

SITE REMEDIATION AND RESIDENTIAL DEVELOPMENT OF UP TO 500 DWELLINGS

ENVIRONMENTAL IMPACT ASSESSMENT: SCOPING REPORT

FORMER MONCKTON COKE AND CHEMICAL WORKS, LUND HILL LANE, ROYSTON, S71 4BD

ON BEHALF OF: MONCKTON DEVELOPMENTS LTD

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SECTION ONE – INTRODUCTION

1 INTRODUCTION

Overview

- 1.1 This Scoping Report has been prepared to accompany a formal Environmental Impact Assessment (EIA) Scoping Request to Barnsley Metropolitan Borough Council (BMBC) in relation to the proposed site remediation and development of up to 500 residential dwellings, at the former Monckton Coke and Chemical Works, Lund Hill Lane, Royston, S71 4BD.
- 1.2 The Scoping Request is made under Regulation 15 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The purpose of the Scoping Request is to seek a formal Scoping Opinion from Barnsley Metropolitan Borough Council on the information to be contained within an Environmental Statement (ES) to be prepared to form part of the forthcoming planning application for the proposed development.
- 1.3 The Scoping Report invites Barnsley Metropolitan Borough Council, statutory consultees, non-statutory consultees and other stakeholders and interested parties to provide input into the EIA process and comment upon the proposed content of the ES.
- 1.4 The proposed development site is approximately 16 hectares in extent and comprises the former Monckton Coke and Chemical works, which closed in December 2014. A plan showing the location of the site is illustrated in Figure 1 of Appendix 1.1. The centre of the site has an approximate grid reference of 437450,411950. A plan showing the current indicative site layout proposals is illustrated in Figure 2 of Appendix 1.1.

The Applicant - Monckton Developments Ltd

- 1.5 Monckton Developments Limited represents one of a number of joint ventures between two families, who operate and own long established and well-respected Yorkshire companies, between which there are obvious synergies that place them in an ideal position to be able to jointly re-develop historically contaminated land and brownfield sites. Monckton Developments Limited brings together the expertise and knowledge of the Hopkinson family, who own and operate David Hopkinson Limited, specialists in industrial plant hire and sales, but who also have considerable experience in developing brown field and industrial sites into residential, retail and industrial units mainly in the Yorkshire area over a number of years, and the Hague family, who own and operate MHH Contracting Limited, specialists in demolition, bulk earthworks, excavation, property development, remediation, aggregate supplies and waste recycling and reprocessing.

- 1.6 In conjunction with becoming site owners of the former Monckton Coke & Chemical site in Monckton, the families also acquired the former Maltby Colliery in Rotherham, part of which is now set to become a long-term base for international auctioneer, Ritchie Bros, after planning permission was unanimously approved recently. It is expected that this auction scheme will create approximately 30 full time jobs, which will increase to 70 on auction days, and will result in a £3.5m investment program, which will deliver important economic benefits to that local community.
- 1.7 Similarly, it is recognised by the families that this project represents an opportunity to remediate and redevelop a contaminated site for beneficial use with the intention that the delivering of up to 500 homes in a sustainable location will deliver important economic and social benefits to this local community, which is at the heart of the re-development work that the families are looking to achieve.

Consultant Team

- 1.8 Monckton Developments Ltd have appointed a team of specialist consultants to consider planning and environmental matters in relation to the proposed development and to provide input into the production of this Scoping Report.

Topic	Consultant
Planning and EIA	Pegasus Group
Ecology	Skyline Ecology
Transport	Met Engineers
Ground Conditions	Envestigate
Air Quality	SLR

- 1.9 The Scoping Report has been produced by Pegasus Group. Pegasus are registered to the EIA Quality Mark, a scheme operated by the Institute of Environmental Management and Assessment (IEMA) which allows consultancies that lead the co-ordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.

Structure of the Scoping Report

- 1.10 The remainder of this EIA Scoping Report is divided into a number of sections. These are as follows:

Section 2: The Environmental Impact Assessment (EIA) Process

A summary of the EIA process which will be undertaken

Section 3: Site and Project Overview

An overview of the site and the development proposals

Section 4: Planning Policy Context

A summary of the relevant planning policy relevant to the proposals

Section 5: Proposed Content of the Environmental Statement (ES)

An overview of the structure and format of the ES documents and a discussion of each of the Chapters to be considered in the ES

Section 6: Topics to be 'Scoped-out' and not included in the Environmental Statement (ES) Each environmental topic not to be considered in the ES is discussed in turn

2. THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

Overarching Legislation

- 2.1 The EIA process will be undertaken in accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, which are referred to in this document as the 'EIA Regulations'.

EIA Process Overview

- 2.2 The EIA process for the proposed development can be considered as having the following stages, each of which is discussed further in this section:
- Screening;
 - Scoping (as initiated by this document);
 - Baseline Studies;
 - Assessment of environmental effects and evaluation of significance; and
 - Production of the Environmental Statement.

Screening

- 2.3 The proposed development lies within Part 10(b) of Schedule 2 of the EIA Regulations, '*Urban development projects*'. A formal EIA Screening Opinion was not sought from Barnsley Metropolitan Borough Council, as a review of the indicative thresholds and criteria for such developments identified that the proposals would comprise EIA development and an ES would be required to be submitted as part of the planning application.

Scoping

- 2.4 There is no formal requirement to undertake consultation on information to be contained within the ES, however, the EIA Regulations provide for obtaining a Scoping Opinion from the Local Planning Authority regarding the potential environmental impacts that should be considered in the EIA (Regulation 15). The purpose of this Scoping Report is to accompany the request for such a Scoping Opinion.
- 2.5 Regulation 15 requires that a Request for a Scoping Opinion shall include the following:
- a plan sufficient to identify the land;
 - a brief description of the nature and purpose of the development, including its location and technical capacity;
 - an explanation of the likely significant effects of the development on the environment; and
 - such other information or representations as the person making the request may wish to provide or make;

- 2.6 This Scoping Report includes a plan identifying the location of the site in the sub regional context (Figure 1 of Appendix 1.1). It also includes a brief description of the site, the proposal and of its possible effects on the environment, as required under this Regulation.

Baseline Studies

- 2.7 In the case of many of the environmental topics which will be covered in the ES, or which it is proposed to scope-out of the ES, baseline studies have already been undertaken, and details of this work can be found in the discussion of each environmental topic presented subsequently in this Report. Baseline conditions are established within each of the individual environmental assessments through the use of a number of sources including:

- desk top review of existing available data;
- site specific survey work; and
- consultation.

Assessment of Environmental Effects and Evaluation of Significance

- 2.8 The EIA Regulations require that the ES identifies 'likely significant effects of the life extension proposal on the environment'. It is recognised in the EIA Regulations however that not all environmental effects are significant.
- 2.9 The evaluation and determination of significant effects will be carried out using specific criteria defined within each of the technical chapters of the ES. Where available, published standards and guidelines will be used as the basis for the significance criteria.
- 2.10 The proposed methodologies for individual environmental topics are discussed in the subsequent section. However, the basic approach is the same for all environmental topics and is set out below:
- The sensitivity of the receiving environmental receptor is evaluated using defined criteria.
 - The nature of the impact is established in terms of its duration, extent, frequency, likelihood of occurrence, reversibility, and compliance with recognised standards;
 - The magnitude of the impact is determined. The magnitude of change is a consideration of how much the impact alters the baseline condition.
 - The significance of the effect is determined by cross referencing the sensitivity of the receptor with the magnitude of change on the receptor.

Nature and Type of Effects

- 2.11 It should be noted that environmental effects may be positive or negative and this will be noted in the ES. Effects will be considered both during the

construction phase, when the development is being built (temporary effects) and following completion of the development (permanent effects).

Cumulative Effects

- 2.12 Where applicable, the ES will have due regard for potential cumulative effects in line with the 'Information for inclusion in environmental statements' set out in Schedule 4 of the EIA Regulations.

3. SITE AND PROJECT OVERVIEW

Site Location

- 3.1 The Site is previously developed land within the settlement boundary of the Principal Town of Royston. The Site is approximately 16 ha and comprises the former Monckton Coke and Chemical works, which closed in December 2014. Since its closure, the former structures associated with the operation of the coke and chemical plant at the Site have been largely demolished and we understand that it has been remediated to the condition it was in prior to 2002 when an Environmental Permit was issued to operate the facility. The permit has since been surrendered following a successful application made to the EA by the Site's previous owner.
- 3.2 The Site comprises two parcels of land separated by the railway line; the larger 15 ha parcel to the east of the railway line and a smaller 1 ha parcel to the west.
- 3.3 The larger parcel comprises the former Monckton Coke and Chemical works and is bounded by Lund Hill Lane to the east and south. A railway line and the disused Barnsley Canal is located to the west. The Trans Pennine Trail follows the line of the Barnsley Canal. To the north there are a small number of residential dwellings, with open countryside beyond. Existing vegetation is predominantly located at the Site boundaries, though there is also a large area of mature vegetation to the southern section of the large parcel.
- 3.4 The smaller parcel is undeveloped land bounded by Lund Hill Lane to the south, the railway line to the east and residential properties to the west.
- 3.5 It is understood from pre-application enquiries that there is Yorkshire Water sewerage asset recorded crossing the site from the adjacent YW sewage works, that has a discharge outfall to the local watercourse (Barnsley Canal) that is adjacent to the development site.
- 3.6 A small industrial estate lies to the east off Lund Hill Lane. Rabbit Ings Country Park (formerly used as the spoil heap) wraps around the industrial estate and abuts Lund Hill Lane. It was formed on the Site of the former colliery yard and spoil heap of the Monckton Colliery and then the Royston drift Mine which closed in 1989. It now provides a recreational facility.
- 3.7 It is a large Site that can deliver up to 500 homes in a sustainable location, 2km to the east of the town centre with bus stops immediately adjacent to the Site offering an hourly service to Barnsley and Wakefield.
- 3.8 A plan showing the location of the site is illustrated in Figure 1 of Appendix 1.1.

Site History

Main Site

Year	Description
1854	The site and surrounding land are shown as undeveloped agricultural land. A railway is present in its current location and the Barnsley Canal is shown.
1874	Monckton Main Coal Colliery Limited is established.
1875	A 'Clay Mill' was established and sinking operations associated with two shafts started, completed in 1878.
1879	Twelve beehive ovens were established.
1884	The by-products plant and ten ovens were established.
1886	Erection of gas plant occurs.
1893	Monckton Main Colliery occupies the northern part of the site, comprising coke ovens, shafts and railway tracks. A gasworks is located to the southwest of the site (described as being in the location of the current effluent storage tanks). A mineral railway is present in the east of the site which runs to the northeast corner of the site. Two powder magazines are noted in the central portion of the site. A small old quarry is located in the south east part of the site. Deposited colliery spoil is marked in the north of the site and waste materials have been tipped in the area of the current By-Products area. The southern end of the site is shown as containing terraced housing and a Methodist Church. At this time the western parcel of land is shown as a Spoil Heap and is connected to the Main site by a railway line. Spoil is also shown as having been tipped across much of the low-lying area in the west of the site.
1906	Monckton Main colliery has expanded within the northern part of the subject site. Additional coke ovens and rail lines have been developed with filter beds (in two locations close to the railway), above ground tanks and a waste spoil heap also present. The powder magazines are no longer shown. The gas purification area is now occupied by a gasometer and spoil heaps. The northeastern area is no longer shown as a brick works, although kilns are still present. Offsite, the western parcel of land shows a single gasholder.
1917-18	The coke ovens are shown in their current location, with a number of features in the by-products area labelled as tanks. A railway line indicated on earlier plans is shown as running within a tunnel. In addition to the two mine shafts a third air shaft is shown close to the centre of the site. The gasworks is no longer shown on the site, or on the western parcel of land.
1932-33	Spoil heaps are shown associated with the onsite colliery, which extend offsite to the east, onto the Rabbit Ings site and to the north. Two circular features are shown on the southern part of the western parcel of land.

Year	Description
1962	The northern part of the site is labelled as a mine, with a large building with railway track connections located on the northern boundary. This is linked to the Works in the centre of the site. Water tanks are shown on this plan, consistent with the location of the existing Quench ponds in the North West. The mine appears connected with buildings to the East of Lund Hill Lane. The western parcel of land has become annotated as Works also. Distinct areas of tipping have expanded into the neighbouring land to the north and east.
1970	The Benzole Rectification Plant closed and demolished, and shafts infilled and concrete capped.
1980	The Biological Effluent Treatment Plant is constructed.
1981	The site has been rationalised, with a number of buildings and railway lines associated with the mine no longer apparent. The mine itself is listed as disused. Residential properties in the south are no longer present. Spoil heaps offsite, to the north are now labelled as active workings and land to the east of Lund Hill Lane is now shown as a drift mine.
1990	The number of structures on the site is shown to decrease, with buildings in the north of the site shown to have been removed.
1994	The railway lines have been removed from the site.
2006	The office block and CHP plant (built 1998) are shown in their current configuration. Offsite spoil heaps are now shown as wooded or parkland and the drift mine is no longer shown.
2014 onwards	The site is largely in its current configuration, with demolition and stockpiling of materials from the coke ovens.

Western Site

Year	Description
1854	The site and surrounding land are shown as undeveloped agricultural land. A railway is present in its current location and the Barnsley Canal is shown.
1874	Monckton Main Coal Colliery Limited is established to the east of the site.
1893	At this time the site is shown as a Spoil Heap and is connected to the neighbouring Monckton Coke and Colliery Site by a railway line. Spoil is also shown as having been tipped across much of the low-lying area on the of the site and to the north. Monckton Main Colliery is shown east of the site, comprising coke ovens, shafts, railway tracks and a gasworks.
1906	The site is now occupied by a gasometer and spoil heaps, located in the south of the site.
1917-18	The gasworks is no longer shown on the site.
1932-33	Two circular features are shown on the southern part of the site.
1962	The site land has become annotated as 'Works'.
2000+	Plans from the year 2000 onward show the site in its current demolished configuration.

Project Description

- 3.9 The proposed development comprises: Remediation and redevelopment of the site to include up to 500 residential units (use class C3), along with any ancillary parking, amenity, and all other associated public, semi public and private realm, soft/hard landscaping, infrastructure and highways works, access and a new internal road network connecting with the existing road network. Consideration is being given to the need for services and facilities, of a local nature, within the proposed development.

Public Open Space / Landscaping

- 3.10 The intention is to retain existing trees and green corridors where possible, around the periphery and within the southern-most part of the site. A masterplanned landscaping scheme will be developed in conjunction with the site layout. A number of areas of public open space and amenity areas will be included within the layout. Sustainable Drainage Systems (SuDS) will be incorporated into the development with attenuation pods provided within some of the open spaces and green corridors.

Access

- 3.11 The large parcel to the east of the railway line will be accessed off Lund Hill Lane, utilising the existing access point. Routes within the site will provide circulation for pedestrians and vehicles and will link the residential parcels, enabling pedestrian and cycle movements throughout the site and to the surrounding area.
- 3.12 The small parcel to the west of the railway line will also be accessed off Lund Hill Lane utilising the existing access point.

Remediation

- 3.13 Remediation of the site is required in order to enable it to be brought back into beneficial use. The development is intended to result in the decontamination and remediation of the site.
- 3.14 A plan showing the current indicative site layout proposals is illustrated in Figure 2 of Appendix 1.1.

PREVIOUS SCHEME

- 3.15 It is acknowledged that a previous scheme had been progressed at the site. The previous scheme, which progressed to the pre-application stage but was not submitted for permission comprised a mixed-use development with residential and commercial elements together with open space and landscaping. The residential element comprised up to 270 dwellings. The commercial element comprised the erection of five new office buildings, providing up to 2,271 sqm of B1a floorspace. The residential element was to utilise the existing northmost

access off Lund Hill Lane and the commercial element was to utilise the southernmost access off Lund Hill Lane.

Differences between Previous and New Scheme

3.16 The principal differences between the previous and new scheme are:

- *The increase in residential development from up to 270 dwellings to up to 500 dwellings*
- *The removal of the commercial element*
- *Small parcel to the west of the railway line*

3.17 The red line has also changed to:

- *Remove the Hargreaves Production site, and*
- *Incorporate the small parcel to the west of the railway line*

4 PLANNING POLICY CONTEXT

Introduction

- 4.1 The relevant development plan policy framework comprises of the recently adopted Barnsley Local Plan (2019) and the Barnsley, Doncaster and Rotherham Joint Waste Plan (adopted March 2012).
- 4.2 The housing requirement is for at least 21,546 net additional homes during the period 2014 to 2033, which equates to 1,134 dwellings per annum. The plan identifies Royston as a Principal Town, a second tier settlement within the settlement hierarchy. The Local Plan identifies a requirement for 1,302 homes in Royston in the plan period and accepts that some sites will come forward as windfall sites.
- 4.3 The principal policy relating to this development is Policy H5, which allows for residential development on large unallocated sites that are:
- *On previously or part previously developed land;*
 - *Are located within Urban Barnsley, Principal Towns and Villages;*
 - *Are accessible by public transport; and*
 - *Have good access to a range of shops and services.*

Relevant Policies

- 4.4 The National Planning Policy Framework (NPPF) is a material consideration in planning decisions. Planning Practice Guidance (PPG) is a live, online document that provides further guidance in relation to certain issues raised in the NPPF.
- 4.5 The relevant policies from the Local Plan are listed below:
- Policy SD1 Presumption in Favour of Sustainable Development
 - Policy GD1 General Development
 - Policy LG2 The Location of Growth
 - Policy E4 Protecting Existing Employment Land
 - Policy H1 The Number of New Homes to be Built
 - Policy H2 The Distribution of New Homes
 - Policy H5 Residential Development on Large Non-allocated Sites
 - Policy H6 Housing Mix and Efficient Use of Land
 - Policy H7 Affordable Housing
 - Policy T3 New Development and Sustainable Travel
 - Policy T4 New Development and Transport Safety
 - Policy D1 High Quality Design and Place Making
 - Policy LC1 Landscape Character

- Policy GS1 Green Spaces
- Policy GS2 Green Ways and Public Rights of Way
- Policy BIO1 Biodiversity and Geodiversity
- Policy GB1 Protecting Green Belt Land
- Policy CC1 Climate Change
- Policy CC2 Sustainable Design and Construction
- Policy CC3 Flood Risk
- Policy CC4 Sustainable Drainage Systems (SuDS)
- Policy RE1 Low Carbon and Renewable Energy
- Policy CL1 Contaminated and Unstable Land
- Policy POLL1 Pollution Control and Protection
- Policy I1 Infrastructure and Planning Obligations

Supplementary Planning Documents

4.6 The following SPDs are a material consideration in determining the planning application:

- Affordable Housing SPD (adopted May 2019)
- Biodiversity and Geodiversity SPD (adopted May 2019)
- Design of Housing Development SPD (adopted May 2019)
- Financial Contributions to Schools SPD (adopted May 2019)
- Open Space Provision on New Housing Developments SPD (adopted May 2019)
- Parking SPD (adopted March 2012)
- Residential Amenity and the Siting of Buildings SPD (adopted May 2019)
- Trees and Hedgerows SPD (adopted May 2019)

Other Guidance and Documents

4.7 Other guidance and documents considered relevant given the context of the site and the proposed development are:

- South Yorkshire Residential Design Guide (January 2011)
- Barnsley Borough Landscape Character Assessment (May 2002 and updated 2016)

SECTION TWO - PROPOSED CONTENT OF ENVIRONMENTAL STATEMENT

5 INTRODUCTION

- 5.1 This section of the Scoping Report sets out the proposed content of the Environmental Statement (ES). It includes details of each of the individual Chapters which are to be included in the ES, and confirms the legislative requirements which the ES is required to fulfil.

Legislative Requirements

- 5.2 Schedule 4 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 '*Information for inclusion in environmental statements*' requires that an Environmental Statement should include at least the following information:

Part 1:

'A description of the development' - including information on the location of the development site, the physical characteristics of the development,

Part 2:

'A description of the reasonable alternatives studied by the developer' – for example with regard to development design, technology, location, size and scale

Part 3:

'A description of the relevant aspects of the current state of the environment (baseline scenario)'- including how the baseline might evolve if there development were not to proceed

Part 4:

'A description of the factors specified in regulation 4(2) likely to be significantly affected by the development' – including with regard to population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape

Part 5:

'A description of the likely significant effects of the development on the environment' - including with regard to: construction and/or demolition works, the use of natural resources, emission of pollutants and the disposal of waste, the potential for accidents, cumulative effects with other developments, vulnerability with respect to climate change and the technologies and materials to be used.

The description of the likely significant effects should cover 'direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development'

Part 6:

'A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment' - including with regard to: technical deficiencies or lack of knowledge encountered compiling the required information and the main uncertainties involved.

Part 7:

'A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment' - including where appropriate with regard to: any proposed monitoring arrangements (for example the preparation of a post-project analysis).

The description should explain the **'extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset'**, and should cover both the construction and operational phases.

Part 8:

'A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned'. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.

Part 9:

'A non-technical summary of the information provided under paragraphs 1 to 8'.

Part 10:

'A reference list detailing the sources used for the descriptions and assessments included in the environmental statement'.

Proposed Structure of the Environmental Statement

- 5.3 The Environmental Statement (ES) will report the findings of the EIA. The ES will include a separate Non-Technical Summary (NTS) document which will provide a simple summary of the key information presented in the Environmental Statement in a non-technical manner.
- 5.4 It is proposed that the ES will be structured to include a number of introductory chapters followed by a series of technical assessment chapters with regard to the following topics, as follows in Table 5.1:

Table 5.1: Proposed ES Chapters

ES Chapter	Title
1	Introduction
2	Environmental Impact Assessment Process
3	Site and Project Description
4	Consideration of Alternatives
5	Planning Policy Context
6	Ecology
7	Transport
8	Ground Conditions
9	Air Quality

- 5.5 Each of these proposed chapters is discussed in more detail in turn in subsequent sections of the Scoping Report.

6 ES INTRODUCTORY CHAPTERS

Introduction Chapter

- 6.1 This Chapter will provide an introduction to the Environmental Statement. It will set out a brief overview of the site, the proposed development and the environmental topics which have been considered as part of the EIA and which are reported in the ES. It will summarise the consultant team responsible for its production and explain how consultees and members of the public can comment on the document or obtain additional copies of the ES.

Environmental Impact Assessment Process Chapter

- 6.2 This Chapter will provide an overview of the legalisation and regulations which cover EIA in England and describe the stages in the EIA process which have resulted in the production of the final ES. This chapter will include a description of the Screening and Scoping exercise and a summary of the consultation which has taken place during the EIA.
- 6.3 The chapter will explain how significant effects are defined and provide a framework within which significant effects have been determined for individual environmental topics. It will provide definitions for the key terminology used throughout the ES.
- 6.4 The chapter will explain how environmental effects may be adverse or beneficial, temporary or permanent. It will also explain how potential cumulative effects have been handled in the ES.

Site and Project Description Chapter

- 6.5 A full description of the site and proposed development shall be set out.

Consideration of Alternatives Chapter

- 6.6 It is a requirement of the Town and Country Planning EIA Regulations that an ES must include '**A description of the reasonable alternatives studied by the developer**' for example with regard to development design, technology, location, size and scale. This chapter will describe the decision-making process which has resulted in the proposed development.

Planning Policy Context Chapter

- 6.7 This chapter shall identify all the relevant planning policy against which the various environmental topics addressed in the ES will be considered. Policy will be identified at the national, regional and local level as appropriate.

7 ECOLOGY

Introduction

- 7.1 The Ecology Chapter will be prepared by Paul Howden-Leach MCIEEM of Skyline Ecology. Paul has been a professional ecologist for 20 years and has been involved in a number of large multi-phase housing schemes throughout the country as well as being an advisor on large infrastructure projects. Paul is a specialist in bats and amphibians and holds both species and development licences for these animals.

Description of Potential Effects

Impacts on Habitats

- 7.2 **Habitat Loss** – The loss of green habitats around the site will be seen as a biodiversity negative and therefore will not comply with current guidance set out within the local plan. In addition, three habitats recorded on site: ponds, hedgerows and open mosaic habitats on previously developed land, are included within both the national and local Biodiversity Action Plans (BAPs). It may be necessary to provide some of these habitats within the final design as compensation.
- 7.3 **Designated Sites** – At present the data search from Barnsley Council has not been received due to a GIS issue within their internal system. No comment can be made on designated sites and likely impacts at this stage.
- 7.4 **Grassland** – Due to the time of year the Phase 1 habitat survey took place it is not possible to gain a full understanding of the grassland on site. It is likely that some of these grasslands are acidic in nature and therefore may fall within the UK and Barnsley BAPs, further assessment of these can only take place during the spring.
- 7.5 **Ponds** – Three ponds have been recorded on site. Ponds form part of the local and national BAPs and therefore are of importance within the site. In addition, these water bodies may provide habitat for protected species such as grass snake and great crested newts.

Impacts on Protected Species

- 7.6 **Great crested newts** – Great crested newts have previously been recorded on site therefore, should they be found during construction, offences would occur under current UK and European legislation. It may be necessary to provide alternative suitable habitat for this species within the proposed development.
- 7.7 **Reptiles (grass snake)** – Grass snakes have previously been recorded on site therefore, should they be found during construction, offences would occur under current UK and European legislation. It may be necessary to provide alternative

suitable habitat for this species within the proposed development or offer an adjacent receptor site.

- 7.8 **Bats** – The current status of bats within the study site is unknown, however impacts could include the loss of feeding and commuting routes as well as loss of a potential bat roost from one of the buildings which would contravene current legislation and guidance. Mitigation through strategic light and planning schemes as well as roost creation may be necessary.
- 7.9 **Breeding Birds** – Barn owl was recorded during the Phase 1 habitat survey, and kestrel has been recorded nesting on the site in the past. In addition, birds such as Peregrine are thought to be within the area, some of the buildings are thought to make suitable nesting sites for this species. Furthermore, nesting birds which are associated with the vegetated areas are likely to be impacted. It is unclear at present what these impacts are likely to be without further survey.
- 7.10 **Badgers** – To date no badger setts have been found on or adjacent to the site and are therefore unlikely to be affected by the current proposed development. However, badgers are highly mobile animals and may colonise a site at any time.

Summary of Baseline Work Completed to Date

- 7.11 To date a Phase 1 habitat survey and updated data search has been carried out for the study site. The Phase 1 habitat survey also includes an initial assessment for bats within buildings, an assessment of ponds to support great crested newts and the identification of invasive plant species such as Japanese knotweed. The work has only recently been carried out and a report cannot be completed until the local biological records centre releases the data search information.

Assessment of Buildings to support roosting bats

- 7.12 The majority of the buildings and trees have limited potential to support roosting bats. Only one building has been identified as having low potential on one aspect only.

Assessment of site to support commuting and foraging bats

- 7.13 The majority of features associated with commuting or foraging bats are associated with the boundaries of the site as well as the southern section, which has potential as a foraging area. The site has therefore been categorised as having moderate suitability habitat for bats.

Reptiles

- 7.14 The site has high potential to support reptiles, results from previous survey work found reptiles on site in 2013 and additional records for grass snake 65m to the west of the study site. These reports have been completed for a previous scheme, date back to 2013 and 2015 and are now out of date.

Breeding birds

- 7.15 During the Phase 1 habitat survey barn owls were recorded within one of the buildings. Also, previous surveys suggest that kestrels are also using the site for breeding. The edge boundary, building and wooded southern parts of the study site all have high potential to support breeding birds. To date no formal assessment has been undertaken of these species.

Great Crested Newts

- 7.16 Previous surveys undertaken in 2013 identified great crested newts using the site. Further surveys in 2015, stated that they were not present. Overall, the site has high potential to support great crested newts terrestrially and has good potential to support them aquatically within the three ponds identified on site.

Badgers

- 7.17 No evidence of badger was recorded on the site and therefore it is unlikely that there will be an impact on badgers. Neither of the previous phase 1 habitat surveys found badgers on site.

Japanese Knotweed

- 7.18 A single stand of Japanese knotweed was recorded just outside the boundary of the study site. Although not directly relevant, its location is within 5 metres of the south west boundary of the site and may require active management to ensure it does not spread onto the site.

Overview of Approach and Methodology for Production of ES Chapter

- 7.19 Prior to the completion of an ES chapter further survey work will need to be undertaken to identify the presence/absence of protected species to inform potential mitigation and compensation within the site. Since the survey work previously completed for part of the site was undertaken, new guidance has been published on the level and methodology of survey effort required. Below is a breakdown of surveys and consultation meetings required in 2020.

Consultations

- 7.21 Further consultations may be necessary with Natural England and the local authority depending on the outcome of the further survey works, listed below.

Further survey

- 7.22 ***Bat survey of building*** – One building has been identified as having low potential to support roosting bats. Under current guidance a single dusk or dawn survey is required on this building to establish the presence/absence of bats.
- 7.23 ***Bat activity survey of the study site*** – Under guidance brought out by the Bat Conservation Trust in 2016 the site will need to be assessed throughout 2020 for its current usage by bats. This will involve surveys being undertaken from April to

October by suitably qualified ecologists as well as the installation of remote data loggers to gauge current usage.

- 7.24 **Breeding Bird Survey** - A Breeding Bird Survey should be undertaken during the spring (March to June) to identify the species assemblage within the study site. Also, to assess the likelihood of schedule 1 or BAP species being present such as barn owl, kestrel and peregrine falcon.
- 7.25 **Winter bird Survey** – The requirement for a breeding bird survey will be confirmed during the consultation process.
- 7.26 **Great Crested Newts** - An updated great crested newt survey will be required prior to submission to identify presence/absence of great crested newts on and around the site. All ponds within 250 metres should be surveyed. Permission will need to be secured from local landowners prior to the commencement of these surveys. This survey work should be undertaken between March and June 2020.
- 7.27 **Breeding Bird Survey** - An updated reptile survey is recommended for the site. The survey should try and establish reptile populations within and around the study site so a mitigation and compensation strategy can be included within the application.

Significance Criteria to be used

- 7.28 The EcIA will be undertaken with reference to published guidance, including the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (2018).
- 7.29 Baseline conditions will be described, including a summary of legislation/ policy relevant to the baseline conditions, and subsequently the assessment will include avoidance and mitigation measures that are embedded within the design, or in inherent construction methods.
- 7.30 Features of ecological value within or near the site that may be impacted by the proposed development will be identified based on the results of the baseline surveys. The values of the identified ecological receptors will be assessed and classified according to the following scale:
- International
 - United Kingdom (UK)
 - National (i.e., England/Northern Ireland/Scotland/Wales)
 - Regional
 - County
 - District (or Unitary Authority, City or Borough)
 - Local (or Parish)
 - Site (within immediate zone of influence only)
- 7.31 Where possible, formal criteria will be used to set features of conservation importance within this geographical hierarchy. For example, the Guidelines for the Selection of Biological Sites of Special Scientific Interest (SSSIs) (Nature

Conservancy Council, 1989) will be used where appropriate to assess features at the national level.

- 7.32 In order to assess the impact significance of the proposed development on the identified receptors, the characteristics of each identified impact at the construction, operational and decommissioning stages will be described using the following:
- Direction (positive, negative or neutral impact);
 - Magnitude (the amount or level of impact);
 - Extent (area in hectares, linear metres);
 - Duration (in time or related to species life-cycles);
 - Reversibility (permanent or temporary impact);
 - Timing and frequency (e.g. related to breeding seasons); and
 - Cumulative impacts (from a number of different sources).
- 7.33 CIEEM guidance states that impacts should be determined as being significant when they have an adverse or positive effect “on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area”. The integrity of a site or ecosystem is defined as “the coherence of its 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”.
- 7.34 The concept of ‘conservation status’ is used to determine the significance of ecological impacts on a habitat or species. Conservation status is determined by the sum of the influences acting on the habitat and/or species that may affect its long-term distribution, structure, abundance and functions within a given geographical area. Identified impacts may be significant at the level of importance defined for the receptor, or at a lesser geographical scale. For example, limited impacts on woodland of County value might be assessed as being significant at a District level.
- 7.35 Using this information together with professional judgment, it will be determined whether the effects will be significant or not for the integrity (of site/ecosystems) or conservation status (of habitats/species) of each ecological feature.
- 7.36 The impact significance will be determined at the appropriate geographical scale. Neutral impacts have no level of significance applied to them. In summary, therefore, impacts are assigned to one of three possible significance ‘options’:
- Adverse impact, significant at [geographical, e.g. SITE] level
 - Neutral impact
 - Positive impact, significant at [geographical, e.g. SITE] level

8 TRANSPORT

Introduction

- 8.1 Met Engineers Ltd have been appointed by Monckton Developments Ltd to prepare the Transport chapter of the Environmental Statement (ES), and other related transport services for a proposed residential development and associated parking and landscaping on land at the former Monckton Coke & Chemical works site off Lund Hill Lane, Royston, S71 4BD.
- 8.2 This chapter of the ES report is to be prepared by Tom Lyons B. Eng, Pr. Eng, MSAICE, MoRSA, who has over 30 years' experience in preparing transport related reports for various development types, including residential.

Description of Potential Effects

- 8.3 The proposed development will generate new traffic levels which will have an impact on the surrounding highway network, safety, air and noise quality.

Summary of Baseline Work Completed to Date

- 8.4 Works undertaken to date are detailed in the Transport Assessment Scoping Report Appendix included as Appendix 8.1 to this document.
- 8.5 Met Engineers Ltd have been in contact with Jason Thomas, Highway Officer at Barnsley MBC, to inform him that we will making a submission on the subject site in due course and wish to agree the transport scoping requirements at the appropriate time. Indeed, the Transport Assessment Scoping Report has already been submitted in advance our to Jason Thomas.

Overview of Approach and Methodology for Production of ES Chapter

- 8.6 The methodology to be employed in this transport assessment was developed from guidance given in the Institute of Environmental Management and Assessment (IEMA) Guidelines and the Chartered Institution of Highways and Transport (CIHT) Guidelines.
- 8.7 Methodologies detailed in the CIHT Guidelines recommend that assessments of transportation and access undertaken as part of Environmental Impact Assessments (EIA's) of large developments should be carried out in accordance with the IEMA Guidelines (which requires that traffic flows on the key routes to and from the development are assessed).
- 8.8 The technical approach to defining the impact of development includes: -
- Guidance on size and scope of any Assessment;
 - Existing conditions;
 - Development Layout;

- Public Transport assessment;
- Trip Generation / Distribution;
- Assessment Years;
- Highway Impact;
- Environmental Impact;
- Road Safety;
- Pedestrian / Cyclist and People with Disabilities.

8.9 The primary impacts will be related to traffic flows, safety and the environment.

8.10 Mitigation measures if required will ensure that the local network under consideration will perform no materially worse with the development, than it otherwise would, without the development. The critical impact of a development is in the design year. In this case, it is considered that the design year **2030** be the anticipated date of completion of the development when full impact on the highway network will occur.

8.11 Where mitigation measures are deemed to be necessary, the focus should be directed towards maximising sustainable accessibility to the development.

Significance Criteria to be used

8.12 In terms of technical solutions to the impacts of vehicular movements, the criteria below are considered. The potential impacts are assessed against the following categories:

High *Changes to the road network associated with the development will result in a significant increase in delay to road users, either because of high flows of traffic or long time delays. Delays will result in significant queues and reassignment of traffic queues will impact on adjacent junctions, some traffic will use alternative routes, junctions will have no reserve capacity. Congestion with queues prevalent through peak and adjacent periods. Reduction in road safety and probable increase in accident rate. Severance of pedestrian desire lines, with significant increases in walking distances.*

Medium *Changes to the road network associated with the development will result in a moderate increase in delay to road users, effecting high traffic flow for short periods or vice versa. Delays will result in moderate queues and some reassignment of traffic, queues will be longer than at present but will not impact on adjacent junctions, and junctions will still have some reserve capacity. Queues will dissipate within the peak periods. Reduction in road safety and possible increase in accident rate. Some pedestrian desire lines may*

be severed, with moderate increases in walk distances, resulting in pedestrians deciding not to use designated road/route crossing places.

Low *Changes to the road network associated with the development will result in a slight increase in delay to road users, within range of daily traffic variations. Delays may produce slightly longer queues and it is unlikely that traffic will be reassigned, junction reserve capacities will still be adequate for normal operation. Queues may appear where none was evident prior to the development. Slight potential for increase in accident rate, which could be mitigated. Slight effect on pedestrian desire lines and a slight increase to walk distances, such as pedestrians accepting to traverse a right-angled turn rather than cut across an angle.*

Negligible *Delays to road users will not be noticeable, No noticeable changes in queues and reassignment of traffic. Queue dissipation will remain the same as at present. Accident rates will remain at present levels. Impact on desire lines or increased walking distances will not be noticeable.*

- 8.13 The IEMA guidelines which suggests that changes in traffic flow of 30%, 60% and 90% would be likely to produce 'slight', 'moderate' and 'substantial' changes respectively, as set out below.

High *Where there is a change in traffic levels of 90% or more. Considerable deterioration / improvement in local conditions.*

Medium *Where there is a change in traffic levels of 60% or more. Readily apparent change in conditions.*

Low (Minor) *Where there is a change in traffic levels of 30% or more. Perceptible change in conditions or circumstances.*

Negligible (Neutral) *Where there is a change in traffic levels of less than 30%.*

- 8.14 The impact of the development at the former Monckton Coke and Chemical Works site will be assessed against the above traffic and safety criteria.

9 GROUND CONDITIONS

Introduction

- 9.1 This chapter will assess the likely impacts of the proposed development on the soil and groundwater on the site and surroundings. Consideration will be given to the potential effects from the construction and operation of the development on Human Health and Controlled Water risks from the current known soil and groundwater contamination during construction and final development proposed use.
- 9.2 The chapter will describe the methods used to assess the impacts, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect impacts of the development arising from construction and operations with regards to contaminated land and groundwater, the mitigation measures required to prevent, reduce, or offset the impacts and the residual impacts.
- 9.3 The chapter will be supported by the historic Site Investigation Reports for the site and subsequent gap analysis documents undertaken by GEO2.

Assessment Team

- 9.4 Investigate will be undertaking this assessment and the assessment team are members of the following professional institutes:
- Chartered Water and Environmental Manager with CIWEM
 - Chartered Engineer with the Engineering Council

Appendices

- 9.5 The ES Chapter will be supported by the following Appendices:
- Environmental Risk Assessment 16492-R1 (01), 2011 RSK Group
 - Groundwater Sampling 321453 (H) L01 (00) 2013 RSK Group
 - Data Review of Monkton Production Facility 321789 (H)-R1 (00) 2014 RSK Group
 - Ground Investigation Report G15009, 2015 Patrick Parsons Ltd
 - Ground Investigation Factual Report G15009 2016 Patrick Parsons Ltd
 - Remediation Strategy, G15009, 2016 Patrick Parsons
 - Remediation Strategy G15009, 2017 Patrick Parsons
 - Environmental Site Survey, 7102, Moorehead Consulting Ltd
 - Environmental Due Diligence, 12022228, 2005, WSP

- Coal And Brine Report, including shaft plans and data sheets, Coal Authority
- Site Investigation, 1997, Pro-Soils Surveys
- CQA Compliance Report for Capping Works, 2004, LJ Church Laboratory Services Ltd
- Due Diligence Survey of Monckton Coke and Colliery Works, 2005, WSP

Description of Potential Effects

Geology

- 9.6 The main potential impacts on geology and soils are associated with loss or damage to soils, the contamination of soils as a result of industrial activity both on and off site, the aggregation of soils from redevelopment works (and associated ground stability concerns).

Hydrogeology/ Hydrology

- 9.7 Groundwater and surface water represent a potential receptor for any pollutant emanating from the development, either during construction or operation.

Contaminated Land

- 9.8 There is potential for development workers and end users to be exposed to chemical contamination and asbestos from the impacted site soils. There is also a risk that local receptors such as off-site residents or controlled water receptors could be exposed to chemical contamination and asbestos through the generation of dust.

Ground Gas

- 9.9 Ground gases may emanate from numerous sources including contaminated land, infilled materials and coal deposits.

Coal Workings

- 9.10 There are known mine shafts and potential mine works present on the site.

Summary of Baseline Work Completed to Date

Geology

- 9.11 The underlying bedrock geology has been reported as Undifferentiated Carboniferous Middle Coal Measures, comprising Mexborough Rock sandstone, beneath the majority of the site, apart from the north and southernmost parts. No superficial deposits are listed on BGS records.
- 9.12 The Royston Coal Seam outcrops beneath the site in the south of the site at a shallow depth. This area has been reported as falling within a Development High Risk Area, with reference to potential historic shallow mining.

- 9.13 Intrusive investigations undertaken by various parties encountered Bedrock at depths of between 0.5-4.5mbgl, placed directly underlying Made Ground deposits. Bedrock primarily comprises Sandstone, however Mudstone was encountered in the northeast, south and central eastern parts of the site.
- 9.14 Records indicate excavation of clays have occurred in the north of the site, with Sandstone quarrying in the southeast (understood to be beneath the existing Hargreaves Industrial Services plc premises).
- 9.15 Rotary drilling demonstrated interbedded sequences of sandstone and mudstone to a maximum achieved depth of 30mbgl. The presence of coal shafts in the north of the site, is suggestive of productive seams at a greater depth in this area.
- 9.16 Made ground has been encountered across the entire site in all earlier investigation works to a thickness of between 0.2-4.0mbgl.
- 9.17 In the northern stockyard a 'mantle' of coal was present at between 0.2 to 1.1m in thickness associated with breeze coke dust., this material is of high calorific value.
- 9.18 The east of the stockyard is underlain in parts by reworked topsoil's, which are also present across much of the production and by products area. This material is noted to include fragments of coke, coal and brick.
- 9.19 Made ground mainly constitutes a very loose, medium dense ash based Gravelly Sand, with variable content of clinker, cinder, coke, brick, concrete, mudstone and sandstone (colliery spoil).
- 9.20 Cohesive areas of clayey made ground were encountered within the bulk of the granular made ground deposits.
- 9.21 Limited information is available detailing the presence of natural soils beneath the site, likely due to the degree of industrialisation which has occurred on the site over the years. As a result, natural superficial deposits have only been encountered in the extreme northern and southernmost parts of the site at depths of between 0.4-3.0mbgl.
- 9.22 These deposits generally comprised firm to stiff gravelly clays, however soft organic clays were proven in the extreme north of the site.
- 9.23 Limited evidence of natural granular soils was reported, where encountered there are considered to be the result of insitu weathering of underlying coal measures.
- 9.24 The Western site exhibits similar geology; Made ground has been encountered across the entire site in investigation works with a highly variable thickness of between 0.9m-1.85m comprising burnt shale and reworked sandy, gravelly clayey fill, or brick, clay and shale.
- 9.25 In the north of the site, made ground was observed to comprise a thickness of 5.1m of ash and clinker fill.

- 9.26 Firm to stiff clays have been found overlying the mudstone across the site and grading into the bedrock. These clays have generally been noted to be of approx. 1m in thickness; however, the clays are likely to be compromised in areas.

Hydrogeology

- 9.27 The underlying bedrock has been designated as a Secondary A aquifer, there is no designated groundwater within any superficial deposits.
- 9.28 Groundwater vulnerability mapping indicates that the site has a high leachability potential, although it should be noted that this is due to poor data coverage in the area and is a worst-case scenario.
- 9.29 Comments in the RSK report 2011, indicate that the shallow groundwater encountered is not considered to be a continuous body across the site. A comment in the same report characterises the shallow groundwater as *'discrete pockets of shallow, perched, groundwater, were encountered within the made ground...at these locations the saturated horizon was found to directly overlie the sandstone bedrock, with no impermeable horizon in between.'* The report states that it is *'likely that surface waters and perched groundwater will infiltrate vertically into the sandstone bedrock and impact the groundwater within'*.
- 9.30 Deeper boreholes suggest a potential groundwater flow direction within the deeper groundwater within the sandstone bedrock towards the north, assuming a single continuous water body is present beneath the site. Although other reports suggest no clear groundwater flow direction and the potential for multiple groundwater bodies.
- 9.31 Data for the Western Site is very limited however reports suggest a tentative flow to the southwest. It is also suggested that there may be a secondary waterbody on the site within the superficial deposits.

Hydrology

- 9.32 There are a number of local surface water courses within the vicinity of the site.

Water Feature	Quality	Distance	Direction
Lineside Dyke	Unclassified	Adjacent to the northern part of the western boundary of the main coking works site. Flows in a generally southerly direction joining Cudworth Dyke approximately 140m to the south of the site.	
Wakefield Brook	Unclassified	Within 10m of the western boundary of the former gas purification area (the western parcel of land), approx. 100m from the current site boundary, close to the Barnsley Canal. Flows in a southerly direction, joining Cudworth Dyke, approximately 220m south of the site.	
Cudworth Dyke	Unclassified	Located approximately 140m to the	

Water Feature	Quality	Distance	Direction
		south of the site. This flows in a southerly direction, joining the Sandybridge Dyke to become Poole Dyke. Eventually flows into the River Dearne approximately 5km south of the site.	
Barnsley Canal (disused)	'F' or 'poor'	35 to 50m	West

- 9.33 Reports suggest that abstractions had been made from these water courses during the operational life of the site, none of which remain active currently.
- 9.34 The Moorehead Consulting report suggests that discharges were made from the site during its active life to the Barnsley Canal.
- 9.35 The 2002 report indicates that the presence of a railway cutting along the western boundary may affect local groundwater flow and suggests a component of flow to the west along the site margin. This is consistent with observations (ARP 2002) of leachate discharges along the steep western bank.

Contaminated Land Quality

- 9.36 In order to assess the soil contamination at the site, historic intrusive investigations have been reviewed.
- 9.37 The risk assessment is based upon identifying pathways between sources of contamination and actual and possible receptors. This is termed as a pollutant linkage. The assessments also address the land as being 'suitable for use'. This means the acceptable concentrations and conditions will vary depending on the site uses and nature of receptors.
- 9.38 Assessment to date indicates that almost the entire Stockyard area and a small portion in the northwest corner of the Production and By-Products area of the main site is surfaced with a mantle of 'breeze' a black, coke dust rich substrate, which appears to be predominantly of a high calorific value and potentially flammable. This material appears to have originated from use of this area for storage of coal and coke products.
- 9.39 Due to restrictions placed on earlier investigations, as the site was still active at the time, the number of samples and detail of the investigation in this area is of a relatively low density compared with the very high number of potential contaminant sources. Much of this area is poorly understood with little reliable information on the groundwater regime in this area. Existing trial pit logs have indicated a significant number of buried obstructions in this area.
- 9.40 Available testing from the Made Ground and Groundwater in the Production and By-Products areas of the site has identified potentially significantly elevated concentrations of PAH contamination which are considered likely to be associated

with leaks and spills from these processes (rather than due to the composition of the rubble matrix), based on a review of corresponding trial pit and borehole logs. Areas of elevated PAH, hydrocarbon and tars were encountered within soils and also within the underlying groundwater, encountered at a greater depth in the bedrock.

- 9.41 One location, along the western boundary of the site identified what is likely to be Coal Tar, as a DNAPL, close to the old boiler plant, whilst this has not been identified elsewhere, it is likely to be connected to wider source in the area as suggested by the visual identification of tars and NAPLs within soils in BH204, BH205, MW5 and MW6.
- 9.42 Considerably less is known about the Western Site as only limited site investigation information was made available. Soil testing undertaken indicated elevated heavy metals and cyanides within made ground. Sampling from some trial pits indicated elevated hydrocarbon concentrations. pH was frequently noted to be acidic within the fills (as low as pH 2.4 in TP10).
- 9.43 Testing also indicated elevated concentrations of leached dissolved metals and cyanides within the groundwater across much of the site. Sampling of sumps onsite identified elevated concentrations of hydrocarbons within structures onsite.

Ground Gas

- 9.44 Ground gases are understood to have been sampled from numerous locations, however limited data has been made available for review. Ground gases may emanate from numerous sources including contaminated land, infilled materials and coal deposits.

Coal Workings / Mining Risk

- 9.45 Coal Authority searches, most recently undertaken in 2014, indicates the following:
- The site is underlain by 11 mined seams of coal at depths of between 100 to 520mbgl, last worked in 1982. It is stated that any associated ground movement should have now stopped.
 - There are three known mine entries on the site.
 - The site has not been subject to any reported open cast coal mining works.
 - No instability or mine gas has been reported to the Coal Authority
- 9.46 Coal Authority records identify the following three shafts to be present on the site. These are summarised in the table below.

Shaft Location	Name	Depth	Capped	Capped By
437412-002	New Monckton Colliery No 2 Shaft	446.2m	12x 12x 1m reinforced concrete	British Coal. Feb 1989
437412-003	New Monckton Colliery No 6 Shaft	489.2m	15x 15x 1.2m reinforced concrete	British Coal
437412-001	New Monckton	450.8m	12x 12x 1m	British Coal

	Colliery No 1 Shaft		reinforced concrete	
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- 9.47 The RSK report indicates that the capping works detailed above were initially undertaken in 1966-76 and following revision to the guidelines for shaft capping all three were recapped in circa 1994 with 20m x 20m x 2m thick concrete slabs.
- 9.48 Mine shafts have been located to the following coordinates although no Shaft ID has been provided to correspond to these points:
- SE 37505 12187. N412187, E 437505
 - SE 37431 12221. N412221, E437431
 - SE 37430 12159. N412159, E437430
- 9.49 BGS Geological maps records the Royston Coal to subcrop in the extreme south of the site and it is anticipated to be present at a shallow depth in this area. As a result of this, a portion of the site, is listed as falling within a Development High Risk Area.
- 9.50 Review of limited available borehole logs in this area, indicate bedrock to comprise of interbedded mudstone and sandstone from 0.7mbgl to in excess of 16.0mbgl, no coal deposits were noted in any of these four locations. This data is quite spatially limited, all points are around the BET plant and do not cover the Southern Area more widely. Subcropping of coal deposits of voids, may produce localised instability or provide a pathway for ground gases to reach the surface. No information on coal workings is available for the Western Site area.

Overview of Approach and Methodology for Production of ES Chapter

Significance Criteria to be used

- 9.51 The ES Chapter will provide an initial assessment of the likely significant effects of the proposed development in relation to site preparations and construction activities, and operational activities.
- 9.52 The environmental effects will be predicted with reference to definitive standards and legislation where available. Where it is not possible to quantify effects, qualitative assessment will be carried out, based on available knowledge and professional judgement. Where uncertainties exist, this will be noted.
- 9.53 The potential significance of predicted impacts will be determined by reference to criteria for each topic. Broadly, the significance of the impact will be determined with reference to the magnitude of the potential impact, the value of the receiving environment or receptor and the likelihood of the impact occurring and its duration. In order to provide a consistent approach to expressing the outcomes of each assessments, the following terminology will be used to assist in determining the degree of significance.

- 9.54 An Impact Assessment Matrix (IAM) will be used to provide guidance in setting the level of impact significance and the whole process will be guided and moderated by professional judgement where appropriate.

Magnitude

- 9.55 Magnitude refers to the 'size' or 'amount' of an impact. It is a function of other aspects such as the 'extent' of an impact being the area over which the impact occurs, the duration i.e. the time for which the impact is expected to last prior to recovery or replacement of the resource or feature, the likelihood (i.e. the chance that the impact will occur) and reversibility. An irreversible (permanent) impact is one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. The level of 'Magnitude' is defined in Table 9.1 below.

Value

- 9.56 The value or sensitivity of a receptor is a function of a variety of factors e.g. biodiversity value, social/ community value and economic value. The value or potential value of a resource or feature can be determined within a defined geographical context. The level of value is defined in Table 9.2 below.

Significance

- 9.57 Using the value of the environmental receptor, together with the determined magnitude of the impact and consideration of factors such as the sensitivity of the receptor to change, the significance of an impact can be determined.
- 9.58 The classification of significance aids in the identification of the main environmental effects of the proposed development and what weight should be given to these effects. There is no statutory definition of what constitutes a significant effect and guidance is of a generic nature. However, it is widely recognised that 'significance' reflects the relationship between the magnitude of an impact and the value of the affected resource or receptor.
- 9.59 To assist in the assessment process, an impact matrix will be used in determining the level of impact significance.

Table 9.1 Assessment of Magnitude

Magnitude	General Impact	Geology and Soils	Contaminated Land	Ground Gas	Groundwater
High	Significant, permanent loss/ irreversible changes, to key characteristics, features or function of an environmental parameter. Impact may occur over a significant area (>50%). Significant Impact certain or likely to occur.	An internationally or nationally designated site, such as a Site of Special Scientific Interest (SSSI) or a significant area of high quality or rare soil type that will be significantly damaged or destroyed by the proposed development.	An area where contaminated zones are present or likely. Impacts from contamination and disturbance will affect the surrounding built and natural environment during construction and operation. Extensive, long term mitigation measures required to avoid adverse impacts.	An area where ground gas zones are present or likely. Impacts from ground gases and disturbance will affect surrounding built environment during construction and operation. Extensive long term mitigation measures required to avoid adverse impacts.	Pollution, damage or destruction of an aquifer within a Source Protection Zone (SPZ), public water supply or Principle Aquifer.
Medium	Damaging significant changes to key characteristics or features or function, over a moderate area (15% to 50%). Likely to last more than two year. Impact likely to occur	A locally designated or proposed site of geological interest, an area of high quality soil type. Loss of good agricultural land that will be significantly damaged.	An area where contaminated zones are present or likely. Impacts that affect the surrounding natural environment will be prevalent during construction, but are unlikely to affect the operation of the scheme. Moderate/ short term mitigation measures to be incorporated.	An area where ground gas zones are present or likely. Impacts that affect the surrounding built environment will be prevalent during construction, but are unlikely to affect the operation of the scheme. Moderate/ short term mitigation measures to be incorporated.	Pollution or damage to Secondary (Class A) Aquifer providing local resource/ base flow to rivers.
Low	Noticeable but not significant changes (temporary/ potentially reversible), over a partial area (<15%), to keep characteristics or features of an environmental parameter. Impact will possibly occur.	Slight damage to locally designated site of geological interest or damage to non-statutory protected soil or good agricultural land.	An area where contaminated zones are possible, but where it is considered very unlikely that contamination will affect the environment during construction or operation. No mitigation measures anticipated. Minor site investigation may be required.	An area where ground gas zones are possible, but where it is considered very unlikely that ground gas will affect the environment during construction or operation. No mitigation measures anticipated. Minor site investigation may be required.	Pollution or damage to a Secondary (Class B) aquifer or Secondary (Class A) Aquifer that is used for industrial or agricultural purposes.
Very Low	Noticeable temporary/ reversible, changes for less than 6 months, or barely discernible changes for any length of time, over a small area, to keep characteristics or features of an environmental parameter. Impact unlikely to occur.	Slight damage to other sites of geological interest (non-statutory), soils or poor agricultural land that is in the vicinity of the site but will not be affected by the development.	Potentially contaminated site in the study area that is sufficiently distant from the development that it will not affect, or be affected by, its construction or operation.	Potentially ground gas at the site in the study area that is sufficiently distant from the development that it will not affect, or be affected by, its construction or operation.	Minor pollution of Secondary (Class B) Aquifer and/or where there is no significant groundwater resources

Table 9.2 Assessment of Receptor Value

Value	Description	Examples
High	Features possessing key characteristics which contribute significantly to the distinctiveness, rarity and character of the site. Features possessing very significant biodiversity, social/ community value and/ or economic value at the national level. Feature is extremely rare.	Significant residential/ industrial development. Strategic sites e.g. hospital. Surface water: fisheries. River Ecological Quality High. Designated sites protected under International or UK wildlife legislation. Groundwater: Principle Aquifer providing a regionally important resource, Public water supply abstractions, SPZ or supporting site protected under wildlife legislation.
Medium	Feature possessing key characteristics which contribute significantly to the distinctiveness and character of the site. Feature possessing significant biodiversity, social/ community value and/ or economic value at the regional level. Feature is uncommon.	Site of Special Scientific Interest (SSSIs). Regionally Important Geological Sites (RIGS). Significant transport links e.g railway, airport. Significant utilities. Species protected under EU or UK wildlife legislation. Surface water: River Ecological Quality Good. Groundwater: Secondary Aquifer providing a locally important resource or supporting river ecosystem. High quality agricultural land.
Low	Feature possessing characteristics that are locally significant. Feature not designated or only designated at regional/ local level. Feature possesses moderate biodiversity, social/ community value and/ or economic value at the local level	Surface Water: River Ecological Quality Moderate. Groundwater: Secondary (Class A) Aquifer providing water for agricultural or industrial use.
Very Low	Feature characteristic do not make a significant contribution to the character or distinctiveness locally. Feature not designated. Feature possesses low biodiversity, social/ community value and/or economic value. Feature is common.	Minor residential/ industrial development. Surface Waters: River Ecological Quality Poor. Secondary (Class B) Aquifer with limited connection to surface water. Low quality agricultural land.

Table 9.3 Impact Significance

Magnitude	Value and Sensitivity of Receptor			
	Very Low	Low	Medium	High
Very Low	Negligible	Negligible	Minor	Minor
Low	Negligible	Minor	Minor	Moderate
Medium	Minor	Minor	Moderate	Major
High	Minor	Moderate	Major	Major

9.60 The ratings derived through the assessment process as set out above can also generally be described in a generic manner as shown in Table 9.4. The descriptors for the various significance ratings given in Table 9.4 can be used as a framework for confirmation (or not) of the ratings and also provide a greater understanding of the nature, scale and type of determined impact.

Table 9.4 Generic Significance Descriptors

Significance	Generic Significance Ratings
Major	Very large or large change in environmental or social-economic conditions. Effects, both adverse and beneficial, which are important considerations at a national to regional level because they contribute to achieving national/ regional objectives, or, likely to result in exceedance of statutory objectives and/ or breaches of legislation.
Moderate	Intermediate change in environmental or social-economic conditions. Effects that are likely to be important considerations at a district to local level because they contribute to achieving local objectives, or, may result in exceedances of local statutory objectives and/ or breaches of legislation.
Minor	Small change in environmental or socio-economic conditions. These effects may be raised as local issues but are unlikely to be of importance in the decision making process.
Negligible	No discernible change in environmental or socio-economic conditions. An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

9.61 Although Tables 9.1 to 9.3 generally consider adverse effects that have a negative influence on receptors and resources potential impacts from the development may also be beneficial and have a positive influence on receptors or provide opportunities for improvement. Consequently, final residual significance rating may include

- Major, Moderate, Minor, Negligible Beneficial impacts; and

- Major, Moderate, Minor, Negligible Adverse Impacts.
- 9.62 The rating of the impact significance may provide a strong indication as to whether mitigation may be required and determines whether, following the use of mitigation measures, identified impacts may be avoided, reduced or offset. The scale of significance is presented in Table 9.4 and describes generic descriptors for each scale of significance.
- 9.63 Only moderate and major significance will be considered to be taken forward for mitigation.

10 AIR QUALITY

Introduction

- 10.1 The following report outlines the proposed scope of the Air Quality ES Chapter. Outlined below are a summary of potential effects, the established baseline, assessment methodology and the assessment criteria for the significance of effects.
- 10.2 The lead author of the Air Quality Chapter to the ES is Graeme Blacklock, MSc, Chartered Environmentalist (CEnv), Member of the Institute of Air Quality Management (MIAQM) and Member of the Institution of Environmental Sciences (MIES). Graeme is a Technical Director – Air Quality at SLR Consulting Ltd.
- 10.3 SLR Consulting Ltd has worked on similar developments within the vicinity of the scheme, including:
- Air Quality Assessment to support the planning application for a proposed residential development on land of the former Croda works, Kilnhurst, Rotherham;
 - Odour Assessment to support the planning application for Phase 2 and 3 of a proposed residential development on land adjacent to the Bolton Upon Dearne wastewater treatment works (WwTW), Bolton Upon Dearne, Barnsley; and
 - Air Quality Assessment to support the planning application for a proposed residential development on land of the former Bombardier Carriage works, Hexthorpe, Doncaster

Description of Potential Effects

- 10.4 The potential effects associated with the proposed development are as follows:
- Sensitive residential properties are located within the vicinity of the site and may be affected by the generation of dust and emissions from road traffic and on-site plant during construction works; and
 - The proposal is likely to generate additional traffic flows on the local road network and therefore there is potential for change in air pollutant concentrations at existing receptor locations as a result of development trips associated with the operation of the scheme.
- 10.5 The principal air pollutants of concern with respect to the development will be:
- nitrogen dioxide (NO₂) from road vehicle emissions and construction plant;
 - particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀) and less than 2.5µm (PM_{2.5}) from road vehicle emissions and construction plant; and
 - dust from construction phase activities.

- 10.6 SLR's professional experience indicates that any impacts associated with other air pollutants will be negligible and can be scoped out.
- 10.7 It is noted that remediation of the site to remove any ground contaminants from the previous and historic use will be completed prior to the development of the site. The remediation of the site and associated activities to remove existing ground contamination is a Regulated process and will require an Environmental Permit to be issued by the Environment Agency prior to commencement of works. The Environmental Permit will include a number of 'conditions' which require for those activities to be undertaken on-site to not result in pollution beyond the Site boundary, for example. Upon cessation of remedial activities, the Environmental Permit will be required to be 'surrendered' to the Environment Agency to confirm that the associated activities are complete, and the Environmental Permit is no longer required. This will include review of monitoring data against limits detailed within the Environmental Permit to confirm that remediation has been satisfactorily completed and ground contaminants are no present.
- 10.8 Therefore, as part of the proposed scope of assessment the construction dust assessment assumes that any existing ground contamination will be fully remediated under the Environmental Permit activities and no longer present in soils at the time of construction activities commencing on-site. On this basis, the construction phase dust assessment solely considers and is limited to the potential impact from surface soiling and particulate matter as outlined within the approach defined in Guidance on the Assessment of Dust from Demolition and Construction published by the Institute of Air Quality Management (IAQM) (v1.1, 2016).

Summary of Baseline Work Completed to Date

- 10.9 A review of the baseline conditions will be undertaken with reference to:
- Consultation with the Environmental Health Officer at Barnsley Metropolitan Borough Council (BMBC);
 - Reference to local policy within the Barnsley MBC Air Quality and Emissions Good Practice Planning Guidance (October 2018);
 - Reference to Local Air Quality Management (LAQM) Air Quality Annual Status Reports (ASR) and monitoring data within the public domain; and,
 - DEFRA background air quality maps (May 2019 update).
- 10.10 To support the Air Quality Chapter to the ES, a 3-month period of air quality monitoring is currently being undertaken to establish site-specific baseline annual mean NO₂ concentrations. This baseline air quality monitoring is being undertaken within the development locale and at existing discrete receptors, to provide a concentration dataset to verify the results of the operational phase dispersion modelling assessment. Appropriate monitoring locations were agreed with the BMBC Environmental Health Officer prior to monitoring commencing. Air quality monitoring is being undertaken using passive diffusion tubes following the National Diffusion Tube Monitoring Network calendar, as stipulated by the

Department for Environment Food and Rural Affairs (DEFRA)¹. Monitoring commenced on w/c 04/11/2019 (in line with the 'November' exposure period) and will complete w/c 03/02/2020 (in line with the 'February' exposure period). Diffusion tube monitoring has been undertaken with reference to the following documents:

- Local Air Quality Management Technical Guidance (LAQM.TG(16));
- Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance for Laboratories and Users Report to DEFRA and the Devolved Administrations. ED48673043. Issue 1a, Feb 2008; and
- DEFRA LAQM webpages - diffusion tubes.

Overview of Approach and Methodology for Production of ES Chapter

Construction Phase

- 10.11 The assessment of potential dust impacts, and determination of significance of effect, will be assessed qualitatively using the approach defined in Guidance on the Assessment of Dust from Demolition and Construction published by the IAQM (v1.1, 2016). Dependent upon the level of information available on construction phasing / practices and plant to be used, a worst-case assessment of potential dust impacts for the scale of development may be undertaken.
- 10.12 Road traffic emissions associated with construction phase vehicles (principally identified as Heavy Duty Vehicles (HDV)) will be screened following the 'indicative criterion for assessment' presented within Environmental Protection UK (EPUK) and IAQM guidance 'Land-Use Planning and Development Control: Planning for Air Quality' (v1.2, 2017). Emissions from construction phase plant, as non-road mobile machinery (NRMM) will be screened following LAQM.TG(16).

Operational Phase

- 10.13 In accordance with the BMBC Air Quality and Emissions Good Practice Planning Guidance, the development proposals are considered to be classified as a 'medium' development.
- 10.14 A screening 'exposure assessment' will be undertaken following the BMBC Air Quality and Emissions Good Practice Planning Guidance to identify any further requirements for a site-suitability assessment. It is anticipated this will confirm no further site-suitability assessment modelling requirement.
- 10.15 A dispersion modelling assessment using ADMS Roads (v4.1) will assess the potential impact on air quality arising from change in development trips associated with the operational phase of the scheme. Dispersion modelling will determine annual mean NO₂, PM₁₀ and PM_{2.5} concentrations. Compliance with the 1-hour mean NO₂ and 24-hour mean PM₁₀ Air Quality Objectives (AQO) will be assessed following LAQM.TG(16).

¹ <https://laqm.defra.gov.uk/diffusion-tubes/diffusion-tubes.html>.

- 10.16 Receptors for inclusion within the operational phase assessment of change in development trips will be based upon those roads projected to witness a 'significant' change in traffic flow, as defined by 'indicative criterion for assessment' within EPUK & IAQM 'Land use planning and development control: planning for air quality' (v1.2 2017) guidance based upon the extent of roads considered as part of the Transport Impact Assessment.
- 10.17 Appropriate 'indicative criterion for assessment' will be applied dependent upon whether the change in traffic flow is predicted within the extent of the declared Air Quality Management Areas (AQMA) within BMBC (i.e. >100 light duty vehicles (LDV) and/or >25 HDV as a 24-hour annual average daily traffic (AADT)) or within the wider development site locale (i.e. >500LDVs and/or >100HDVs as a 24-hour AADT).
- 10.18 Road traffic emissions of oxides of nitrogen (NO_x), PM₁₀ and PM_{2.5} will be calculated from the up to date Emission Factor Toolkit (EFT) published by DEFRA, currently v9.0. Modelling will be undertaken with appropriate 'do minimum' and 'do something' scenarios with impact descriptors determined in accordance with EPUK and IAQM guidance 'Land-use planning and development control: planning for air quality' (v1.2, 2017). Determination of the significance of effect will be based upon the EPUK and IAQM guidance 'Land-use planning and development control: planning for air quality' (v1.2, 2017).
- 10.19 Modelled concentrations will be verified using site specific monitoring data in the development locale, in line with the methodology outlined within LAQM.TG(16). Verification factors will be calculated and applied across the modelling domain.
- 10.20 Sensitivity testing will be undertaken as part of the operational phase assessment, in accordance with principles of the IAQM's Position Statement on 'Dealing with Uncertainty in Vehicle NO_x Emissions within Air Quality Assessments' (2018).
- 10.21 Predicted air quality impacts during the operational phase assessment, will be assessed against the relevant Air Quality Standards presented within The Air Quality Standards Regulations 2010.
- 10.22 A supporting technical report will be provided as an appendix to further outline the supporting technical inputs including dispersion modelling inputs and the results of the sensitivity assessment.

Mitigation

- 10.23 The nature and significance of potential air quality impacts that may arise will be identified and, where required, enhancement and mitigation measures for any adverse impacts will be identified in line with best practice as above and highlighted in the Air Quality Chapter to the ES.

- 10.24 If necessary, mitigation measures will be proposed in accordance with the 'medium' classification of suggested measures outlined in the BMBC Air Quality and Emissions Good Practice Planning Guidance, the IAQM's Position Statement on 'Mitigation of Development Air Quality Impacts', and IAQM Guidance on the Assessment of Dust from Demolition and Construction (v1.1, 2016) to ameliorate any adverse effects.

Significance Criteria to be used

Construction

- 10.25 The assessment of potential dust impacts, and determination of significance of effect, will be assessed qualitatively using the approach defined in Guidance on the Assessment of Dust from Demolition and Construction published by the IAQM (v1.1, 2016).

Operational

- 10.26 Determination of the significance of effect will be based upon the EPUK and IAQM guidance 'Land-use planning and development control: planning for air quality' (v1.2, 2017).

11 TOPICS TO BE 'SCOPED-OUT' AND NOT INCLUDED WITHIN THE ENVIRONMENTAL STATEMENT

Introduction

- 11.1 This section of the Scoping Report sets out those environmental topics where it is considered that there would be no potential for significant effects to occur and where it is proposed that a Chapter will not be included within the Environmental Statement (ES).
- 11.2 It is important to note that not all environmental effects constitute a 'significant' effect, as defined by the EIA Regulations. The extent of the ES should be restricted to only those topics which are likely to result in such a significant effect.

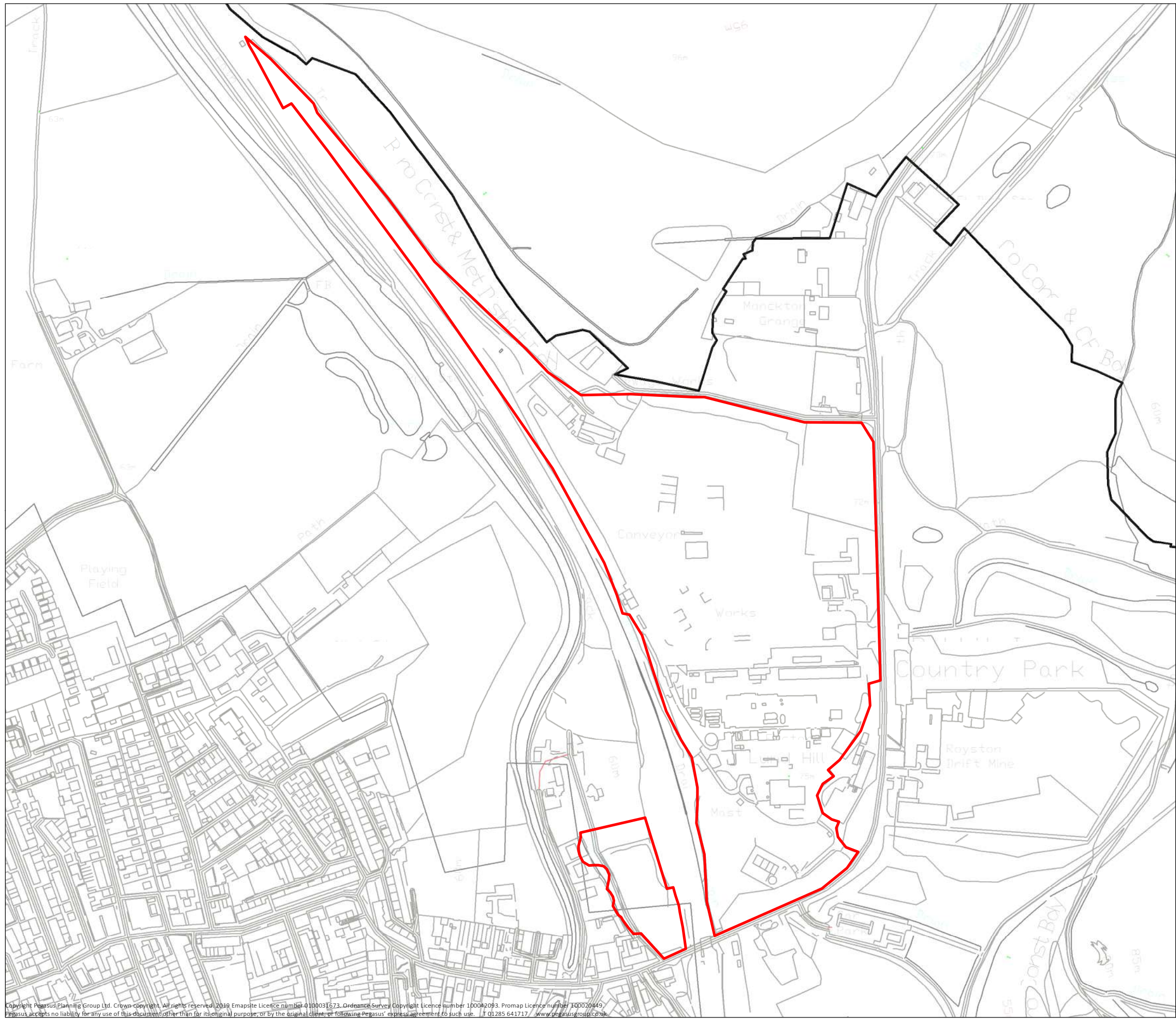
Topics to be Scoped Out

- 11.3 As set out earlier in this Scoping Report it is proposed that the following topics would be included in the ES: Ecology; Transport; Ground Conditions and Air Quality. It is proposed that for all other environmental topics listed in Schedule 4 of the EIA Regulations, whilst it is acknowledged that some effects may occur, it is not considered that significant effects would arise. These include matters relating to human health and climate change.
- 11.4 It is noted that an EIA Scoping exercise was previously undertaken for the earlier proposals at the site. The formal Scoping Opinion of Barnsley Metropolitan Borough Council previously considered that the scope of the ES as set out in this Report would be appropriate. It is not considered that there have been any material changes either to the development proposals, or the surrounding environment that should warrant a different decision being reached.
- 11.5 Furthermore, it is noted that the wider planning application submission would be informed by further technical reports including:
- Coal Mining Risk Assessment;
 - Construction Environmental Management Report;
 - Design and Access Statement;
 - Flood Risk Assessment and Drainage Strategy;
 - Noise Assessment;
 - Tree Survey, Tree Constraints Plan and Tree Assessment Report;
- 11.6 It is therefore understood that appropriate technical information regarding these environmental topics would be provided as part of the planning application submission in any case.

APPENDICES

APPENDIX 1.1: FIGURES:

- ❖ **Figure 1: Site Location Plan**
- ❖ **Figure 2: Current Indicative Site Layout Proposals**



KEY

Site Boundary

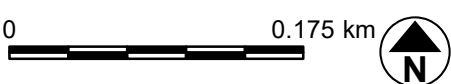
District Boundaries

Revisions:
First Issue- 28/11/2019

Site Boundary
**P19-1805 - Monckton,
Barnsley**

Client:	Monckton Developments Limited	Sheet No:	-	REV:	-
DRWG No:	P19-1805_07	Approved by:	AG		
Drawn by:	EH				
Date:	28/11/2019				
Scale:	1:4,500 @ A3				

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APPENDIX 8.1: TRANSPORT ASSESSMENT SCOPING REPORT



Monckton Development Ltd.

**Proposed Residential
Development on Former
Monckton Coke &
Chemical Works Site,**

off

**Lund Hill Lane, Royston,
Barnsley,**

S71 4BD

Transport Assessment Scoping

12910-5005

Revision 01

October 2019

**Professional, Innovative,
Practical Solutions**

About Us

Part of Met Consultancy Group, Met Engineers provides a range of solutions and engineering consultancy services in the following key areas:

Drainage design, Highway design, Ground modelling, Structural appraisals, Foundations and superstructure design, Building Options analysis, Civil Engineering structures, Flood Risk assessment and Site investigation.

Taking time to understand you, the client, your project requirements and problems, is a crucial part of the way we work. It allows us to provide you with a tailored, reasoned and sensible solution followed by the delivery of a service that is flexible, of excellent quality and designed to cope with specific circumstance.

We provide a tailored solution to meet all your project needs.

Consulting with us at an early stage may allow you to consider a range of options that could affect the risk, costs and timescales of your project. We are here to provide assistance and advice to help your compliance, risk assessment, evaluation, design and management processes on any project you are undertaking.

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Informed, Qualified People: All our team members are qualified to a minimum of degree level in Engineering related subjects and have relevant experience in this industry sector. Many of our personnel hold professional memberships of bodies such as the Institution of Environmental Scientists and the Institution of Civil Engineers.

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1. REVISION RECORD

Report Ref: P12910-5005 / Transport Assessment					
Rev	Description	Date	Originator	Checked	Approved
1	First Issue	22/10/19	TL	BJS	AK
1					

This report is to be regarded as confidential to Monckton Developments Ltd. It is intended for your use only and may not be assigned. Consequently, and in accordance with current practice, any liability to any third party in respect of the whole or any part of its contents is hereby expressly excluded. Before the report or any part of it is reproduced or referred to in any document, circular or statement and before its contents or the contents of any part of it are disclosed orally to any third party, our written approval as to the form and context of such a publication or disclosure must be obtained.

Prepared For:	Prepared By:
Monckton Developments Ltd 559 Carlisle Street East, Sheffield, S4 8DT	Met Engineers Ltd Southgate House Pontefract Road Leeds West Yorkshire LS10 1SW

2. INTRODUCTION

- 2.1 Met Engineers Ltd have been appointed by Monckton Developments Ltd to prepare a Transport Assessment, for a proposed residential development and associated parking and landscaping on land at the former Monckton Coke & Chemical works site off Lund Hill Lane, Royston, S71 4BD, as detailed in Appendix A. The Transport Assessment is to support a planning application submission.
- 2.2 This document outlines the scope of works required to prepare the Transport Assessment.
- 2.3 The site could accommodate up to 500 residential units and with 1 N^o point of access currently proposed onto Lund Hill Lane.
- 2.4 The details as provided by the design team for this development type and use form the basis of this assessment.
- 2.5 The development site which is now vacant previously contained the Monckton Coke and Chemical development works producing coke destined for use in the glass, detergents and steel manufacturing. The development works closed in 2014.
- 2.6 The development site is situated circa 2.0km to the east of Royston town centre, as shown in Appendix A.
- 2.7 The Transport Assessment report will be prepared in accordance with the National Planning Policy Framework (NPPF) for England, Local Planning Guidelines, and best practice. Barnsley Metropolitan District Council (MDC) is the local planning and roads authority that will process the planning application. Due to the site's close proximity to the Barnsley MDC/Wakefield MDC boundary line, Wakefield are also to be advised on the scoping requirements.

2.8 The contents of this scoping report seek the approval of Barnsley/Wakefield MDC's.

3. INFORMATION

- 3.1 The site which forms part of Royston's urban fabric has no specific zoning allocation, is almost rectangular in shape, slopes gently downhill to the south, and contains some of the former Monckton Coke & Chemical development works.
- 3.2 The development land is bounded by a north/south railway line to the west, Lund Hill Lane to the east and south and green belt land to the north. For the purposes of this study it is assumed that all of the residential units are to be privately owned.
- 3.3 Lund Hill Lane and Midland Road links the Midland Road / Lee Lane (B6428) / Station Road (B6132) / Church Street (B6132) traffic signal-controlled junction in the centre of Royston to Ryhill / Havercroft in the northeast.
- 3.4 High Street and Lee Lane to the west links Royston with Lee Lane/Wakefield Road/Shaw Lane, a staggered junction, with separate right turn lanes on Wakefield Road and where traffic on Wakefield Road has priority.
- 3.5 Lund Hill Lane fronting the site is subject to a 30mph speed limit with a system of street lighting. A 1.5m wide continuous footway exists on the east side of Lund Hill Lane with an intermittent footway, 1.5m wide, on its west side.
- 3.6 Lund Hill Lane is a bus route, with bus stops and shelters existing on the site frontage.
- 3.7 The development site provides 2 No. existing points of access (7.0m and 18.0m wide) onto Lund Hill Lane.
- 3.8 A railway bridge crosses Lund Hill Lane, to the south of the site, which has a restricted headroom of 3.3m. This railway bridge carries a limited use freight line over the public highway.

- 3.9 125m west of the railway bridge, Lund Hill Lane forms a priority junction with Cross Lane and Midland Road.
- 3.10 Cross Lane links up with Church Hill and provides an alternative link through a residential area between Lund Hill Lane / Midland Road and Royston Lane / Church Street (B6132).
- 3.11 Cross Lane is 7.3m wide with footways on both sides of the road and intermittent on street parking.
- 3.12 Church Hill is 6.75m wide with footways on both sides of the road and is traffic calmed. Cross Lane / Church Hill is a bus route.
- 3.13 Church Hill forms a priority-controlled junction with Royston Lane / Church Street where a right turn lane and ghost island exists on Royston Lane.
- 3.14 The boundary of Barnsley Metropolitan Council lies a short distance to the north.
- 3.15 Lund Hill Lane to the north of the development site links up with Church Lane at a cross road and where traffic on Lund Hill Lane has priority.
- 3.16 There are no recorded public rights of way within the development site, and those that exist nearest the site are highlighted in Appendix B.
- 3.17 The junctions as detailed below and in Appendix C are to be assessed during the AM and PM traffic flow periods, using Junction 9 and LinSig modelling tools.
- Junctions 1: A61/B6428, staggered cross roads
 - Junction 2: B6428/B6132, signalised cross roads
 - Junction 3: B6428/Cross Lane, T-junction
 - Junction 4: B6428/Church Lane, cross roads

- 3.18 Traffic counts will be undertaken at the above locations during the AM and PM peak flow periods, where recent traffic flow data is not available.
- 3.19 Junction capacity assessments will be carried out for both existing and future year (2030 Design Year) traffic flow conditions.

4. LOCAL / NATIONAL POLICY GUIDELINES AND SUSTAINABILITY

- 4.1 When considering transport policy compliance for planning applications, the main thrust of local, regional and national policy is that new development should be conveniently accessible by a range of sustainable transport modes, including public transport, cycling and walking. This policy therefore sets out the framework for this Transport Statement and the project's compliance with the policy objectives. Further details of the relevant policy documents are set out below.

National Planning Policy Framework (2019) – Promoting Sustainable Transport

- 4.2 The National Planning Policy Framework (NPPF) relating to transport and development is set out in Section 9 of the NPPF.
- 4.3 Paragraph 111 of the NPPF states that “All developments that generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a Transport Statement or Transport Assessment”. Plans and decisions should take account of whether:
- *the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, so as to reduce the need for major transport infrastructure;*
 - *safe and suitable access to the site can be achieved for all people; and*
 - *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development.*

4.4 Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

4.5 Within this context, Paragraph 110 of the NPPF states that “applications for development should:

a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations”.

4.6 The current development proposals should include measures to ensure compliance with these requirements.

Local Transport Plans

- 4.7 **The South Yorkshire Local Transport Plan (2011 – 2026) (LTP)** covers the Sheffield City Region and is produced by the South Yorkshire LTP partnership which includes Barnsley, Doncaster, Rotherham, Sheffield Councils and South Yorkshire Passenger Transport Executive. The LTP sets out the long term vision for travel in South Yorkshire and has three main components which outline the strategy, implementation and the annual delivery programme
- 4.8 The Vision is to offer people a great place in which to live, work, invest and visit. The vision has a primary focus on the area's prosperity and growth, aspiring to make a greater contribution to the UK economy by having a local economy less dependent on the public sector, providing conditions for businesses to grow to allow the area to become the prime national centre for advanced manufacturing and low-carbon industries.
- 4.9 The Transport Strategy has four main goals, set out below:
- *To support economic growth;*
 - *To enhance social inclusion and health;*
 - *To reduce emissions; and*
 - *To maximise safety.*
- 4.10 In translating the Transport Strategy into action, the following four cross cutting principles will be followed:
- *Squeeze more from existing assets;*
 - *Make growth sustainable;*
 - *Give people choice; and*
 - *Encourage a change in travel culture.*

4.11 **The Barnsley Local Plan (BLP) (2019-2033)** which was adopted in January 2019 provides local planning policy for the future development of the Barnsley Borough area, which includes Royston, up to 20133.

4.12 The core strategy discusses reducing the need to travel and encourages travel by sustainable modes. Relevant Core Policies within these documents include, Policy T3: New Development and Sustainable Travel, where it states that new development will be expected to:

- *Be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists;*
- *Provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people set out in the relevant Supplementary Planning Documents;*
- *Provide a transport statement or assessment; and*
- *Provide a Travel Plan.*

4.13 Local policy maps in the immediate vicinity of the Monckton Coke and Chemical Works development site as shown in Appendix D indicate that there are no significant transport proposals that will impact on the proposed development. The only major transport proposals in the area is the proposed HS2 railway line (currently under Government review) which will be circa 6km to the east of the development site at its closes point.

4.14 The Supplementary Planning Document on Parking and adopted in March 2012, continues to provide guidance on the level of parking required to developers, architects, agents and landowners who are considering submitting planning applications.

5. DEVELOPMENT TRAFFIC AND TRAFFIC IMPACTS

Development Traffic

- 5.1 The likely peak trip generation for the development will be derived using the TRICS v7.6.3 database. The peak trip rates and the total trips generated by the proposed development that are most likely to coincide with the background commuter peak periods are outlined in Table 5.1 below. The full TRICS data output for this development composition can be found in Appendix E.
- 5.2 These traffic levels below equate to average values which are considered to be the most appropriate, as the proposed development will proceed on the basis that it encouraging the use of sustainable modes of transport other than the private car.

Use	Time Period	Trip Rate (vehs./unit)		Trips Generated (vehs.)		
		Arrive	Depart	Arrive	Depart	Total
500 Residential Units	AM Peak Hour (08:00 – 09:00)	0.150	0.399	75	200	275
	PM Peak Hour (17:00-18:00)	0.387	0.159	194	80	274

Table 5.1: Trip Generation Details- Proposed Development

- 5.3 As outlined in Table 5.1 above, it is anticipated that the proposed development will add not more than 275 two-way trips per hour to the adjacent road network during the peak background traffic flow periods.

Trip Distribution

- 5.4 Having established the development traffic generation for the site, as shown in Table 5.1, a distribution exercise will be completed to predict the assignment of these trips onto the highway network. The latest census data (2011) will be interrogated for the Barnsley 002 super output area (middle layer) to predict the destination of residents travelling to work. The census data will be used to establish the journey to work destinations for all car driver trips travelling from Barnsley 002 to areas within a 40 minute drive time, as detailed in Appendix F.
- 5.5 The development traffic will be distributed onto the local highway network using the following routes to/from the site:
- Wakefield Road (North);
 - Wakefield Road (South);
 - Shaw Lane;
 - Station Road;
 - Church Street;
 - Cross Lane;
 - Church Lane(North);
 - Hall Field Lane; and
 - Church Lane (South)

- 5.6 The resulting distribution on the above local road network is summarise in Appendix F.

Committed Development

- 5.7 The developments (residential / retail) as detailed below and in Appendix G are to be considered as committed developments, and will impact on the junctions assessed in this study.

- Royston High School (2012/1337);
- Station Road (2015/0859);
- Aldi (2014/1528);
- Lee Lane (2013/0932);
- Wakefield Road (2014/0249)

5.8 The traffic generated by the above development is to be included in the junction capacity assessments.

Background Traffic Growth

5.9 To understand the effect of the development when it is built out, future year modelling will be undertaken. To predict the future year scenario, 2030 ie 10 years from the date of registration of the Planning Application, the Temprow v7.2 database will be interrogated. For the purposes of this assessment it is assumed that the development would be fully developed by 2030.

5.10 An unadjusted Temprow rate between 2019 and 2030, will be calculated using the Barnsley 002 Temprow area and road types. The resulting rates are shown below in Table 5.2 and in more detail in Appendix H.

Time Period (2019 – 2030)	Growth Rate
AM Peak Hour	1.1469
PM Peak Hour	1.1449

Table 5.2 Background Traffic Growth

5.11 The above growth rates will then be applied to the 2019 counts to produce the 2030 base year flows, upon which the proposed development traffic and committed development is added in order to assess the proposed development traffic impacts.

6. PERSONAL INJURY ACCIDENT RECORDS

- 6.1 Details of all personal injury accidents that have occurred on the adjacent road network will be obtained from Crashmap.co.uk for the latest available 5 year period (2014 to 2018).

7. NON-CAR MODES OF TRANSPORT

7.1 The sustainability of a site is inherently linked to its location and access to facilities that encourage active travel and public transport use. This sustainable travel section comprises of an assessment of accessibility to the development site and other key areas in relation to the following categories.

- Walking
- Cycling
- Public Transport

Walking

7.2 Planning guidance identifies walking as the most important mode of transport at the local level and offers the greatest potential to replace short car trips in journeys under 2km. Therefore, this places most of Royston within an acceptable walking distance from the development site as detailed in Appendix I.

7.3 Leisure footpaths (Royston UD 11, 22 and 25 as detailed in Appendix B) exist across Rabbit Ings Country Park and to the south and the Trans Pennine Trail exists along the disused Barnsley Canal, located adjacent to the western site boundary.

7.4 It is considered that the existing pedestrian infrastructure will facilitate safe and direct pedestrian linkages, between the site and local destinations, providing a footway is introduced on the west side of Lund Hill Lane.

Cycling

7.5 Planning guidance identifies that cycling has an important part to play in improving accessibility and reducing pollution. Cycling is generally considered to be a reasonable option for day to day trips up to 5km. Therefore, this places Royston, Notton, Cold

Hiendley, Ryhill, Havercroft, South Hiendley and the Carlton area within an acceptable cycling distance from the development site, as detailed in Appendix I.

- 7.6 Lund Hill Lane is not located on a cycle route, but is readily accessible to the National Cycle Network (National Route 67) some 1km north of the site.
- 7.7 National Cycle Network (National Route 67 as shown in Appendix J) links to the surrounding places such as Wakefield, Chesterfield and Leeds, and also links up with National Route 71.
- 7.8 The internal site layout will ensure vehicular speeds are low and as such this would assist cycle accessibility.
- 7.9 Overall the development site will have access on reasonable cycling links to key locations.

Public Transport

- 7.10 Bus services adjacent to the development site operate on Lund Hill Lane, Midlands Road and Cross Lanes.
- 7.11 There are 2 No. bus stops along Lund Hill Lane that will be within 100m of the proposed development site entrances, and where they both have bus shelters.
- 7.12 Within 800m of the proposed site entrances there are a further 6 No. bus stops on Midlands Road and Cross Lane, and where 3 No. have bus shelters.
- 7.13 The services which run on these roads are operated by Stagecoach Yorkshire and R & S Waterson Ltd, and run between Wakefield and Barnsley and a number of locations in between as detailed in Table 7.1 below.

Bus Stops	Service No. Operator	Route	Mon – Fri Frequency
Lund Hill Ln. opposite former Coke & Chemicals Works site and also adjacent to Cross Ln.	37ss R & S Waterson Ltd	Royston to Carlton and Athersley and return journey	Once daily (school days only)
Midland Road adjacent to Alfred St. (within 800m of dev. site entrances)	59 Stagecoach Ltd.	Wakefield to Barnsley via Royston and return journey	Between 30 mins. and 60 mins.
	59a Stagecoach Ltd.	Wakefield to Barnsley via Royston and return journey	60 mins.

Table 7.1: Bus Services and Routes

7.14 As can be seen from Table 7.1 the existing bus services provides regular journeys into Barnsley and Wakefield where bus connections to areas further afield via other services are on offer.

7.15 The bus services also allow residents to be able to interchange with rail services in Barnsley and Wakefield. The nearest railway station however to the development site is Fitzwilliam Railway Station located circa. 6km by road to the east. This station is on the Wakefield Line operated by Northern. During weekdays a half-hourly service operates towards Leeds via Wakefield Westgate and an hourly service operates both to Doncaster and Sheffield.

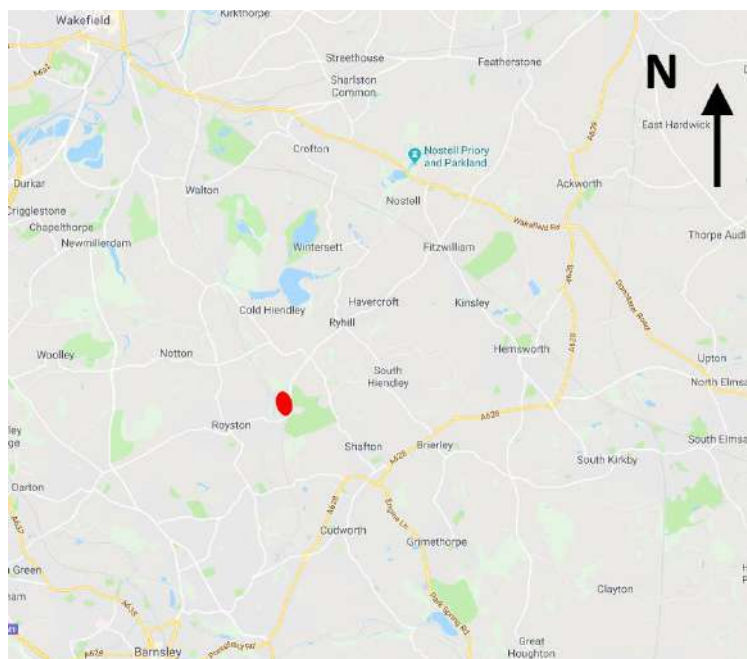
7.16 HS2 also proposed??

8. SITE ACCESS AND LAYOUT CONSIDERATIONS

- 8.1 Access to the site is currently proposed via the existing site entrance opposite the pedestrian entrance to Rabbit Ings County Park entrance. Utilising the 'Manual for Streets' guidance the required junction visibility of 43m can be achieved at this location.
- 8.2 A 2m wide footway is proposed on the west side of Lund Hill Lane to enhance pedestrian movement from the site to the bus stops and other local amenities.
- 8.3 All internal roads are to be designed in accordance with the South Yorkshire Design Guide and Manual for Streets.
- 8.4 The headroom restriction of 3.3m under the railway bridge on Lund Hill Lane will preclude rear steer Refuse Collection Vehicles (RCVs) accessing the site from the remainder of the collections in Royston.
- 8.5 RCVs presently collect in Shafton, up to the Greenside Estate and "The Singing Man" public house. To serve this development, RCVs would need to travel along Sandy Bridge Lane – Raven Lane – Church Lane to the Hall Field Lane / Lund Hill Lane crossroads, an additional distance of 2 miles.
- 8.6 The local highway network from Shafton to this site, referred to above, is satisfactory to accommodate these vehicles.

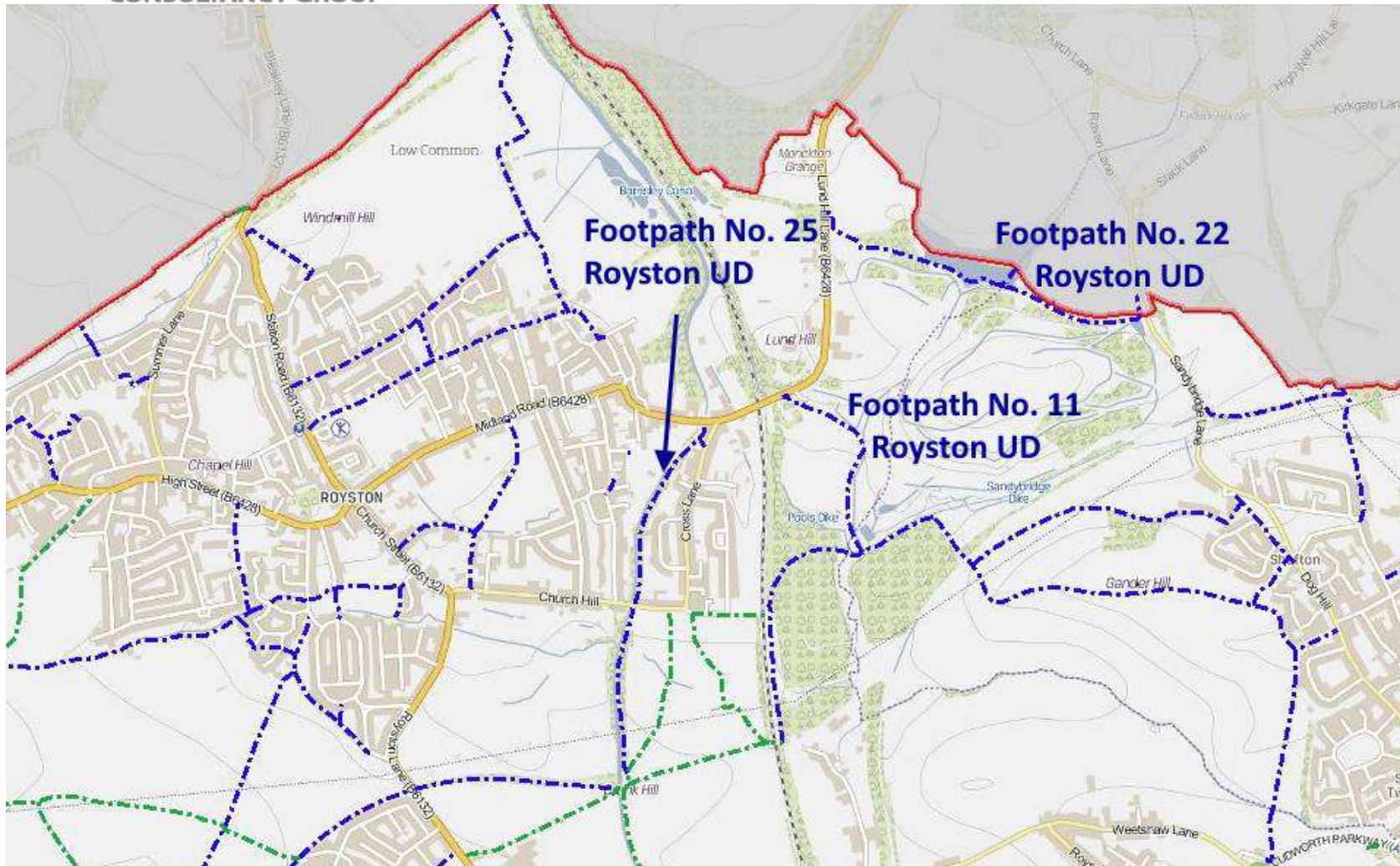
APPENDIX A

Development Site Location and Concept Layout Plan

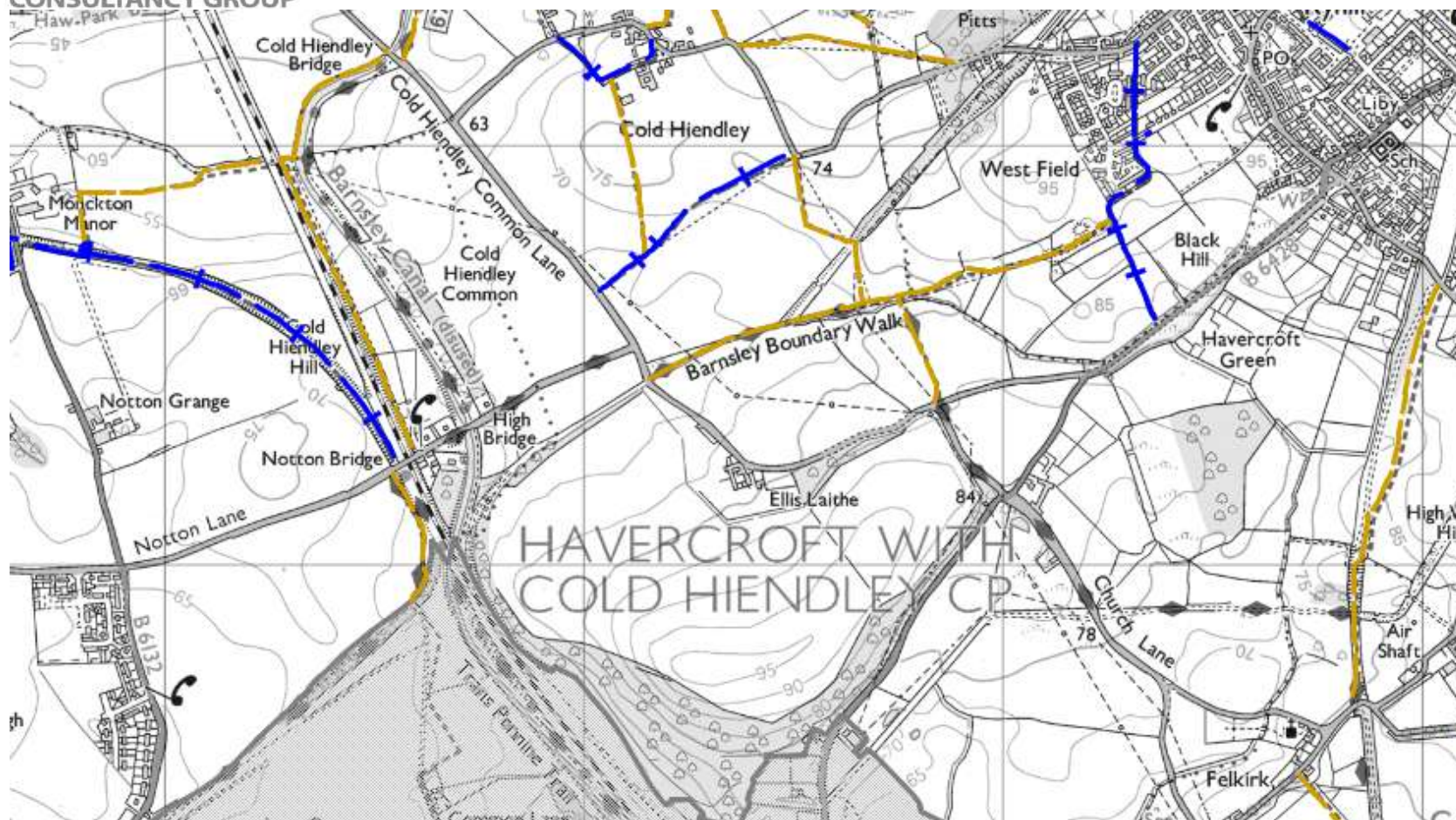


APPENDIX B

Public Rights of Way



Barnsley MDC



Wakefield MDC

APPENDIX C

Junction to be Assessed.



APPENDIX D

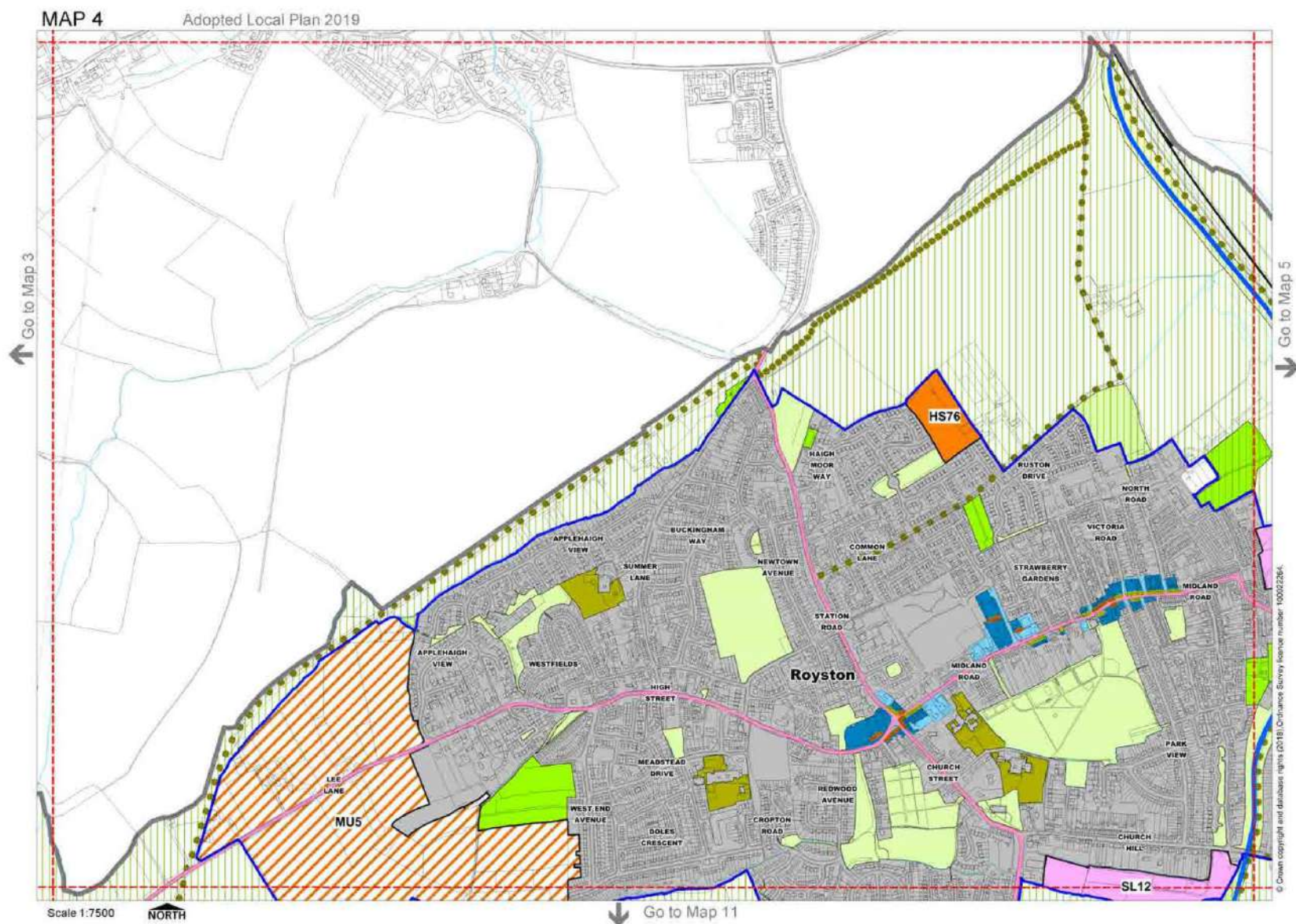
Policy Maps - Barnsley MDC Adopted Local Plan 2019

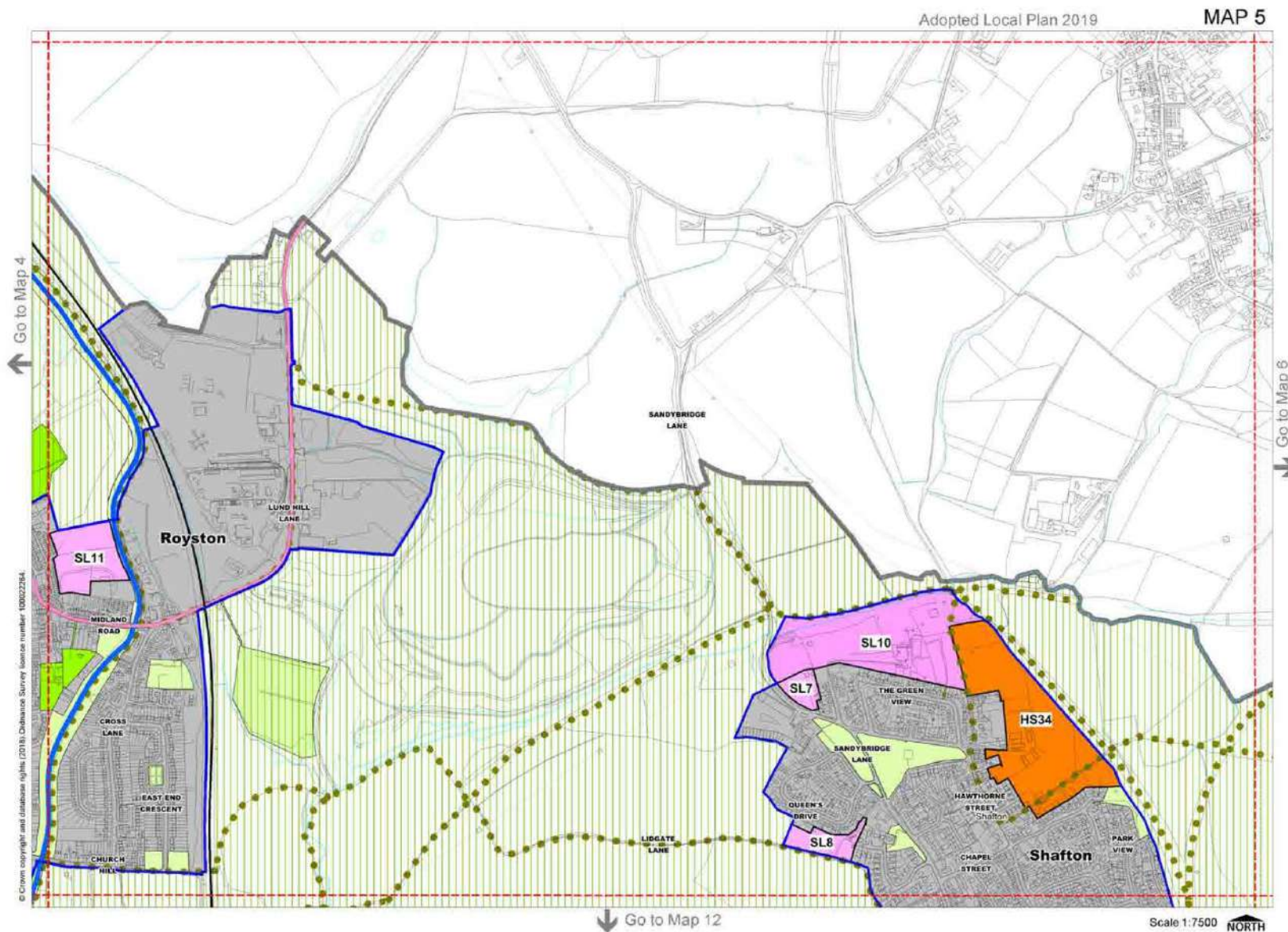
Adopted Local Plan 2019

Policies Maps Key

	Housing Allocation Land allocated for new housing		Conservation Area Areas of special historic character, which will be protected and improved		Safeguarded Former Railway Lines Former strategic railway lines safeguarded for potential reinstatement
	Employment Allocation Land allocated for employment uses		Functional Floodplain (Floodzone 3b) Land where water is stored in times of flood, a vital part of flood control		Canal - Safeguarded Route Protected parts of the canal routes which are in water and have a green infrastructure function, or where a towpath exists which is a public right of way
	Land Proposed for Mixed Use Land allocated for mixed uses		District or Local Centre Area of shops and services		Canal - Historic Route
	Urban Fabric Land within the Settlement with no specific allocation		Primary Shopping Area Area where retail proposals will be encouraged and supported		Site with Planning Permission for Mineral Extraction
	Green Belt Land to be kept mainly free from development		Primary Shopping Frontage Frontages that include a high proportion of retail uses		Area of search for new minerals Area to be safeguarded from inappropriate non-mineral development
	Safeguarded Land Safeguarded for development		Secondary Shopping Frontage Frontages with more opportunity for other town centre uses		Site Safeguarded for Mineral Extraction Land safeguarded from sterilisation from non-mineral development
	Green Space Parks and open spaces, play areas, sports pitches, local natural areas and cemeteries		Retail Park Land suitable for retail warehouses		Barnsley Borough Boundary
	Allotment		Local Strategic Highway Network Roads classified by the Local Highway Authority as having more than local importance		Peak District National Park Area of the Peak District National Park falling within the Barnsley Borough
	School grounds		Site for Travellers Sites to provide accommodation for Travellers		Scheduled Ancient Monument Important sites and monuments given legal protection by being placed on a list (or schedule)
	Park and Garden of Historic Interest		Barnsley Town Centre Area covered by Town Centre inset maps		Existing railway lines and stations
	Biodiversity or Geological Interest Site Site recognised as having biodiversity and/or geological value		Settlement Boundary showing the geographical areas of Urban Barnsley and the Principal Towns		Route of HS2 consultation See HS2 website at www.gov.uk for more information
	Green Way Paths and other routes of mostly open character that provide links between housing, countryside and services		Safeguarded Strategic Waste Management Site Site allocated for safeguarding and enhancing existing strategic waste management site in the Barnsley, Doncaster and Rotherham Joint Waste Plan (Adopted March 2012)		Undevelopable Land due to Heritage Land to remain undeveloped due to the impact on the historic environment

NB: For the Nature Improvement Area please see the Green Infrastructure diagram in the Adoption Version of the Local Plan.





APPENDIX E

TRICS

Calculation Reference: AUDIT-240601-190918-0909

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
VEHICLES

Selected regions and areas:

02 SOUTH EAST	
HC HAMPSHIRE	2 days
KC KENT	3 days
SC SURREY	1 days
WS WEST SUSSEX	4 days
03 SOUTH WEST	
SM SOMERSET	2 days
04 EAST ANGLIA	
NF NORFOLK	2 days
SF SUFFOLK	1 days
05 EAST MIDLANDS	
LE LEICESTERSHIRE	1 days
LN LINCOLNSHIRE	1 days
06 WEST MIDLANDS	
SH SHROPSHIRE	2 days
ST STAFFORDSHIRE	1 days
07 YORKSHIRE & NORTH LINCOLNSHIRE	
NY NORTH YORKSHIRE	4 days
08 NORTH WEST	
CH CHESHIRE	1 days
09 NORTH	
DH DURHAM	1 days
17 ULSTER (NORTHERN IRELAND)	
AN ANTRIM	2 days
DO DOWN	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 10 to 918 (units:)
 Range Selected by User: 6 to 1000 (units:)

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 09/05/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	13 days
Wednesday	9 days
Thursday	7 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	29 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	9
Edge of Town	15
Neighbourhood Centre (PPS6 Local Centre)	5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3 29 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	9 days
5,001 to 10,000	8 days
10,001 to 15,000	8 days
15,001 to 20,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	3 days
25,001 to 50,000	7 days
50,001 to 75,000	5 days
75,001 to 100,000	12 days
100,001 to 125,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	21 days
1.6 to 2.0	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	5 days
No	24 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	29 days
-----------------	---------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AN-03-A-07	SEMI DETACHED/TERRACED HOUSING	ANTRIM
	CASTLE WAY ANTRIM		
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	55	
	Survey date: TUESDAY	20/12/11	Survey Type: MANUAL
2	AN-03-A-09	DETACHED & SEMI-DETACHED	ANTRIM
	SLOEFIELD DRIVE CARRICKFERGUS		
	Edge of Town No Sub Category Total Number of dwellings:	151	
	Survey date: WEDNESDAY	12/10/16	Survey Type: MANUAL
3	CH-03-A-08	DETACHED	CHESHIRE
	WHITCHURCH ROAD CHESTER BOUGHTON HEATH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	11	
	Survey date: TUESDAY	22/05/12	Survey Type: MANUAL
4	DH-03-A-01	SEMI DETACHED	DURHAM
	GREENFIELDS ROAD BISHOP AUCKLAND		
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	50	
	Survey date: TUESDAY	28/03/17	Survey Type: MANUAL
5	DO-03-A-03	DETACHED/SEMI DETACHED	DOWN
	OLD MILL HEIGHTS BELFAST DUNDONALD Edge of Town Residential Zone Total Number of dwellings:	79	
	Survey date: WEDNESDAY	23/10/13	Survey Type: MANUAL
6	HC-03-A-18	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY LIPHOOK		
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	62	
	Survey date: TUESDAY	29/11/16	Survey Type: MANUAL
7	HC-03-A-20	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY LIPHOOK		
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	62	
	Survey date: TUESDAY	20/11/18	Survey Type: MANUAL
8	KC-03-A-03	MIXED HOUSES & FLATS	KENT
	HYTHE ROAD ASHFORD WILLESBOROUGH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	51	
	Survey date: THURSDAY	14/07/16	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9	KC-03-A-07	MIXED HOUSES	KENT
	RECULVER ROAD HERNE BAY		
	Edge of Town Residential Zone Total Number of dwellings:	288	
	Survey date: WEDNESDAY	27/09/17	Survey Type: MANUAL
10	KC-03-A-08	MIXED HOUSES	KENT
	MAIDSTONE ROAD CHARING		
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings:	159	
	Survey date: TUESDAY	22/05/18	Survey Type: MANUAL
11	LE-03-A-02	DETACHED & OTHERS	LEICESTERSHIRE
	MELBOURNE ROAD IBSTOCK		
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings:	85	
	Survey date: THURSDAY	28/06/18	Survey Type: MANUAL
12	LN-03-A-03	SEMI DETACHED	LINCOLNSHIRE
	ROOKERY LANE LINCOLN BOULTHAM Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	22	
	Survey date: TUESDAY	18/09/12	Survey Type: MANUAL
13	NF-03-A-01	SEMI DET. & BUNGALOWS	NORFOLK
	YARMOUTH ROAD CAISTER-ON-SEA		
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	27	
	Survey date: TUESDAY	16/10/12	Survey Type: MANUAL
14	NF-03-A-03	DETACHED HOUSES	NORFOLK
	HALING WAY THETFORD		
	Edge of Town Residential Zone Total Number of dwellings:	10	
	Survey date: WEDNESDAY	16/09/15	Survey Type: MANUAL
15	NY-03-A-07	DETACHED & SEMI DET.	NORTH YORKSHIRE
	CRAVEN WAY BOROUGHBRIDGE		
	Edge of Town No Sub Category Total Number of dwellings:	23	
	Survey date: TUESDAY	18/10/11	Survey Type: MANUAL
16	NY-03-A-10	HOUSES AND FLATS	NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD RIPON		
	Edge of Town No Sub Category Total Number of dwellings:	71	
	Survey date: TUESDAY	17/09/13	Survey Type: MANUAL
17	NY-03-A-11	PRIVATE HOUSING	NORTH YORKSHIRE
	HORSEFAIR BOROUGHBRIDGE		
	Edge of Town Residential Zone Total Number of dwellings:	23	
	Survey date: WEDNESDAY	18/09/13	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

18	NY-03-A-13	TERRACED HOUSES	NORTH YORKSHIRE
	CATTERICK ROAD		
	CATTERICK GARRISON		
	OLD HOSPITAL COMPOUND		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	10	
	Survey date: WEDNESDAY	10/05/17	Survey Type: MANUAL
19	SC-03-A-04	DETACHED & TERRACED	SURREY
	HIGH ROAD		
	BYFLEET		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	71	
	Survey date: THURSDAY	23/01/14	Survey Type: MANUAL
20	SF-03-A-05	DETACHED HOUSES	SUFFOLK
	VALE LANE		
	BURY ST EDMUNDS		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	18	
	Survey date: WEDNESDAY	09/09/15	Survey Type: MANUAL
21	SH-03-A-05	SEMI-DETACHED/TERRACED	SHROPSHIRE
	SANDCROFT		
	TELFORD		
	SUTTON HILL		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	54	
	Survey date: THURSDAY	24/10/13	Survey Type: MANUAL
22	SH-03-A-06	BUNGALOWS	SHROPSHIRE
	ELLESMERE ROAD		
	SHREWSBURY		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	16	
	Survey date: THURSDAY	22/05/14	Survey Type: MANUAL
23	SM-03-A-02	MIXED HOUSES	SOMERSET
	HYDE LANE		
	NEAR TAUNTON		
	CREECH SAINT MICHAEL		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of dwellings:	42	
	Survey date: TUESDAY	25/09/18	Survey Type: MANUAL
24	SM-03-A-03	MIXED HOUSES	SOMERSET
	HYDE LANE		
	NEAR TAUNTON		
	CREECH ST MICHAEL		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total Number of dwellings:	41	
	Survey date: TUESDAY	25/09/18	Survey Type: MANUAL
25	ST-03-A-07	DETACHED & SEMI-DETACHED	STAFFORDSHIRE
	BEACONSIDE		
	STAFFORD		
	MARSTON GATE		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	248	
	Survey date: WEDNESDAY	22/11/17	Survey Type: MANUAL

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

VEHICLES

Calculation factor: **1 DWELLS**

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	29	101	0.078	29	101	0.300	29	101	0.378
08:00 - 09:00	29	101	0.150	29	101	0.399	29	101	0.549
09:00 - 10:00	29	101	0.142	29	101	0.169	29	101	0.311
10:00 - 11:00	29	101	0.123	29	101	0.151	29	101	0.274
11:00 - 12:00	29	101	0.132	29	101	0.158	29	101	0.290
12:00 - 13:00	29	101	0.160	29	101	0.140	29	101	0.300
13:00 - 14:00	29	101	0.155	29	101	0.164	29	101	0.319
14:00 - 15:00	29	101	0.170	29	101	0.188	29	101	0.358
15:00 - 16:00	29	101	0.253	29	101	0.170	29	101	0.423
16:00 - 17:00	29	101	0.293	29	101	0.182	29	101	0.475
17:00 - 18:00	29	101	0.387	29	101	0.159	29	101	0.546
18:00 - 19:00	29	101	0.296	29	101	0.178	29	101	0.474
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.339			2.358			4.697

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

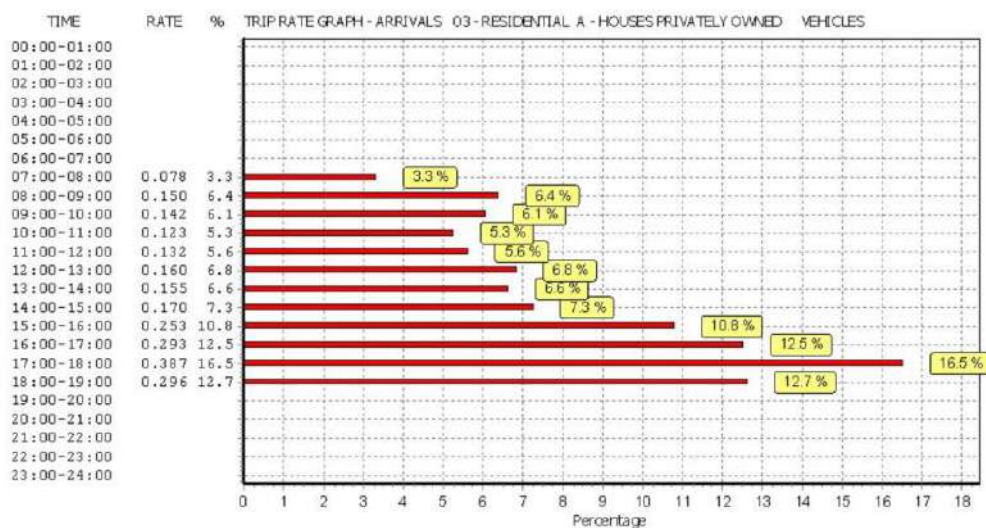
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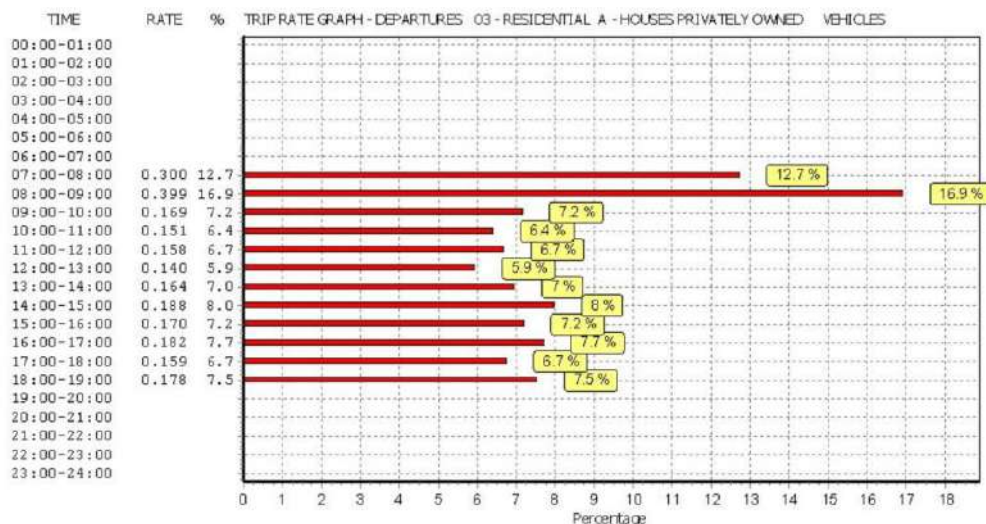
Parameter summary

Trip rate parameter range selected: 10 - 918 (units:)
 Survey date range: 01/01/11 - 09/05/19
 Number of weekdays (Monday-Friday): 29
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 2
 Surveys manually removed from selection: 0

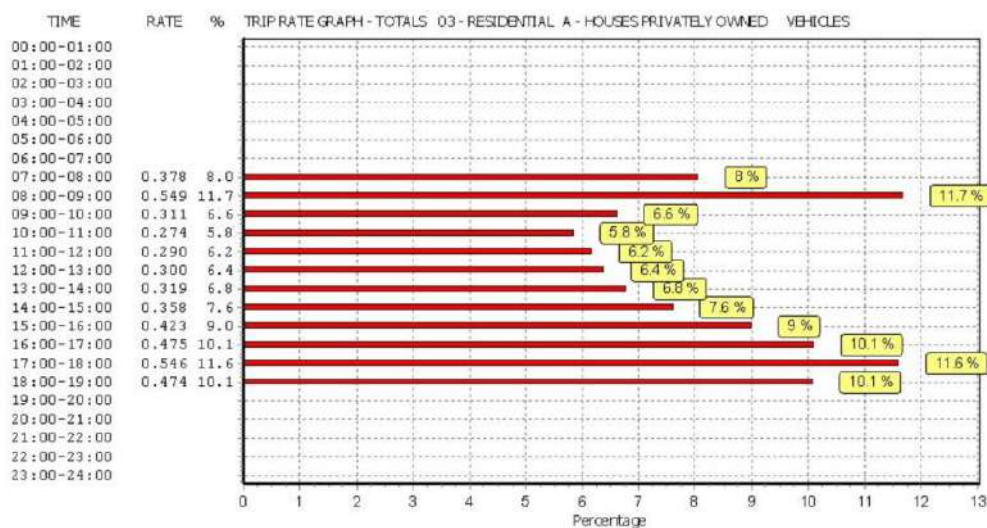
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



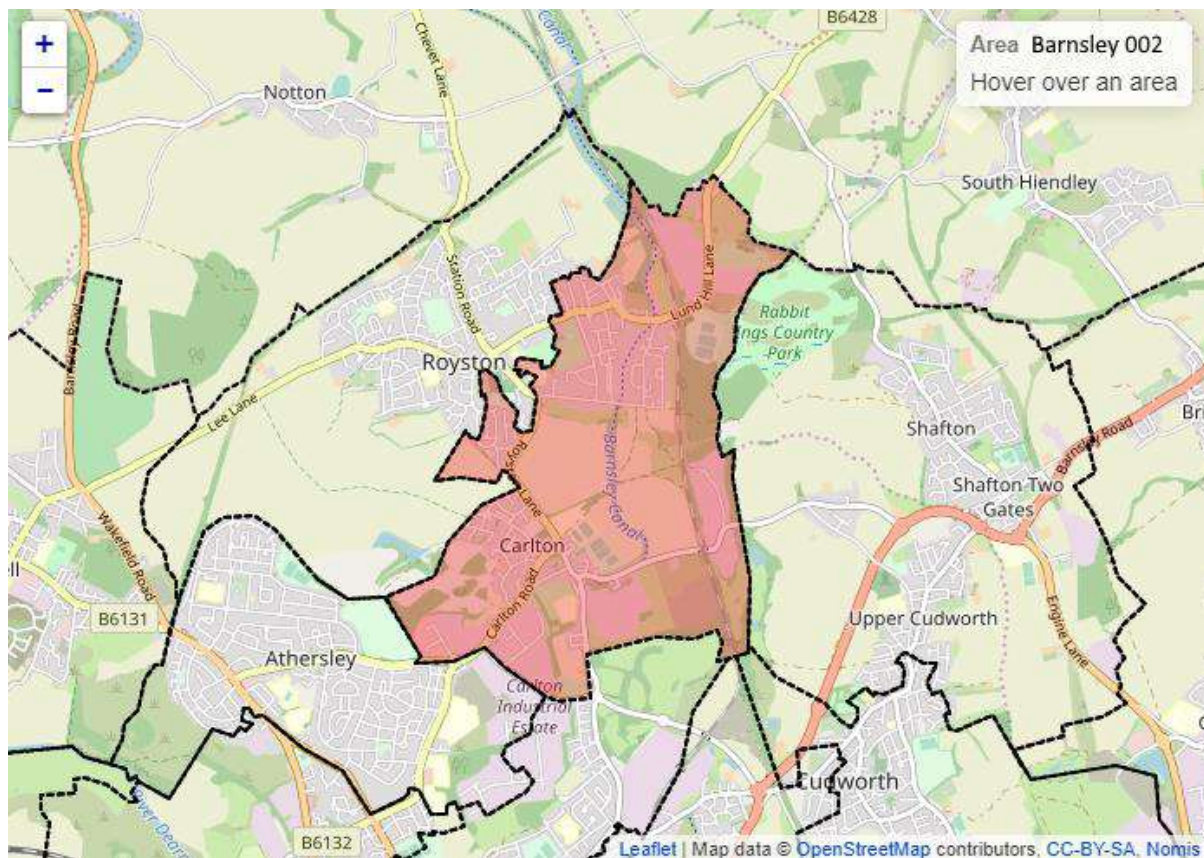
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This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

APPENDIX F

Trip Distribution Data – Office for National Statistics



WUJEW - Location of usual residence and place of work by method of travel to work (BEOA level)

At a dose level of about 1.5 mg/kg, mice in experiment 10 were sacrificed 24 weeks before the control

1992

CASE 101

local residence	E02331 513 : Gensky 602 (2011) super output area - middle layer
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Data Distribution																				Total Number of Data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Project or Work	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000

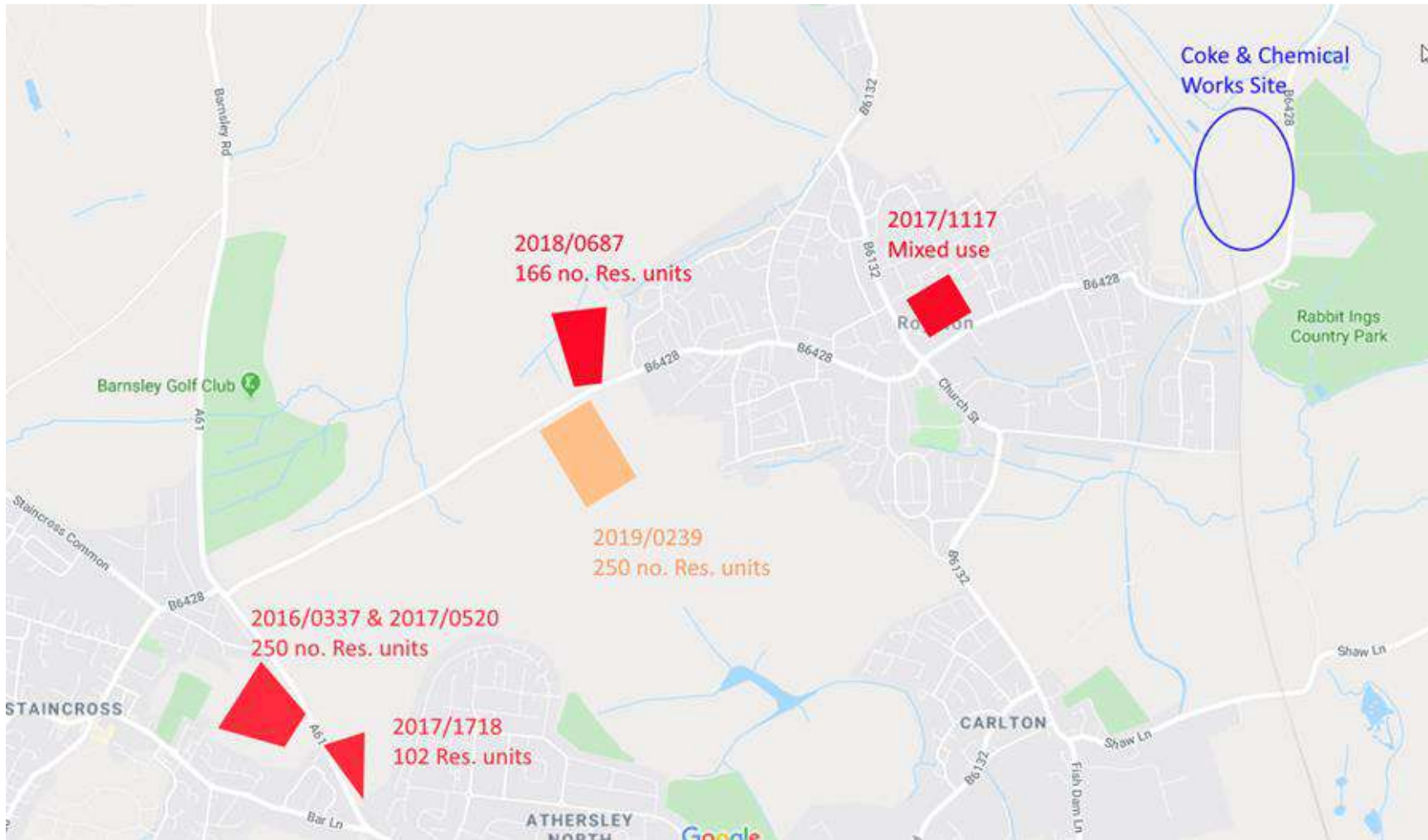
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In order to protect against disclosure of personal information, records have been reviewed to remove identifiable cases. Some counts will be affected, particularly small counts at the lowest occupational levels.

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APPENDIX G

Committed Developments



APPENDIX H

Traffic Growth -TEMPro

TEMPro main form

Data selections
Trip end selections
Trip end by time period selections

Select time period:
Weekday AM peak period (0700 - 0959)

Trip end type
☐ Production/Attraction
☒ Origin/Destination

Select data type
☒ Growth factors
☐ Future year minus base year
☐ Base year data
☐ Future year data

Results
 *Italicised results indicate that there is a lower level of confidence in data presented at the zonal level than when aggregated to higher geographical levels

Car Driver Combined Modes

Area Description		All Purposes	
Level	Name	Origin	Destination
<i>E02001510</i>	<i>Barnsley 002</i>	<i>1.0907</i>	<i>1.0854</i>

Reset Selections

NTM Traffic Growth Calculations

1: Select NTM Dataset:

NTM Dataset Description	From	To
NTM AF15 Dataset	2010	2040
NTM AF09 Dataset	2003	2035
NTM AF08 Dataset	2003	2025

2: Select Areas to make up the geographic region:
☒ Barnsley 002 (E02001510)

3: Select area type:
☐ Urban
☐ Rural
☒ All

4: Select road type:
☐ Motorway
☐ Trunk
☐ Principal
☐ Minor
☒ All

5: Select which area it serves:
☒ Region
☐ England

Calculate the adjusted local growth figure

Results

Level	Area	Local Growth Figure
E02001510	Barnsley 002	1.1469

TEMPro main form

Data selections
Trip end selections
Trip end by time period selections

Select time period:
Weekday PM peak period (1600 - 1859)

Trip end type
☐ Production/Attraction
☒ Origin/Destination

Select data type
☒ Growth factors
☐ Future year minus base year
☐ Base year data
☐ Future year data

Results
**Italicised results indicate that there is a lower level of confidence in data presented at the zonal level than when aggregated to higher geographical levels*

Car Driver Combined Modes

Area Description		All Purposes	
Level	Name	Origin	Destination
E02001510	Barnsley 002	<i>1.0837</i>	<i>1.0887</i>

Reset Selections

NTM Traffic Growth Calculations

1: Select NTM Dataset:

NTM Dataset Description	From	To
NTM AF15 Dataset	2010	2040
NTM AF09 Dataset	2003	2035
NTM AF08 Dataset	2003	2025

2: Select Areas to make up the geographic region:
☒ Barnsley 002 (E02001510)

3. Select area type:
☐ Urban
☐ Rural
☒ All

4. Select road type:
☐ Motorway
☐ Trunk
☐ Principal
☐ Minor
☒ All

5. Select which area it serves:
☒ Region
☐ England

Calculate the adjusted local growth figure

Results

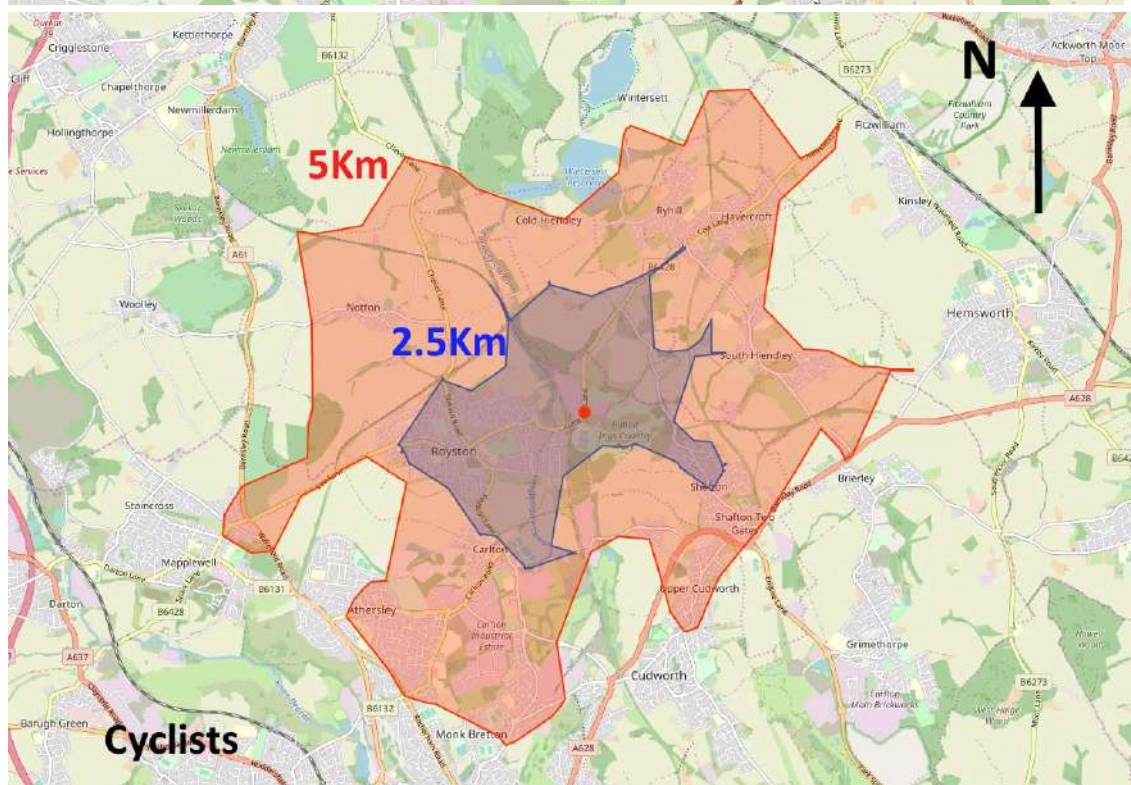
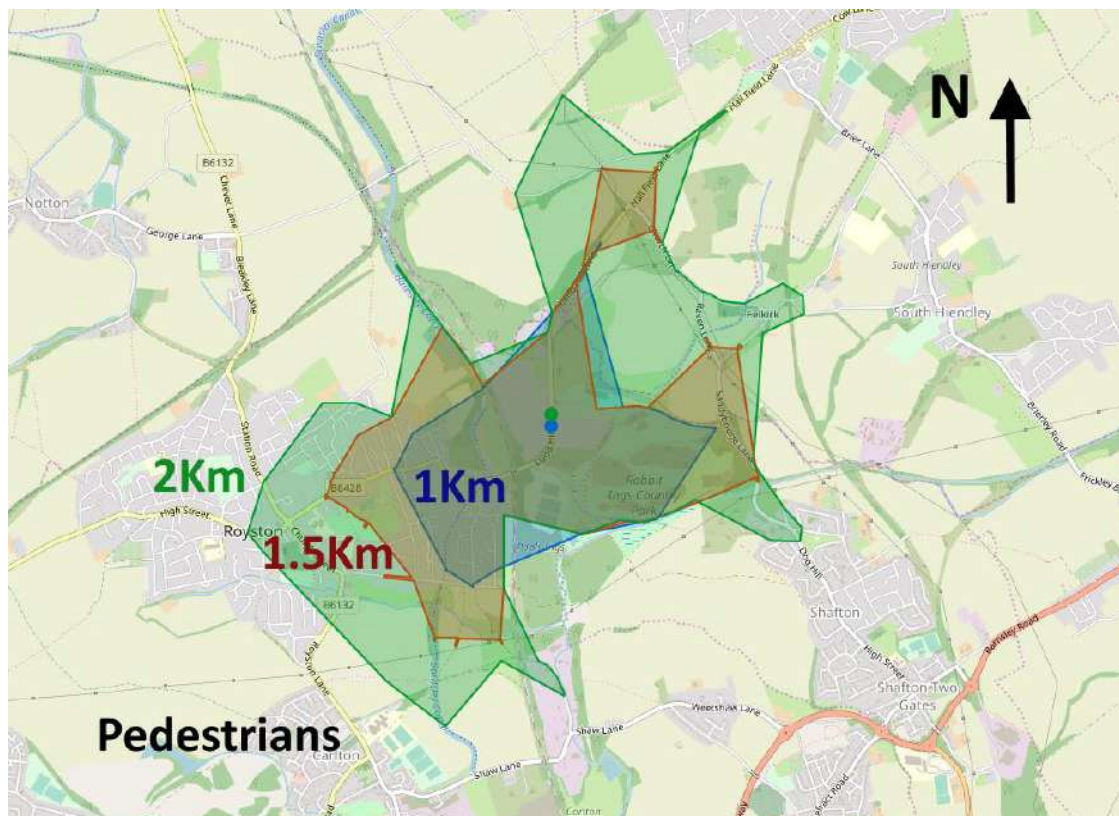
Level	Area	Local Growth Figure
E02001510	Barnsley 002	1.1449

APPENDIX I

Isochrone Distance Maps

Pedestrians

Cyclists



APPENDIX J

Cycle Routes

