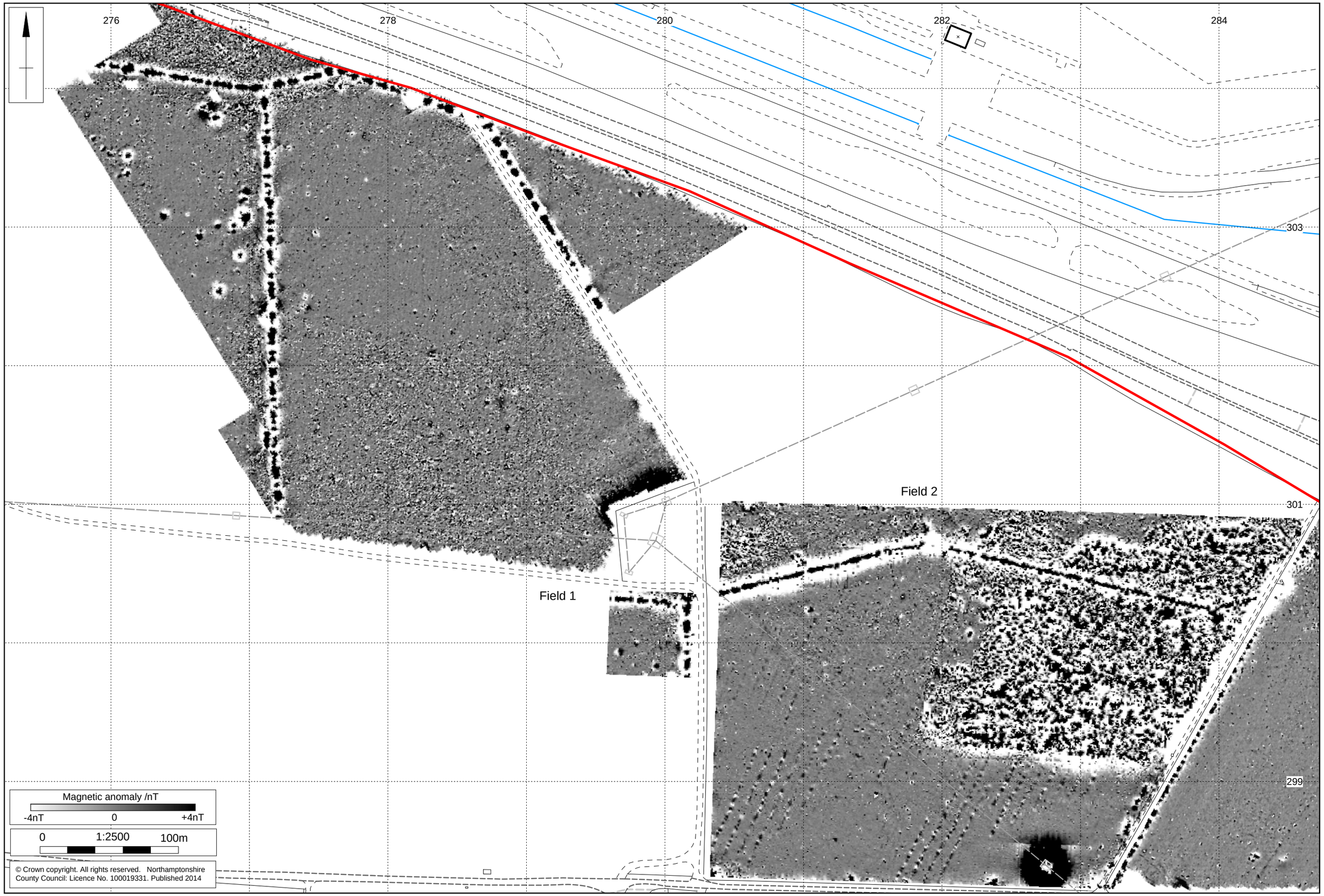
Etwall, Overall Geophysical Survey Interpretation Fig 4



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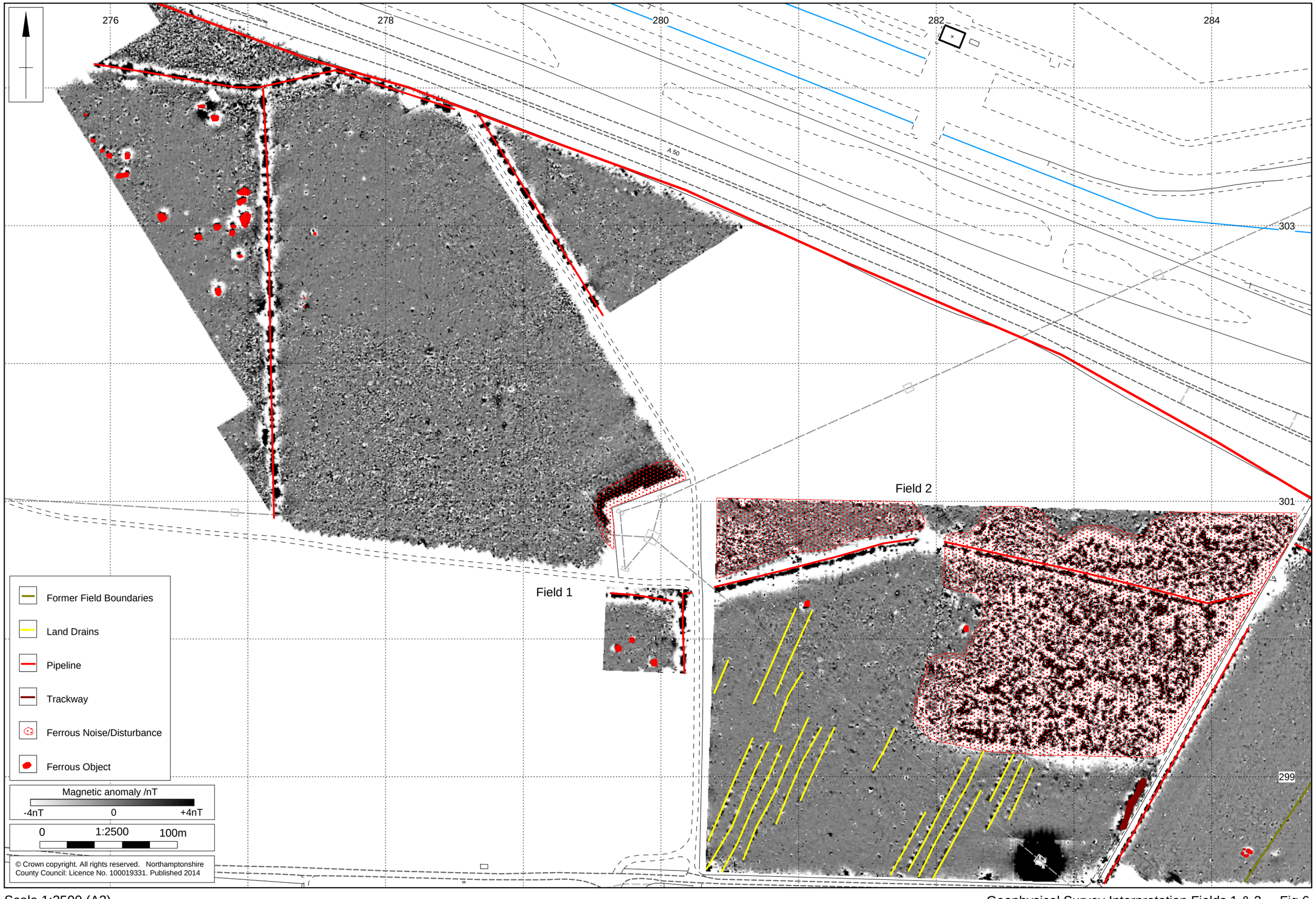
Geophysical Survey Results Fields 1 & 2 Fig 5



Scale 1:2500 (A3)

Geophysical Survey Interpretation Fields 1 & 2 Fig 6

281
283
285
287
289
299
297
295
Field 2
Field 3
Field 4
Magnetic anomaly /nT
-4nT 0 +4nT
0 1:2500 100m

Scale 1:2500 (A3)

Geophysical Survey Results Fields 3 & 4 Fig 7

281
283
285
287
289
299
297
295
Field 2
Field 3
Field 4
PB
Unsurveyable
BOUNDARY ROAD
A 50
A 38

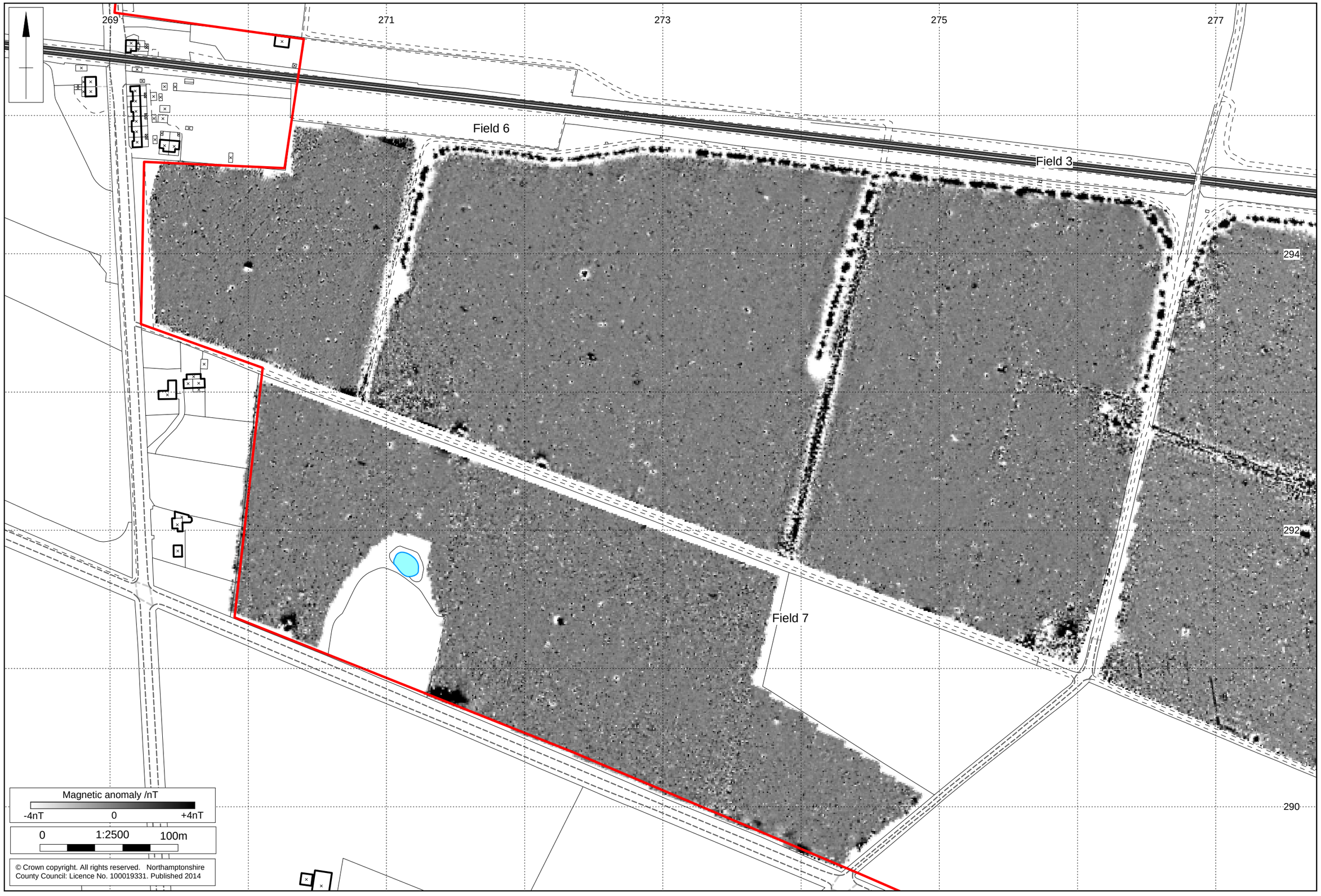
Former Field Boundaries
Land Drains
Pipeline
Trackway
Ferrous Noise/Disturbance
Ferrous Object
PB Pillbox

Magnetic anomaly /nT
-4nT 0 +4nT

0 1:2500 100m

Scale 1:2500 (A3)

Geophysical Survey Interpretation Fields 3 & 4 Fig 8



Scale 1:2500 (A3)

Geophysical Survey Results Fields 6 & 7 Fig 9

269
271
273
275
277
294
292
290
Field 6
Field 3
Field 7
Former Field Boundaries
Land Drains
Pipeline
Trackway
Ferrous Noise/Disturbance
Ferrous Object
Magnetic anomaly /nT
-4nT
0
+4nT
0
1:2500
100m

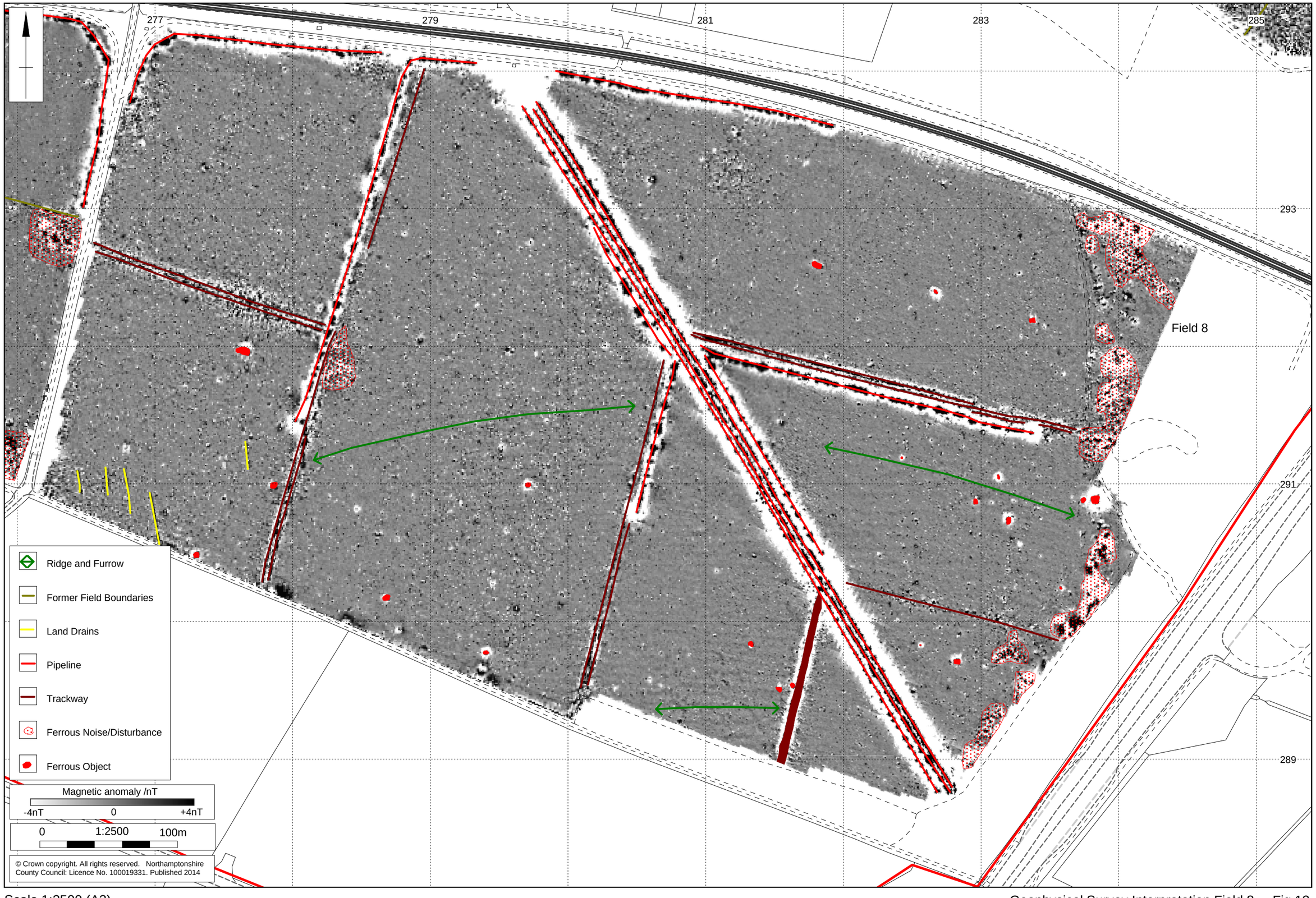
Scale 1:2500 (A3)

Geophysical Survey Interpretation Fields 6 & 7 Fig 10

277
279
281
283
285
293
291
289
Field 8
Magnetic anomaly /nT
-4nT 0 +4nT
0 1:2500 100m

Scale 1:2500 (A3)

Geophysical Survey Results Field 8 Fig 11



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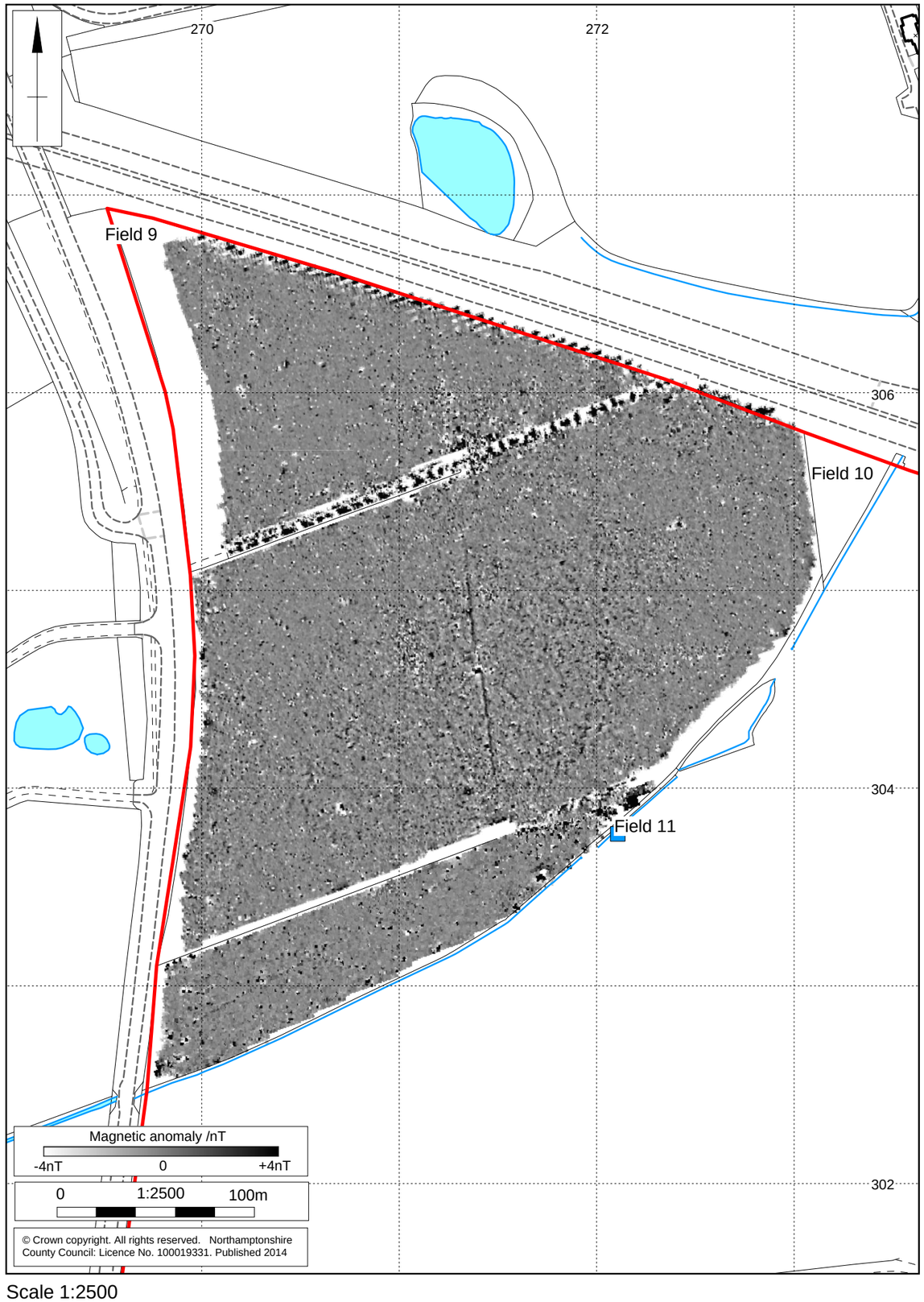
Geophysical Survey Interpretation Field 8 Fig 12



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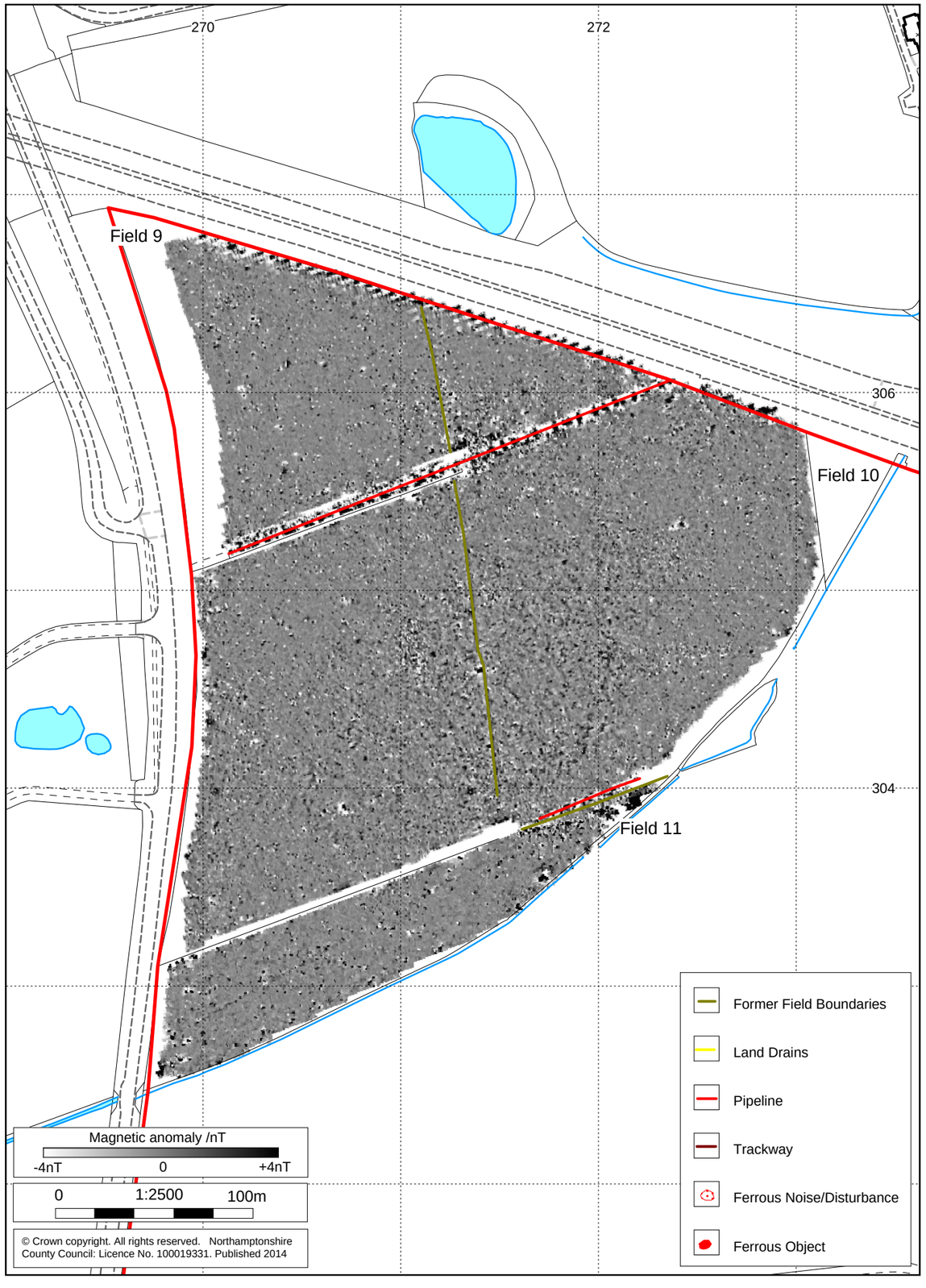

Geophysical Survey Results & Interpretation Fields 9, 10 & 11 Fig 13 & 14

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