

The West Midlands Rail Freight Interchange Order 201X
Environmental Statement - Non-technical summary (NTS)
Regulation 5(2)(a)
Ramboll - July 2018



West Midlands
Interchange

Four Ashes Ltd

The West Midlands Rail Freight Interchange Order 201X

Environmental Statement Non-Technical Summary

Document Ref 6.3

Regulation 5(2)(a)

July 2018

Ramboll

Contents

1. INTRODUCTION	1
1.1 Purpose of this NTS	1
1.2 Viewing the ES and Application	2
2. THE EXISTING SITE AND SURROUNDING CONTEXT	4
2.1 The Site.....	4
2.2 Planning History	6
2.3 The Surrounding Area	6
3. DESIGN EVOLUTION AND ALTERNATIVES	8
3.2 Alternative Sites	8
3.3 Design Evolution	11
4. DESCRIPTION OF THE PROPOSED DEVELOPMENT	12
4.2 Freight Terminal and Rail Infrastructure.....	13
4.3 External Works, Landscaping and Green Infrastructure.....	14
4.4 Highway Works and Access.....	16
5. DEMOLITION AND CONSTRUCTION WORKS	19
5.1 Overview	19
5.2 Programme and Phasing	19
5.3 Working Hours	20
6. ENVIRONMENTAL IMPACT ASSESSMENT	21
6.1 EIA Process and Methodology	21
6.2 Topics Included in the EIA	21
6.3 Cumulative Effects	23
7. WHAT ARE THE LIKELY SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSED DEVELOPMENT?.....	24
7.2 Agriculture and Soils	24
7.3 Air Quality	26
7.4 Archaeology	28

7.5	Cultural Heritage	30
7.6	Ecology and Nature Conservation.....	33
7.7	Ground Conditions	36
7.8	Landscape and Visual	39
7.9	Noise and Vibration	42
7.10	Socio-Economics and Human Health	44
7.11	Transport and Access	48
7.12	Water Environment	50
7.13	Cumulative Effects	52
8.	SUMMARY.....	55

1. INTRODUCTION

1.1 Purpose of this NTS

1.1.1 This is the Non-Technical Summary (NTS) of the Environmental Statement (ES) which has been prepared by Ramboll in accordance with the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) ('EIA Regulations') and relevant guidance, including the National Networks National Policy Statement (2014) (NPS). It has been prepared to accompany an application by Four Ashes Ltd (the 'Applicant') to the Secretary of State ('SoS') via the Planning Inspectorate ('PINS') for a development consent order ('DCO') under the Planning Act 2008 for the development of a new Strategic Rail Freight Interchange ('SRFI') (including warehousing) (the 'Proposed Development') at land located at Four Ashes, Staffordshire (the 'Site'). The Proposed Development, as a rail freight interchange, constitutes a Nationally Significant Infrastructure Project ('NSIP') under Sections 14(1)(l) and 26 of the Planning Act 2008.

1.1.2 In summary, the proposals include the following:

- An intermodal freight terminal with direct connections to the West Coast Main Line, capable of accommodating up to 10 trains per day and trains of up to 775m long, including container storage, Heavy Goods Vehicle ('HGV') parking, rail control building and staff facilities;
- Up to 743,200 square metres (gross internal area) of rail served warehousing and ancillary service buildings;
- New road infrastructure and works to the existing road infrastructure;
- Demolition and alterations of existing structures and earthworks to create development plots and landscape zones;
- Reconfiguring and burying of electricity pylons and cables; and

- Strategic landscaping and open space, including alterations to public rights of way and the creation of new ecological enhancement areas and publicly accessible open areas.

1.1.3 This NTS is a summary of the main findings of the ES. The NTS provides:

- a description of the Proposed Development and surrounding area;
- an outline of the main development alternatives considered by the Applicant and an indication of the main reasons for their choice, taking into account the potential environmental effects;
- a summary of the likely significant environmental effects predicted; and
- a summary of the mitigation measures proposed that would help avoid, reduce or control any significant adverse environmental effects.

1.1.4 The aim of the NTS is to summarise the content and main findings of the ES in a clear and concise manner to assist the public in understanding what the likely significant environmental effects of the Proposed Development are likely to be.

1.2 Viewing the ES and Application

1.2.1 The full ES comprises:

- Volume 1: Environmental Statement Main Report;
- Volume 2: Technical Appendices; and
- Non-Technical Summary (this document).

1.2.2 This NTS and the full ES, together with other supporting documents are available for viewing in the following formats:

- Online: All application documents will be available to download from the project website: www.westmidlandsinterchange.co.uk;
- Digital storage device: A USB containing digital copies of all consultation documents will be available. We will send a copy of this USB free of charge to those who request it;
- Printed copies of all the ES are available on request, however there may be a charge required to cover the cost of printing; and
- Information points: Copies of the ES will be available at the local information points to review.

2. THE EXISTING SITE AND SURROUNDING CONTEXT

2.1 The Site

- 2.1.1 The Site is approximately 10 kilometres to the north of Wolverhampton and immediately west of Junction 12 of the M6 in South Staffordshire. The Site is approximately 297 hectares (ha) in size and is located within the administrative boundary of South Staffordshire District Council (SSDC), within the Civil Parishes of Brewood and Coven, Penkridge and Hatherton.
- 2.1.2 The Site is broadly bound by the A5 road to the north (from Junction 12 to the Gailey Roundabout); Calf Heath reservoir, the M6, Stable Lane and Woodlands Lane to the east; Station Drive, Staight Mile and Woodlands Lane to the south; and the A449 (Stafford Road), from the Gailey Roundabout to Station Drive to the west. The south-eastern area of the Site is bisected by Vicarage Road.
- 2.1.3 The existing Site comprises mostly arable farmland with hedgerows and trees, with a large sand and gravel quarry in the east and north-east, and mixed plantation woodland known as Calf Heath Wood at the centre of the Site.
- 2.1.4 The Staffordshire and Worcestershire Canal runs roughly north to south through the western part of the Site. The West Coast Main Line (WCML) runs north to south through the Site.
- 2.1.5 Public access to the Site is limited. A single Public Right of Way exists in the north-west and provides a link between Croft Lane and the A449 via an overbridge to the railway. A towpath also extends along the western side of the canal along its length through the Site.
- 2.1.6 The Site is in general bound to the north by the A5/Watling Street; to the east by Calf Heath Reservoir and some pastoral farmland; to the south by a chemical works and Four Ashes industrial estate, the Staffordshire and

Worcestershire Canal, Straight Mile road and farmland; and to the west by the A449 Stafford Road. Two existing industrial uses border the central enclave of the Site boundary.



Figure 1: Site Location

2.2 Planning History

- 2.2.1 A number of planning permissions have been granted by Staffordshire County Council (SCC) relating to a sand and gravel extraction quarry which is currently operational on a large area of the Site. The current permission (Ref No. SS.12/08/681) allows the phased extraction of sand and gravel and subsequent restoration of approximately 38 hectares of land in the east and north-east of the Site.
- 2.2.2 SSDC approved an outline planning application in March 2008 for the erection of warehousing and associated offices, parking, and access arrangements at a roughly 25 hectare site located between the Staffordshire and Worcestershire Canal and Calf Heath Wood, directly adjacent to the Site (Ref No. 07/01363/OUT). This development was never implemented, however, a further application was submitted in May 2016 which sought detailed consent for the creation of industrial / distribution warehousing along with access and servicing arrangements, car parking, landscaping and associated works (Ref No. 16/00498/FUL). The application was approved and the development has been implemented (the 'Bericote Development').

2.3 The Surrounding Area

- 2.3.1 The land surrounding the Site broadly comprises the following:
- Residential and commercial uses along the A5 to the north, beyond which lies further mostly pastoral farmland;
 - Calf Heath Reservoir and associated woodland to the north-east, beyond which lies the M6 corridor and Junction 12, and further to the north-east Gailey Reservoirs, woodland and pastoral farmland;
 - Mixed industrial uses within the central enclave of the Site boundary and to the south of the Site, comprising a chemical works (operated by SI Group), Four Ashes industrial estate, two existing industrial units and, recently, further warehouse units known as the Bericote Development;

- Mixed agricultural and disused land to the south-east, beyond which lies Calf Heath village and Hatherton Marina; and
- Mostly open arable fields to the west of the A449.

2.3.2 The Site is strategically placed in relation to the road and rail network, being located close to Junction 12 of the M6 with access via the A5; adjacent to the WCML; and close to Junctions 11 and 10a of the M6 facilitating access to the M6 Toll and M54 respectively.

3. DESIGN EVOLUTION AND ALTERNATIVES

3.1.1 In line with the EIA Regulations, the ES provides a description of the main alternatives to the Proposed Development, considered by the Applicant. These include:

- Alternative sites; and
- Alternative designs through design evolution.

3.1.2 A 'do nothing' alternative has not been considered since the Proposed Development is an NSIP the need for which is set out in the National Networks National Policy Statement.

3.2 Alternative Sites

3.2.1 As part of the Environmental Impact Assessment (EIA), a number of alternative locations have been considered which could potentially meet the need for a strategic rail freight interchange (SRFI) for the West Midlands region. The assessment of alternative sites in the ES drew from the Alternative Site Assessment (ASA) prepared by Quod (Document 7.2).

3.2.2 The Applicant and the project team concentrated its search for a SRFI location on the area to the north-west of the West Midlands, where there is a notable gap in the national network of SRFIs. Previous independent research by public bodies indicated that additional SRFI and / or rail-served warehouse floor space was needed in this part of the West Midlands and that this area should be treated as a priority. Refer to section 4 of the Planning Statement (Document 7.1) for more detail.

3.2.3 Using the WCML, which forms part of the Strategic Freight Network for Rail, as a starting point, the Applicant considered a number of alternative sites in the West Midlands area.

3.2.4 The ASA considered a range of technical, spatial, logistical and planning policy requirements for the SRFI as well as making an appraisal of environmental constraints for each alternative site.

3.2.5 A long-list of eleven sites was identified, which was then shortlisted to five including the WMI Site, as follows:

- **ROF Featherstone** – The emerging employment allocation at the ROF Featherstone site is not large enough to accommodate an SRFI development. Therefore, the development of this site for an SRFI would need to look beyond the site allocation, into the Green Belt. However, even if a much larger development area is considered, the difficulties in achieving rail access undermine the site’s suitability and the close proximity of relatively large numbers of residential properties represents a significant constraint to the successful operation of rail facilities. There are also identified highways access constraints in the surrounding area that significantly restrict accessibility of the site for all vehicle types. On this basis, ROF Featherstone is not considered to represent an SRFI development opportunity.
- **Rugeley Power Station** – The site is of suitable scale for development as an SRFI. However, providing quality rail connectivity appears particularly constrained, complex and expensive. The quality of the main road access decreases further from the site on the routes towards the strategic road network. All routes to the strategic road network have direct residential frontage and pass through several built-up areas further reducing the suitability of the site. Furthermore, the site is being promoted for potential residential usage and may be relied upon to contribute to meeting the future housing needs of Cannock Chase and Lichfield Councils. On this basis, the site is not considered to represent a suitable or appropriate alternative.
- **Dunston** – This site is not being promoted, privately or through planning policy, for development of any kind. The site is entirely undeveloped and has a strongly rural character despite its location on the edge of the Stafford conurbation. Whilst located outside of the Green Belt, the site is designated Open Countryside and forms part of an open, rural landscape that connects with and encompasses further open farmland stretching beyond the site. Development of an SRFI

on this site would be likely to result in notable and significant landscape and visual impacts. Impacts on the landscape, cultural heritage and the existing watercourse, Pothooks Brook, as well as the secondary impacts on the ecology and hydrology would be challenging to mitigate and present significant constraints at the site. Major engineering such as realignment or culverting of a brook would be required. The combined impacts on this rural site, as well as the effects on local amenity, make the site unsuitable and is not considered to be an acceptable location for an SRFI. On this basis, this site is considered to be fundamentally unsuitable.

- **Creswell** – The site is located within the river Sow valley, directly upstream of and very close to Doxey Marshes Site of Special Scientific Interest (SSSI), approximately 123.9 hectares in area, on the north-east fringe of Stafford. The River Sow flows directly adjacent to the WCML through most of the site, which would necessitate major engineering such as realignment or culverting. The topography and flood risk would require significant raising of the development platform in order to bring the levels up to an acceptable gradient to the WCML and bring the terminal or reception sidings out of the flood zone and this would result in significant impacts on ecology and the water environment. Cultural heritage receptors are located on-site and include a Scheduled Monument located at the centre of the site which would present a spatial challenge to the siting of an SRFI. The development would also be highly visible from surrounding areas. Finally, access to the highway network would result in a significant impact on the existing adjacent settlements. On this basis, this site is not considered to represent a suitable site for SRFI development.

3.2.6 The Site is of a sufficient size to accommodate an SRFI development and, importantly, it is large enough to achieve the critical mass required for success and to accommodate the significant landscape and open space improvements required to mitigate the visual impacts of the development and create a suitable ‘buffer’ between the development and the surrounds.

3.2.7 Therefore, the proposals at WMI offer the opportunity to create a SRFI development of national significance. The site is sufficiently large and flat, rail access to the site is achievable, and quick and efficient access to Junction 12 of the M6 is also achievable.

3.2.8 The WMI Site was ultimately selected as it was considered well suited and well located to meet the need for a large scale SRFI.

3.3 Design Evolution

3.3.1 The Proposed Development has been subject to an iterative design process and a variety of options have been considered in response to key issues associated with the Site and its surroundings, including environmental constraints and opportunities identified throughout the EIA process. The ES details the design evolution process drawing from the Design and Access Statement (the 'DAS') (Document 7.5) which describes the design evolution processes undertaken by the Applicant's design team.

3.3.2 A wide range of specialist consultants provided input into the evolving scheme and detailed consultation with other stakeholders also served to inform the design process and assist the team in developing the current design.

4. DESCRIPTION OF THE PROPOSED DEVELOPMENT

- 4.1.1 The Site consists of the land necessary to deliver a Strategic Rail Freight Interchange (SRFI) together with landscaping, works associated with electricity pylons and highway works associated with the SRFI. The proposed highway works consist of improvements to existing roads (A5, A449, Vicarage Road and Station Drive). New internal infrastructure roads will also be provided to access the development plots.
- 4.1.2 The landscape proposals for the Proposed Development would deliver considerable biodiversity and amenity enhancement.
- 4.1.3 The nature of the Proposed Development is that there will need to be a degree of flexibility in the design going forward in order to accommodate the needs of individual occupiers. In order to allow this flexibility and at the same time provide a scheme that is fixed enough to assess within the EIA a 'Parameters Approach' has been applied whereby the development is described in terms of clearly defined parameters with which future design development will need to comply. This approach seeks to present the design options that would result in a 'reasonable worst case' in terms of environmental impacts wherever possible. This approach is used across a range of infrastructure projects in order to ensure that the potential impacts of a project are properly considered whilst allowing flexibility in design options for ongoing design development. This approach has been applied throughout the EIA process up to submission of the final ES to support the DCO application.
- 4.1.4 Three Parameter Plans have been developed for the Proposed Development to set out the design parameters for assessment, comprising:
- Development Zone Key Plan (Document 2.5)
 - Floor Levels and Height Key Plan (Document 2.6)
 - Green Infrastructure Key Plan (Document 2.7)

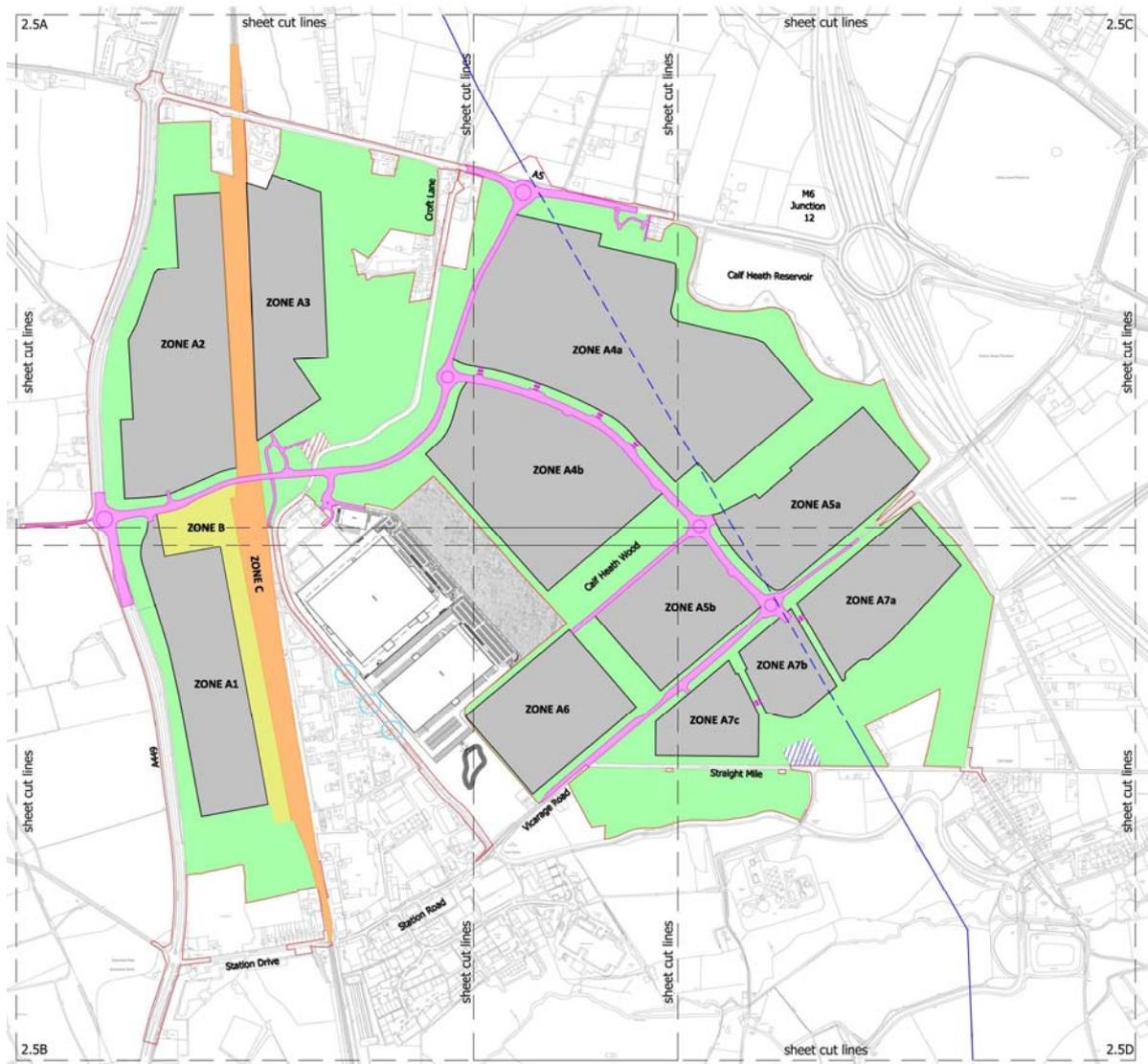


Figure 2 – Development Zone Plan

4.2 Freight Terminal and Rail Infrastructure

- 4.2.1 The Proposed Development would include a new intermodal freight terminal designed to accommodate up to 10 trains of up to 775m in length per day. The freight terminal will include north and south connections to the WCML.

4.3 Warehouse Buildings

- 4.3.1 The Proposed Development includes development zones within which the warehouses will be situated. The maximum height of any warehouse will be 30m, however, the majority of warehouses at the Site would be a maximum of 20m in height.
- 4.3.2 The form, size and specific height (up to maximum heights stated in the Parameter Plans) of individual warehouses will be guided by the functional and operational requirements of individual end-users.

4.4 External Works, Landscaping and Green Infrastructure

- 4.4.1 The Applicant is committed to maintaining and enhancing green infrastructure and biodiversity on the Site. The Green Infrastructure (GI) Parameter Plan allows for the creation of two community parks.
- Calf Heath Community Park totalling approximately 23ha, would be divided into two areas. The northern area located in the south-east of the Site off Straight Mile will incorporate existing areas of woodland, landscaping and landscape features. The southern area would be located in the south of the Site between the Staffordshire and Worcestershire Canal and Straight Mile and would expand on the existing woodland and open space and include extensive landscaping; and
 - Croft Lane Community Park, located in the north of the Site off Croft Lane, would total approximately 21ha and comprise the retention of existing green infrastructure and the creation of new habitat through landscaping and planting, water features and reed beds.
- 4.4.2 The Green Infrastructure includes provision of ecological corridors across the Site, including a major corridor linking Calf Heath Wood with Calf Heath Reservoir.
- 4.4.3 The landscape strategy for the Proposed Development has been prepared following extensive site surveys and appraisals, detailed consultations with

relevant parties and groups and careful consideration of the issues as part of the overall design.

4.4.4 The landscape and GI areas will extend to approximately 107 ha (approximately 36% of the Site area) and will include the creation and conservation of landscape corridors throughout the Proposed Development; the provision of new mixed habitats to satisfy biodiversity objectives; the formation and planting of earthwork bunds around the perimeter of the Site.



Figure 3 – Green Infrastructure Parameters Plan

- 4.4.5 A Site wide drainage strategy has been developed for the Proposed Development, integrated where possible with the green infrastructure to combine water quality and flood risk benefits with ecological benefits. Key features of the design are an extensive network of swales and balancing ponds across the Site. Further details are included in ES Technical Appendix 16.3.
- 4.4.6 The lighting strategy has been designed to minimise spill light and light pollution to the surrounding areas and ecological habitats, minimise sky glow and ensure safety and security on-site. Further details are included in ES Technical Appendix 12.8.

4.5 Highway Works and Access

- 4.5.1 The Proposed Development will include improvements to the existing road network, including the A5, A449, Vicarage Road and Station Drive to accommodate the increased vehicle movements arising from the development. The new road infrastructure will ultimately provide improved connectivity between the A449 bordering the Site to the west and the A5 leading to the Junction 12 of the M6, bordering the Site to the north. The new road infrastructure will also allow for interconnected access to all of the development zones within the Site.

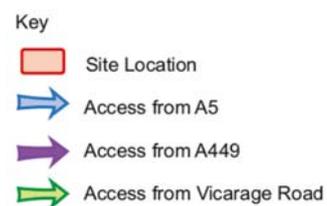
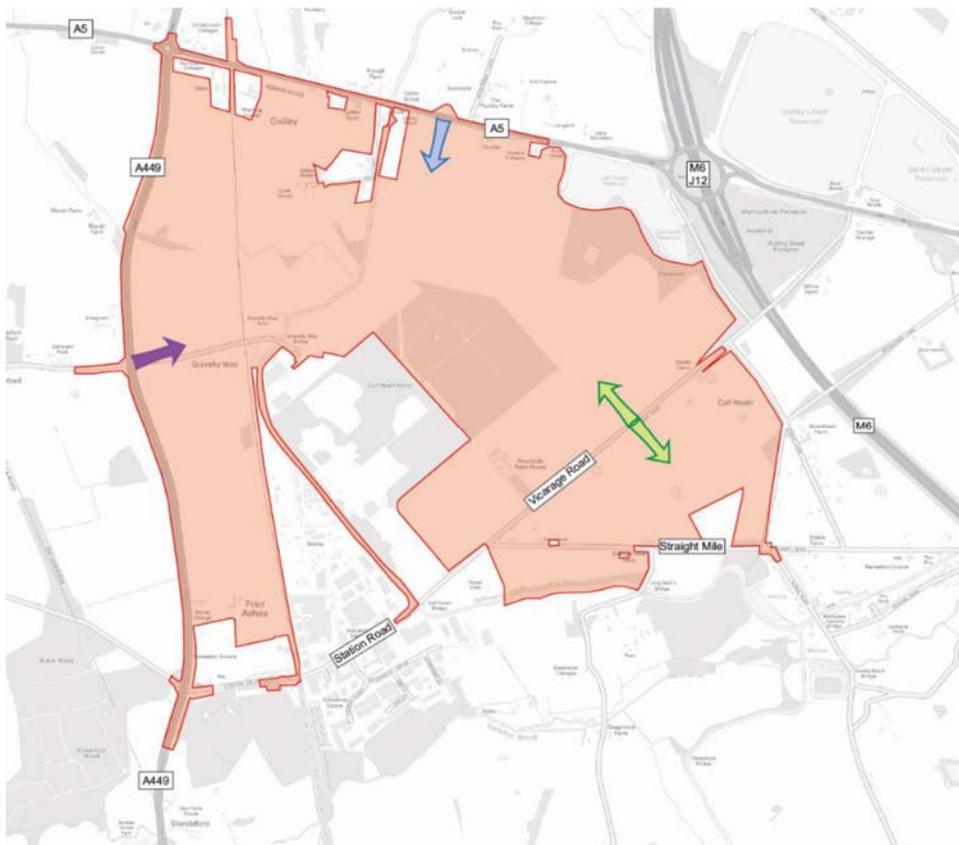


Figure 4 – Access points to Site

4.5.2 Vehicles would be able to access the Site via three new access points that would be provided, summarised as follows:

- Northern Access A5 – considered the key access point given proximity to M6 Junction 12;
- Western Access A449 – making use of the modified junction with Gravelly Way and Crateford Lane and designed to accommodate the additional traffic from both the Proposed Development and the adjacent Bericote Development; and

- Southern Access Vicarage Road – for private use only serving the southern part of the Proposed Development.

4.5.3 Parking and cycle spaces would be provided at the rail terminal and at each individual warehouse buildings across the Site for use by both employees and visitors.

4.5.4 Access for pedestrians and cyclists will be via the new access points described above.

5. DEMOLITION AND CONSTRUCTION WORKS

5.1 Overview

- 5.1.1 At this stage the full details as to how the demolition and construction works would be undertaken and the timescales associated with these works have not yet been fully finalised, as these are affected by many different factors. However, it is possible to establish the potential broad environmental impacts associated with the proposed works based on standard practice and utilising the experience of the Applicant and project team on similar projects.
- 5.1.2 An Outline Demolition and Construction Environmental Management Plan (ODCEMP) has been prepared for the project in order to establish the minimum environmental controls that will be put in place during demolition and construction for the purposes of assessment as part of the EIA. Following consent a detailed Demolition and Construction Environmental Management Plan (DCEMP) will be prepared for each phase of the Proposed Development prior to commencement of that phase.

5.2 Programme and Phasing

- 5.2.1 The phasing of the Proposed Development is currently indicative and will be finalised during the detailed design stage; however, it is currently anticipated that the construction of the scheme will take approximately 15 years. Works will be made up of a number of elements to include infrastructure (roads, bridges, drainage etc), two phases of the rail freight terminal, individual buildings, earthworks, landscaping and utilities works.
- 5.2.2 An indicative, but feasible, programme has been developed by the Applicant based on a number of assumptions (included in Chapter 4 of the ES). These assumptions have been informed by an understanding of current and future projected market conditions, logistical arrangements, technical considerations and professional experience, all of which are considered to be reliable.

5.2.3 In general terms, the proposed works comprise the following:

- Enabling Works (i.e. pre-commencement surveys, vegetation clearance, utility diversions);
- Demolition works – a limited number of isolated residential properties and structures and service bridges over the canal. The majority of the Site is previously undeveloped arable farmland and woodland plantation; therefore demolition arisings would be minimal;
- Earthworks – cut and fill exercise to produce development platforms; and
- Construction works in building the new intermodal terminal / warehouse buildings.

5.3 Working Hours

5.3.1 Prescribed hours of work would be agreed with the Local Planning Authority. It is envisaged that standard working hours for the construction of the Proposed Development will be:

- Monday to Friday: 07.00 to 19.00; and
- Saturday: 07.00 to 13.00.

5.3.2 No works will take place outside of the hours stated above, unless by agreement with the Local Planning Authority or in emergency situations. Noise limits for out-of-hours work will be agreed with the Local Planning Authority prior to this work commencing. Light nuisance during out of hours working will be minimised through the use of task-orientated, directional lighting.

6. ENVIRONMENTAL IMPACT ASSESSMENT

6.1 EIA Process and Methodology

- 6.1.1 This NTS summarises the contents of the ES. The ES records a process of assessment that identifies the potential significant environmental effects (both beneficial and adverse) of a proposed development and proposes mitigation to avoid, reduce and offset any likely significant adverse environmental effects. At the end of each technical section in Section 7, all likely significant environmental effects are highlighted, if any occur, in line with the EIA Regulations.
- 6.1.2 Mitigation is the term used to refer to the process of avoiding where possible and, if not, minimising, controlling and/or off-setting potentially significant adverse impacts and effects of a development.
- 6.1.3 The assessment process adopted for the Proposed Development has followed best practice guidelines, as set out by the Institute of Environmental Management and Assessment (IEMA) Quality Mark scheme.

6.2 Topics Included in the EIA

- 6.2.1 The EIA Scoping Process and associated follow-up consultation have informed the content of the ES. The potentially significant environmental topic areas that were identified during the EIA Scoping Process and those which have been addressed within the ES are listed below:
- Agriculture and Soils;
 - Air Quality;
 - Archaeology (Below Ground Heritage);
 - Cultural Heritage;

- Ecology and Nature Conservation;
- Ground Conditions;
- Landscape and Visual Impact;
- Noise and Vibration;
- Socio-Economics and Human Health;
- Transport and Access; and
- Water Environment and Flood Risk.

6.2.2 Topics scoped out of the EIA at the Scoping Stage included:

- Climate change (based on its integral inclusion within other topic areas);
- Coastal change;
- Telecommunications interference;
- Waste;
- Daylight, sunlight and overshadowing;
- Wind microclimate;
- Odour, smoke and steam; and
- Aviation.

6.2.3 The ES provides assessments of potential significant environmental effects during demolition and construction and once the Proposed Development is complete and operational. Each technical assessment considers a range of

different types of effects including direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, beneficial and adverse effects.

6.2.4 Each of the above environmental topic areas are addressed in the ES, with a chapter dedicated to each of these issues. In each chapter, a description of the assessment methodology is given together with current Site conditions. This is followed by an assessment of the likely significant effects of the Proposed Development (both beneficial and adverse) and any measures that should be adopted to reduce or offset any significant adverse effects identified during the assessment. The ES also provides an assessment of the residual effects that would remain after mitigation measures have been implemented, as well as the cumulative effects of the Proposed Development.

6.3 Cumulative Effects

6.3.1 Cumulative effects were assessed in accordance with PINS 'Advice Note 17: Cumulative Effects Assessment'.

6.3.2 Two types of Cumulative Effects have been assessed:

- Intra-Project effects of different types of impacts from the Proposed Development that could interact to jointly affect a particular receptor at the Site. Potential impact interactions could include the combined effects of noise and dust during demolition and construction activities on a particular sensitive receptor; and
- Inter-Project effects which are combined effects generated from the Proposed Development with other committed or planned developments ('other developments'). These 'other developments' may generate their own individually insignificant effects but when considered together could amount to a significant cumulative effect, for example, combined landscape and visual impacts from two or more proposed developments.

7. LIKELY SIGNIFICANT ENVIRONMENTAL EFFECTS

7.1.1 The key findings of each of the ES technical chapters are summarised in Sections 7.2 to 7.12 below.

7.2 Agriculture and Soils

7.2.1 This topic (chapter 6 of the ES) assesses the potential effects of the Proposed Development in respect of agricultural land quality, soil resources and local farming circumstances.

7.2.2 The assessment was based on desk study information from publicly available sources, consultation with key stakeholders and an Agricultural Land Classification (ALC) report produced for the Proposed Development and included within ES Volume 2: Technical Appendix 6.1 which utilised field survey results from the Site.

7.2.3 The ALC report assesses the quality and versatility of agricultural land at the Site. ALC grading defines the highest grades (1, 2 and Subgrade 3a) as the 'Best and Most Versatile' (BMV) land.

7.2.4 The baseline environment at the Site is summarised as follows:

- Agricultural land at the Site mainly arable, comprising barley, potatoes and rough grassland;
- The ALC report divides the assessment area into the following grades:
 - Grade 2 – comprising a total of 51.1 ha (17.2%) of the assessment area;
 - Subgrade 3a – comprising a total of 121.9 ha (41.0%) of the assessment area;

- Subgrade 3b – comprising a total of 38.2 ha (12.9%) of the assessment area; and
 - Other land / non-agricultural – comprising a total of 85.7 (28.9%) of the assessment area.
- Agricultural land at the Site is divided into 13 individual holdings, in the ownership of three separate owners. The majority of land at the Site is under tenancy.

7.2.5 Potential effects and mitigation measures identified for agricultural and soil receptors are summarised as follows:

- The construction of the Proposed Development is likely to have a permanent, adverse effect on agricultural land in ALC Grade 2 (Major significance), Subgrade 3a (Major significance) and Subgrade 3b (Minor significance) due to the permanent sealing of the land during construction. The presence of Grade 2 and Grade 3 agricultural land at the Site is to be expected, as these grades of agricultural land are widespread in the District.
- The Parameters Plans have retained as much best and most versatile (BMV) agricultural land in ‘soft use’ (i.e. Primary Green Infrastructure) as practically possible. No specific mitigation is proposed for these effects therefore there will be residual effects of major significance on agricultural land quality relating to the loss of Best and Most Versatile (BMV) land. No effects are identified for the completed development phase.
- The construction of the Proposed Development has the potential to adversely affect the quality of topsoil and subsoil; namely in terms of damaging soil structure through compaction. This will be mitigated by adoption of a Soil Resource Plan (SRP), which will detail measures for the appropriate protection, handling and storage of soils during construction allowing for maximum re-use in on-site landscaping. This will reduce the effect to Minor significance. No effects are identified for the completed development phase; and

- Effects on agricultural holdings have been considered on a per-holding basis, ranging from Moderate for Somerford Home Farm to Minor for the remainder of the holdings at the Site. No mitigation is proposed therefore residual effects will range from Moderate to Minor significance. No effects are identified for the completed development phase.

7.2.6 Significant residual effects have been identified for agriculture and soils relating to loss of the Best and Most Versatile land at the Site.

7.3 Air Quality

7.3.1 This topic (chapter 7 of the ES) considers potential effects of the Proposed Development in respect of air quality. The topic considers emissions and dust as a result of the Proposed Development and the potential effects on human and ecological receptors. The air quality study area comprises the following:

- Construction dust - Up to 350m of the Site boundary or within 50 m of roads used by construction vehicles;
- Rail emissions study area - includes consideration of residential properties within 30 m of railway lines; and
- The traffic impacts study area has been determined by the likelihood of impacts to the existing road network and which roads would have a direct impact on local sensitive receptors.

7.3.2 The assessment was based on air quality monitoring data obtained from a number of Local Authority sources, desk study information from publicly available sources and dispersion modelling undertaken for the Proposed Development.

7.3.3 The dispersion model has been used to model impacts on local air quality as a result of construction and operational traffic. The model uses predicted traffic data derived from local traffic survey data and meteorological observation data. Traffic impact scenarios were considered for the future

baseline and the future baseline assuming operation of part of the Proposed Development. Years considered were 2021, 2028 and 2036.

7.3.4 The baseline air quality environment at the Site is summarised as follows:

- The main source of existing air pollutants close to the Site is road traffic in particular associated with the main road network to the north, east and west of the Site. This includes the A5, M6 and A449.
- There is an existing light industrial area immediately to the south of the Site, and other commercial uses at various locations surrounding the Site, including the Veolia energy recovery facility and a sludge disposal centre to the south.
- There are three Air Quality Management Areas (AQMAs) declared by SSDC which fall within the study area. An AQMA is an air quality action zone where improvements in air quality must be implemented.

7.3.5 Potential effects and mitigation measures identified for air quality receptors are summarised as follows:

- During construction of the Proposed Development, HGVs will require access to the Site to deliver and remove materials; earthmoving plant and other mobile machinery will also work on-site including generators and cranes. These machines produce exhaust emissions; of concern are emissions of nitrogen dioxide and particulates (PM₁₀ and PM_{2.5}). The modelling assessment predicted a negligible impact on annual mean nitrogen dioxide and particulate concentrations.
- Demolition of existing buildings, ground preparation and construction of new buildings within the Site which could create dust emissions. The risk of dust impacts is assessed as High. This will be mitigated through the implementation of best practice through an appropriate management plan (ODCEMP).
- The operational development would lead to an increase in the number of trains using the western branch of the WCML between Rugby and Stafford. However, it is anticipated that the operational development

would only generate an additional 10 movements per day, less than 1 per hour. Air quality impacts as a result of railway locomotive movements can therefore be screened out as being insignificant.

- During operation of the Proposed Development road traffic is predicted to have a significant adverse impact at one receptor (3-4 residential properties located adjacent to the east of the M6), however this is due to the high baseline concentrations present. At all other receptor locations the assessment shows either a slight adverse or negligible impact. Overall, impacts on air quality as a result of the Proposed Development are not considered to give rise to a significant effect on human health. Measures to reduce vehicle movements and potential congestion (and hence reduce potential air emissions) are outlined in a Sustainable Transport Strategy included as an appendix to the Transport Assessment (Technical Appendix 15.1).
- The Proposed Development would provide two community parks within the Site. However, it is not considered that there will be any impacts with regards to human health on visitors to the community parks. The impact of the Proposed Development on these receptors is therefore negligible.

7.3.6 Negligible to Slight residual effects have been identified for dust at construction stage and operational traffic on human receptors adjacent to the road network.

7.4 Archaeology

7.4.1 This topic (chapter 8 of the ES) assesses the potential effects of the Proposed Development in respect of archaeology. The assessment focuses on on-site, below ground archaeological resources that could be affected by the Proposed Development, and utilises a 1km study area for baseline characterisation.

7.4.2 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders and information from three separate walkover surveys of the Site carried out by Wessex Archaeology. In addition, the Site has been subject to LiDAR assessment (Lighting Detection and Ranging methodology which can

identify potential archaeological remains). Based on all these assessments potential high priority areas of interest were subject to geo-physical survey (which identifies magnetic anomalies and may illustrate archaeological remains).

7.4.3 The baseline environment at the Site is characterised as follows:

- There are no Scheduled Monuments, nationally Listed Buildings or other nationally designated heritage features located on-site;
- The history within the study area is characterised primarily by Romano-British occupation including features such as Watling Street, settlements and camps some of which are designated as Scheduled Monuments and other Roman roads. Following the Romano-British period land use is largely agricultural within the area characterised by minor settlements and evidence of Anglo-Saxon/Medieval agriculture, until the advent of the industrial revolution; and
- The majority of the Site has remained in agricultural use throughout the 19th Century and modern period with 19th Century farmsteads represented at Heath Farm and Woodside Farm.

7.4.4 The following sensitive receptors were identified:

- Two possible ring ditches identified from aerial photographs, possibly Neolithic and Bronze Age respectively;
- Likelihood of encountering Romano-British remains at the Site based on proximity to known features from this period including four off-site Scheduled Monuments as well as settlements to the north and Watling Street/Roman Road network within the study area;
- Potential buried remains associated with the Anglo-Saxon and Medieval settlement at Gailey and neighbouring settlements;
- Features associated with Anglo-Saxon agricultural practices at the Site such as former field boundaries including potential for buried archaeological remains;

- Potential buried remains associated with the route of the Staffordshire and Worcestershire Canal and Grand Junction Railway (now WCML); and
- Other as-yet unidentified, potential buried archaeological remains.

7.4.5 Potential effects and mitigation measures, identified for archaeological receptors, are summarised as follows:

- Archaeological remains may be impacted during construction, as a result of any groundworks. It is considered that preservation by record through excavation of features, if encountered, supplemented by public outreach works would be appropriate mitigation. The methodology for undertaking this has been detailed within an outline archaeological Written Scheme of Investigation (WSI) to be implemented during construction. Implementation of this mitigation measure would ensure that the anticipated effects would be reduced to between not significant and Minor to Moderate adverse (if features are present and dependent on the nature of the remains). Should it be possible to preserve any identified archaeological features in situ, then no significant effect would occur.

7.5 Cultural Heritage

7.5.1 This topic (chapter 9 of the ES) assesses the potential effects of the Proposed Development in respect of cultural heritage receptors, where this refers to built heritage 'above ground' receptors. This topic considers all above ground heritage receptors inside and outside the Site as well as Scheduled Monuments outside the Site.

7.5.2 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders and the Landscape and Visual Assessment.

7.5.3 The Proposed Development will include landscaping, bunding and planting and works to improve the Staffordshire and Worcestershire Canal on-site. These design aspects have been taken into account in the assessment.

7.5.4 The baseline environment at the Site is characterised as follows:

- The history within the study area is characterised by Romano-British occupation including features such as Watling Street, settlements and camps and other Roman roads. Following the Romano-British period land use is largely agricultural within the area characterised by minor settlements and evidence of Anglo-Saxon/Medieval agriculture, until the advent of the industrial revolution.
- The majority of the Site has remained in agricultural use throughout the 19th Century and modern period with 19th Century farmsteads represented at Heath Farm (locally listed at Grade B) and Woodside Farm (non-designated heritage receptor);
- Part of the Staffordshire and Worcestershire Canal Conservation Area runs through the Site. Calf Heath reservoir is located to the immediate north-east of the Site, and the historic canalside wharf area at Gailey Wharf is located adjacent to the northern part of the Site;
- Sensitive Receptors identified within the Site boundary include:
 - Staffordshire and Worcestershire Canal Conservation Area;
 - Heath Farm (Locally Listed);
 - Woodside Farm (non-designated heritage receptor);
 - Straight Mile Farm (non-designated heritage receptor); and
 - Gravelly Way Bridge (non-designated heritage receptor).
- Sensitive Receptors identified outside the Site include:
 - Staffordshire and Worcestershire Canal Conservation Area;
 - Six Roman Period Scheduled Ancient Monuments at Water Eaton;

- Rodbaston Old Hall moated site and fishpond (Scheduled Ancient Monument);
- Various Listed Buildings including a single Grade I Listed Building, four Grade II* Listed Buildings and three Grade II Listed Buildings;
- Chillington (Grade II* Registered Park);
- Eight Locally Listed or non-designated features; and
- Historic landscape character corresponding to late 18th and 19th century Parliamentary period enclosures.

7.5.5 Potential effects and mitigation measures identified for above ground cultural heritage receptors are summarised as follows:

- No significant effects were identified relating to Straight Mile Farm and the setting of all off-site designated features and features related to the wider historic landscape primarily because of the distance and very limited intervisibility between the Site and the majority of receptors;
- Potential effects were identified relating to the demolition of locally listed Heath Farm. These effects will be mitigated by Historic Building Recording prior to demolition to be planned on consultation with the Local Authority, nevertheless a Minor Adverse Effect will remain;
- Direct and indirect effects have been identified during construction and for the completed development phases on the Staffordshire and Worcestershire Canal, for which the identified mitigation measures will reduce the overall significance to a Minor Adverse Effect, including the following:
 - Construction of a new road bridge at Gravelly Way – this will be mitigated by careful design of the bridge so as to minimise the physical and setting impact to the Canal;

- Effects on the setting of the canal from the surrounding construction/built environment - this will be mitigated through careful design of the landscaping so as to minimise the visual and setting impacts; and
- Noise effects which could impact on users enjoyment of the canal – this will be mitigated by implementation of proposed construction working hours and further measures to control and monitor noise through the DCEMP during construction respectively.

7.5.6 No significant residual effects have been identified in relation to above ground cultural heritage.

7.6 Ecology and Nature Conservation

7.6.1 This topic (chapter 10 of the ES) assesses the potential effects of the Proposed Development in respect of Ecology and Nature Conservation.

7.6.2 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders and information gathered from a comprehensive programme of ecology habitat and species surveys carried out at the Site to inform the ES. It also takes into account key information from other technical disciplines including noise and water environment in relation to ecological receptors.

7.6.3 The assessment takes into account a number of embedded mitigation measures such as the proposed landscaping design and retention of certain features with biodiversity interest which have been developed throughout the EIA process.

7.6.4 The baseline environment at the Site is characterised as follows:

- There are no Internationally or Nationally designated sites located on or immediately adjacent to the Site;
- There are no Special Protection Areas (SPAs) or Ramsar Sites within 10 km of the Proposed Development;

- Special Areas of Conservation (SACs) within 10km comprise the following:
 - Motte Meadows SAC, located 7.5km north-west;
 - Cannock Chase SAC, located 7.4km north-east; and
 - Cannock Chase Extension Canal SAC, located 10km south-east.
- Sites of Special Scientific Interest (SSSI's) within the vicinity of the Site comprise Belvide Reservoir (4.5km west) and Four Ashes Pit (140m south), the latter is designated for its geological rather than ecological features;
- Thirteen Local Wildlife Sites (LWS) were identified within a 1km search radius of the Site, the closest being Gailey Reservoirs including Calf Heath Reservoir, located immediately adjacent to the Site's north-east boundary;
- Habitats at the Site comprise arable and pastoral farmland; ephemeral ditches and several ponds; hedgerows, woodland, scrub and trees; quarry habitats including bare earth and pools; buildings and canal; and
- Surveys at the Site have recorded presence of several protected or notable species including great crested newt and other amphibians; birds including breeding birds, in particular farmland birds and water birds; invertebrates; several species of bat; and terrestrial mammals including badger, hedgehog and otter.

7.6.5 Without mitigation, potentially significant effects were identified across a range of receptors as a result of the Proposed Development during construction and completed development phases, primarily due to the direct effects associated with loss of a range of habitats to the development. A comprehensive and significant range of mitigation measures have been developed to address these effects which are discussed in some detail under ES Chapter 10: Ecology and Nature Conservation.

7.6.6 Residual effects identified for ecology and nature conservation, as well as key mitigation measures for receptors are summarised as follows:

- Effects on habitats: significant effects identified from loss of a range of habitats across the Site. Much of this loss will be mitigated through provision of new habitats and retention of some features through the landscape design. However, significant adverse residual effects will remain, including loss of veteran trees (significant at the local scale) and effects from construction works on remaining site habitats. The Proposed Development will secure the provision of native black poplar on Site, and as such, a beneficial effect at the County Scale has been identified for this impact;
- Birds: A significant effect has been identified due to the loss of breeding habitat (arable land) for farming birds. This impact is partially mitigated by the enhancement and management of 12 hectares of existing intensively managed arable farmland off-site (within 1 km) dedicated for the benefit of farmland birds. Also gains will be made for other bird species such as water birds at the Site through the landscaping provision. An adverse effect at the Site scale is anticipated for woodland/scrub birds owing to uncertainties relating to effectiveness of habitat improvements and management;
- Invertebrates: A significant adverse effect at the Site scale is anticipated during construction due to habitat loss, but it is expected that this will be balanced by a significant beneficial effect at the local scale once the Proposed Development is completed;
- Bats: A significant adverse effect at the Local scale is identified during construction owing to the time taken for mitigation measures such as green corridors to establish. This effect will continue during the operational phase due to the potential impact of the lighting strategy on bats, however it is expected that this will be addressed as the lighting strategy develops further. Also bat 'hop-overs' are to be incorporated into lighting and landscaping proposals to ensure the effectiveness of ecological corridors. Therefore with anticipated mitigation in place the magnitude of impact of lighting on bats would likely reduce removing this significant residual effect once finalised; and

- Badger: Details regarding badger at the Site are considered confidential and therefore detailed within the Confidential Appendix (Volume 2, Appendix 10.2) of the ES. For animal welfare reasons this document is issued to ecological consultees only.

7.6.7 In summary there are significant residual effects in the operational phase, generally at the Site or Local scale (notably on farmland birds) or while habitats develop. This is balanced in part through the provision of significant new and enhanced habitat including the proposed community parks and off-site farmland bird mitigation land, to be maintained in the long term, which would provide benefits to a range of wildlife and which would be managed for the duration of the operational phase. The habitats created would address local and national biodiversity action plan targets.

7.7 Ground Conditions

7.7.1 This topic (chapter 11 of the ES) assesses the potential effects of the Proposed Development in relation to ground conditions, with a focus on contaminated land, hydrogeology and geotechnics.

7.7.2 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders and information gathered from a Phase II Geo-environmental Investigation carried out at the Site.

7.7.3 Ground Conditions, in particular assessment of contaminated land and pollution, utilises a Source-Pathway-Receptor approach whereby an effect can only take place on a receptor if a pathway is present between the source and receptor. This principle was used in the development of a Conceptual Site Model, which explores the theoretical linkages that could occur at the Site.

7.7.4 The baseline environment at the Site is characterised as follows:

- The majority of the Site comprises agricultural or quarry land with no appreciable previous industrial land uses;

- The south and south-west of the Site is located in close proximity of an off-site chemical works (now operated by SI Group) and Four Ashes industrial estate which comprises a number of potentially contaminating land uses throughout its history dating at least as far back as 1924. Historical maps show the chemical works to have gone through several expansions throughout the middle of the 20th Century, bringing it as close as 80m from the Site. Land uses comprised the chemical works and a carbon works with associated infrastructure including substations, tanks, chimneys and hoppers. The chemical works and on Site land in the south-west is subject to ongoing groundwater remediation works. Other industrial land uses in the vicinity of the Site include a former garage 40m north of the Site on the A5, the railway and canal;
- Geology underlying the Site generally comprises sandstones, overlain by alluvium, glacial till and glaciofluvial deposits (sand and gravel). The sandstone and glacial deposits underlying the Site are defined as Principal and Secondary A aquifers respectively, indicating high permeability and water-bearing strata. A number of groundwater abstractions have been identified within the vicinity of the Site including private potable water abstractions;
- Two historic landfills were recorded on Site close to the southern boundary, along with four further historic landfills off-site to the south of the Site; and
- Four Ashes Pit SSSI designated for its geological interest is located 140m south of the Site.

7.7.5 Sensitive receptors identified for the Proposed Development are summarised as follows:

- Controlled waters comprising groundwater and local surface water receptors including the River Penk catchment;
- Human Health including existing users of the Site and future users of the Site under the construction and completed development phases;
- Ongoing groundwater remediation works;

- Agricultural land use at the Site;
- Four Ashes Pit SSSI; and
- The built environment, notably foundations and buried services.

7.7.6 Potential effects and mitigation measures identified for Ground Conditions are summarised as follows:

- During construction of the Proposed Development there is the potential that construction workers may come into direct contact with potentially contaminated soils. An Outline Demolition and Construction Environmental Management Plan (ODCEMP) which details the mitigation measures proposed is available in Technical Appendix 2.3.
- As with any former site, a potential exists for further limited contamination hotspots to be discovered during construction works and in the absence of mitigation there is a risk associated with any works in areas of 'made ground'. The ODCEMP which details the mitigation measures proposed is available in Technical Appendix 2.3.
- During construction, if not properly managed, controlled waters could be affected during demolition and construction by accidental spillage of oil and diesel from infiltration of polluted runoff through the soil. This could potentially affect groundwater in the underlying aquifer. The ODCEMP which details the mitigation measures proposed is available in Technical Appendix 2.3.
- In accordance with the ODCEMP, appropriate mitigation measures, such as damping down and cleaning roadways shall be undertaken throughout the works, whilst also giving due regard to minimisation of surface water runoff. Further embedded mitigation includes the Proposed Development progressing in accordance with the remediation Safeguarding Report (Technical Appendix 10.5).
- There is potential for site workers and visitors to come into contact with residual contaminants in area of soft landscaping within the

operational phase. To mitigate this risk a clean layer of topsoil would be provided in areas of soft landscaping as required.

- There is potential impact to human health and the built environment via the pathway of upward migration and containment of ground gases and vapours within buildings within the operational phase. To mitigate this risk appropriate ground gas and vapour mitigation measures shall be installed in accordance with current UK Authoritative Guidance and British Standards.
- Operational activities potentially introducing significant pollutants / additional discharges to underlying groundwater. To mitigate this storage of fuels / oils are required to comply with the Control of Pollution (Oil Storage) Regulations 2001.

7.7.7 No significant residual effects have been identified in relation to ground conditions.

7.8 Landscape and Visual

7.8.1 This topic (chapter 12 of the ES) assesses the potential effects of the Proposed Development in respect of landscape and visual matters.

7.8.2 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders, information gathered from Site surveys and outputs of modelling and assessment to establish a Zone of Theoretical Visibility (ZTV) for the Proposed Development and photomontages whereby the Proposed Development is superimposed onto photographs of the Site taken from key receptor locations.

7.8.3 The assessment considers the potential effects on the landscape as well as the visual effects that could be experienced at residential, heritage and visitor attraction receptors as well as local roads. The topic also includes an assessment of the potential effects of the completed development lighting strategy.

7.8.4 In the context of the landscape and visual assessment, primary mitigation measures and considerations have been incorporated as an integral (or

‘embedded’) part of the design and layout of the Proposed Development. These include attention to the heights of the Proposed Development and consideration of the earthworks proposals. All of these aspects and features have been taken into account in the design of the Proposed Development and the development parameters and have therefore been assessed as part of the construction and operational stages.

7.8.5 The baseline environment at the Site is characterised as follows:

- Landscape – the landscape in which the Site is situated is characterised by the following features:
 - The Site is not situated within any designated landscape at a national or local scale. The closest designated landscape feature being Cannock Chase Area of Outstanding Natural Beauty (AONB), which lies approximately 3km to the east of the Site at its closest point, and benefits from wide views including to the west and south-west towards the Site;
 - The landscape within the Site is characterised by its current uses including mostly arable farming, quarrying and Calf Heath Wood, as well as by the influence of features surrounding and crossing the Site including the canal, railway, roads and dwellings, and the industrial area of Four Ashes; and
 - The Site occupies a relatively flat and low lying position within a broader and gently undulating landscape, with more distinctive and higher ground and slopes to the east at Cannock and Cannock Chase.

7.8.6 Sensitive receptors identified for the Proposed Development are summarised as follows:

- Landscape including the wider landscape in which the Site is situated and local landscape features including local topography, woodland, hedgerows, ponds and the canal, and designated landscapes in the wider area such as Cannock Chase AONB;
- Visual receptors including:

- Residential receptors primarily located at Croft Lane, along the A5, at Calf Heath and elsewhere on the road network surrounding the Site;
- Users of amenities and attractions within the vicinity of the Site including Calf Heath Reservoir, the canal and local public rights of way;
- Users of existing employment and commercial facilities and surrounding road network; and
- Visitors to/users of Cannock Chase AONB.

7.8.7 Residual effects identified for landscape and visual taking into account the embedded mitigation measures are summarised as follows:

- Temporary, direct Moderate/Major adverse residual effect on Site landscape character and Site landscape features including woodland, hedgerows and tree during the construction phase. This will in part be mitigated over time as the proposed landscaping and planting matures;
- Indirect Minor adverse effect on the landscape character of Cannock Chase AONB;
- Significant adverse temporary effects have been identified on visual receptors during construction, notably Minor/Moderate to Major adverse effects on certain properties and highways / roads within view of the Proposed Development, and Moderate to Major adverse effects on the canal towpath and Calf Heath reservoir. It is anticipated that these effects will reduce as the proposed landscaping matures;
- Significant adverse permanent effects have been identified on visual receptors during operation, notably Minor to Minor/Major adverse effects on certain properties with near views of the Proposed Development. It is anticipated that these effects will reduce during the completed development phase as the proposed landscaping matures; and

- All other residual effects on receptors during construction and completed development phases have been assessed as Moderate adverse or lower.

7.9 Noise and Vibration

7.9.1 This topic (chapter 13 of the ES) assesses the potential effects of the Proposed Development in relation to noise and vibration.

7.9.2 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders, information gathered from noise and vibration monitoring surveys at the Site, and surveys at an operational rail freight interchange, information from the ES Transport and Access chapter and outputs from noise modelling.

7.9.3 The assessment considers the potential effects of noise and vibration on sensitive receptors, primarily human (residential receptors) from sources including construction activities, completed development plant and vehicle movements and traffic on the local road network.

7.9.4 The baseline environment at the Site is characterised as follows:

- Generally the baseline noise levels recorded during the Site surveys were considered to be low, despite the busy roads within the vicinity of the Site.

7.9.5 While the baseline noise data presented in the noise chapter is considered to be representative of the noise climate in the area around the Proposed Development during the survey periods, both survey events are considered to have been affected by anomalous activities that compromised the extent to which they can be considered representative of the long-term noise climate in the area.

7.9.6 It was therefore planned to repeat the baseline noise survey once nearby roadworks had been completed, so that more representative baseline data could be used in the final ES. However, continuing road works in the area have meant this wasn't possible. A further baseline noise survey will be undertaken post submission of the application.

7.9.7 To provide a robust assessment, it was considered appropriate to use the lowest representative values from each survey for each monitoring location. In the case of the existing survey data, it is considered that the measured baseline noise levels were lower than would typically be the case, due to the significant reduction in road traffic levels. However, this will lead to a more robust assessment and is therefore considered to be an acceptable approach.

7.9.8 Sensitive receptors identified for the Proposed Development comprise the following:

- Existing local residents:
 - Along the A5 to the north of the Site;
 - On and around Croft Lane to the north of the Site;
 - To the west of the A449, to the west of the Site;
 - On Station Drive, to the south of the Site; and
 - In Calf Heath, to the south-east of the Site.
- Canal users that moor along the Staffordshire and Worcestershire Canal, close to the Croft Lane; and
- Transient users of the canal towpath and Calf Heath Reservoir.

7.9.9 Potential effects and mitigation measures identified for noise and vibration are summarised as follows:

- Construction phase - noise generated by construction plant and traffic movements to and from the Site. The assessment predicts that this will give rise to moderate to major temporary adverse effects at localised receptors that are located close to construction activities. Construction noise will be controlled by typical construction best practice in the selection of plant and methods to minimise noise generated at source. Further mitigation measures are detailed in the

ODCEMP for the Proposed Development. The most severe cases will be eligible for noise insulation (as defined in a bespoke noise insulation scheme).

- Construction phase - Vibration from the construction of the Proposed Development may give rise to moderate, temporary adverse effects at localised receptors that are located close to the construction activities, when heavy ground works are carried out close to them. Construction vibration will be controlled by typical construction best practice in the selection of plant and methods to minimise vibration generated at source. Further mitigation measures are detailed in the ODCEMP for the Proposed Development.
- Completed development – noise generated by increased traffic on the local road network and by plant, rolling stock, vehicles and machinery used once the SRFI is operational. This will be in part mitigated by the earth bunds located around the perimeter of the Proposed Development. Noise from on-site operational activities is likely to give rise to moderate adverse effects at a number of receptors around the Site. Noise insulation will be offered for residential properties where there are significant effects (as defined in a bespoke noise insulation scheme).
- No significant effects are anticipated from vibration during the completed development phase and therefore no mitigation for vibration is proposed.

7.10 Socio-Economics and Human Health

7.10.1 This topic (chapter 14 of the ES) assesses the potential effects of the Proposed Development in relation to socio-economics.

7.10.2 The assessment utilises desk study data from publicly available sources including nationally recognised research and survey information and information obtained through consultation with key stakeholders.

7.10.3 The assessment considers the potential for the Proposed Development to affect the local and wider economy, employment, social deprivation, human health and well-being and recreation and amenity. The assessment also

considers secondary effects on socio-economic factors of impacts arising from air quality, noise and water quality.

7.10.4 The baseline environment at the Site is characterised as follows:

- The Site is located within South Staffordshire District; within Penkrige South-East ward and close to four other wards which make up the Local Area level; and is located within the Stoke on Trent and South Staffordshire Local Enterprise Partnership (SSLEP) area. A Travel to Work Area (TTWA) has been established for the Site based on reasonable journey times and extends to most of Shropshire, Staffordshire and parts of the West Midlands. These areas have been used to establish the spatial scale of the assessment;
- The socio-economics and human health chapter provides in-depth analysis of the population, age range, economic activity and employment statistics including wages, of which the key points are as follows:
 - There is a greater proportion of people aged 65+ within the local area surrounding the Site, compared to national levels. This group has experienced significant growth over the last 10 years and continued growth is projected.
 - The number of people in employment is lower in the local area, compared to district and national levels, however, the rate of people claiming unemployment benefits is significantly lower within the local area compared to all other spatial levels.
 - The local area surrounding the Site is relatively poorly skilled with 1 in 4 residents having no formal qualifications.
 - In the local and regional areas, a greater number of people work in manufacturing roles, compared to the national average, with the manufacturing sector making up 15% of all employees working in the local area.
 - General health indicators for South Staffordshire residents are better than the England average with higher life expectancy,

higher rates of physical activity and lower levels of deprivation. However obesity and recorded diabetes was rated significantly worse than the England Average.

- Amenity and recreational features identified within the vicinity of the Site include:
 - Cannock Chase AONB;
 - Somerford Park;
 - Staffordshire and Worcestershire Canal, towpath and moorings;
 - Calf Heath Reservoir (including sailors and anglers); and
 - Public Rights of Way (PROW) on and close to the Site.
- Several businesses are identified within the local area that could be affected by the Proposed Development with regards to amenity, primarily focused along the A5 and at Gailey, and at Hatherton Marina;

7.10.5 Sensitive receptors identified for the Proposed Development comprise the following:

- Existing local residents within the local area who may be affected by job creation, amenity and health effects;
- Existing employees who may be affected by human health and amenity effects;
- The construction labour force within the region who may be affected by job creation at the Proposed Development;
- The operational labour force within the Site TTWA, who may be affected by job creation at the Proposed Development;

- The regional economy within the SSLEP;
- The national economy;
- Recreation and amenity receptors including existing local residents (including residential moorings) and existing local businesses which could experience secondary effects; and
- The Human Health receptors comprising existing local residents and employees.

7.10.6 In summary, significant residual effects have been identified for the construction and completed development phases as follows:

- Long term minor beneficial effects were identified in relation to construction and demolition employment at a number of levels (District, West Midlands and Stoke-on-Trent and Staffordshire Local Enterprise Partnership (SSLEP));
- Long term minor beneficial effects were identified in relation wider economic effects of construction and demolition at District and SSLEP level;
- Short term minor adverse effects were identified in relation to recreation and amenity receptors at a local level during demolition and construction;
- Long term neutral to minor adverse effects were identified in relation to effects on local businesses, organisations and clubs at a local level during demolition and construction;
- Long term major beneficial effects were identified in relation to operational employment and wider economic effects of operation which would apply at Local, District and SSLEP levels;
- Long term minor beneficial effects were identified in relation to operational employment at West Midlands Interchange Travel to

Work Area (TTWA)) level, wider economic effects of operation at National level; and

- Long term minor adverse effects were identified in relation to amenity effects during operation at local level.

7.11 Transport and Access

7.11.1 This topic (chapter 15 of the ES) assesses the potential effects of the Proposed Development in relation to transport and access.

7.11.2 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders, traffic flow data from a traffic model and information gathered from a dedicated Transport Assessment produced for the Proposed Development to predict and model traffic impacts.

7.11.3 The topic considers the potential effects on traffic on the local, regional and national road network. The information generated by this chapter, in particular the outcome of the traffic model, has been used in the air quality, noise, ecology and socio-economics chapters to assess effects of traffic on those disciplines.

7.11.4 The baseline environment at the Site is characterised as follows:

- The Site is located at a strategic location in the national highway network, close to Junction 12 of the M6, close to the M54 and linked directly by the A5 and A449.
- With the exception of the A5 adjacent to the Site and Vicarage Road, which do not have existing designated cycle access, the Site is relatively well served by existing designated or segregated cycle lanes which would facilitate cycle access to/from nearby train stations at Cannock and Penkridge, and population centres at Cannock, Penkridge, and Wolverhampton. Pedestrian access to the Site is generally good on all routes although the Site is generally located some distance away from population centres which may be prohibitive for pedestrian access. There is a towpath for pedestrians and cyclists

along the length of the canal. This is classified as a Sustrans local off-road cycle route;

- The Site is connected by three existing bus services linking to Stafford, Penkridge and Wolverhampton. A further bus service connects the Site with Brewood but only runs on Sundays;
- The Site is well placed in terms of access to rail services, with a high frequency of service provided to the main local and regional destinations from Penkridge Railway Station. In addition Cannock Station is connected via local routes to the West Midlands including Walsall and Birmingham;
- Levels of severance (the degree to which residents are separated by roads from facilities and services they use) caused by the existing road network are assessed as significant for the A449 and A5 in the vicinity of the Site;
- Levels of Driver Stress and Delay within the vicinity of the Site range from Low to High, with parts of the A449 and A5 the worst affected. Equally, parts of the A5 and A449 are affected by poor levels of pedestrian and cyclist delay and amenity, and mixed provision of street lighting and pedestrian footways leading to high levels of pedestrian fear and intimidation in some areas; and
- The West Coast Main Line (WCML) runs north to south through the Site.

7.11.5 Sensitive receptors identified for the Proposed Development comprise the following:

- Schools;
- Health Facilities;
- Community Facilities; and
- Areas with significant pedestrian movements.

7.11.6 Potential effects and mitigation measures identified for Transport and Access are summarised as follows:

- The majority of potential effects identified for the completed development phase will arise as direct and indirect effects of increased traffic flows on the local road network. During construction, effects will arise as a result of construction traffic and through roadworks on the local road network.
- During construction of the Proposed Development, traffic and transport will be managed through a Demolition and Construction Traffic Management Plan (DCTMP).
- The Proposed Development includes a number of features to improve access to the Site and to make overall improvements to the road network serving the Site. The Transport Assessment includes a Sustainable Transport Strategy, Site Wide Travel Plan and Site Wide HGV Management Plan, the first of which will include provision of a shuttle bus service between employee clusters in large population areas and the Site, and provision of new and extended public bus services. A range of measures will be delivered to improve pedestrian and cycle access including provision of new infrastructure and addressing existing issues with crossings, footways and cycleways, as well as improvements to the canal towpath. These measures have been taken into account in the assessment.

7.11.7 Based on the inclusion of the above described mitigation measures, the identified effects during the construction and completed development phase of the Proposed Development range between negligible and minor to moderate adverse effects. With beneficial effects for the A449 (between A5 and Gravelly Way) and Station Road (Between Enterprise Drive and Site access).

7.12 Water Environment

7.12.1 This topic assesses the potential effects of the Proposed Development in relation to the water environment, including flood risk, water quality and water resources.

7.12.2 This topic deals with surface water receptors only, and only from the direct effects of the Proposed Development. The ES ground conditions chapter assesses potential effects on groundwater resources and secondary effects as a result of contaminated land and ground conditions on surface water receptors.

7.12.3 The assessment utilises desk study data from publicly available sources, information obtained through consultation with key stakeholders, and information gathered from the ground conditions and ecology chapters.

7.12.4 The baseline environment, which includes predictions for future baseline without the Proposed Development, is characterised as follows:

- The Site is located within the catchment of the River Penk, which is situated approximately 1.2km south-west of the Site. Saredon Brook, located approximately 450m to the south of the Site also forms part of the Penk catchment. The River Penk forms part of the River Sow catchment, which in turn discharges to the Trent at Great Haywood/ Shugborough, 24km downstream of the Site;
- There are no main rivers on Site, but a number of ephemeral field drains and land drains have been identified at the Site. The Staffordshire and Worcestershire Canal crosses the Site and forms part of the Site's southern boundary;
- The Site is underlain by relatively porous sandstone and glacial sand and gravel deposits with significant groundwater bodies identified; and
- The Site hosts a number of ponds of varying sizes within farmland, and the quarry workings have created a number of large temporary pools. The Site is located immediately adjacent to Calf Heath Reservoir.

7.12.5 Sensitive receptors identified with respect to the water environment are summarised as follows:

- Site users, downstream receptors and construction workers in relation to flood risk;

- The River Penk, Saredon Brook and Tributaries with regards to water pollution and flood risk;
- On-site ditches, drains and ponds (including proposed features) in relation to pollution and flood risk;
- Staffordshire and Worcestershire Canal and connected Hatherton Canal;
- Calf Heath and Gailey reservoir with regards to surface water pollution; and
- Water supply and sewerage infrastructure.

7.12.6 The Proposed Development includes embedded mitigation measures developed through the EIA process, including measures to protect the water environment during construction through implementation of a DCEMP which sets out the way surface water will be managed at the Site to protect water quality and control flood risks in line with legislative and policy requirements. The completed development drainage strategy comprises a network of swales and balancing ponds which will control the flow of water from the Site and provide several stages of treatment to address diffuse pollution. The assessment takes into account these 'embedded' measures.

7.12.7 Accounting for the mitigation measures described above, no significant adverse effects were identified with regards to the water environment, all effects were assessed as negligible.

7.13 Cumulative Effects

7.13.1 This topic assesses the potential cumulative effects associated with the Proposed Development, which are split into two types:

- Intra-project effects – concerning those effects which arise from interactions between separate and different types of impact identified within the ES; and

- Inter-project effects – concerning those effects which arise from interactions between the Proposed Development and an agreed list of other schemes within a clearly defined Zone of Influence from the Site boundary.

Intra-project Cumulative Effects

7.13.2 During construction the following potential intra-project cumulative effects have been identified:

- Temporary Moderate adverse effect on Heath Farm (as a tenant farmer and resident), as a result of combined effects of noise, air quality, traffic or landscape/visual during construction, in combination with partial loss of agricultural land. This will be managed by ongoing consultation with the tenants over the land holdings, and mitigation of noise, air quality, traffic and visual effects through the DCEMP.

7.13.3 During the completed development phase the following potential intra-project cumulative effects have been identified:

- Local residents adjacent to the immediate road network surrounding the Site and the canal moorings may be subject to combined effects of air quality, noise, traffic and visual impacts during the completed development phase. These impact interactions are complex and subjective and difficult to quantify, therefore the significance of the impact interaction has been assessed qualitatively as a maximum of moderate for any one receptor. No further mitigation is proposed as a comprehensive scheme of mitigation measures has already been included within each technical chapter to address the original assessed effects. Any contribution from impact interactions is expected to be minimal.

Inter-project Cumulative Effects

7.13.4 The assessment of inter-project cumulative effects has been undertaken in accordance with PINS 'Advice Note 17: Cumulative effects assessment (CEA) relevant to nationally significant infrastructure projects', as detailed within Chapter 2 of the ES. This guidance defines a particular staged

process for the assessment of cumulative effects, resulting in the development of a shortlist of agreed sites for assessment within the ES.

- 7.13.5 The agreed list of ‘other developments’ for assessment for inter-project effects is summarised in Table 17.2 of the ES
- 7.13.6 Each technical discipline within the ES is assigned a defined Zone of Influence, which varies between disciplines, so not all disciplines assess all of the other developments, depending on their distance from the Site
- 7.13.7 The cumulative effects assessment is undertaken in the form of a matrix table which is presented in full in Chapter 17 of the ES.
- 7.13.8 In summary, no significant intra-project cumulative effects or significant residual inter-project cumulative effects were identified as part of the cumulative effects assessment.

8. SUMMARY

- 8.1.1 The ES which has been prepared in accordance with the EIA Regulations and relevant EIA guidance, including the National Networks National Policy Statement.
- 8.1.2 Overall, the EIA process has demonstrated that likely significant adverse environmental adverse effects are limited to loss of agricultural land, localised noise effects at some residential properties, effects on ecological habitats / species, effects on landscape character and visual effects on some residential properties. The effects on ecology, landscape and views will lessen over time during the maturing of green infrastructure. In addition, it is likely that there will be some significant adverse environmental effects in relation to views, noise and vibration during construction which are to be expected, however these would be only of a temporary nature. There are no other significant adverse effects predicted.
- 8.1.3 There are a number of significant environmental beneficial effects associated with the Proposed Development in relation to socio-economics. These comprise employment generation and wider economic benefits. Also there are beneficial effects for certain habitats / wildlife species in relation to landscaping proposals.
- 8.1.4 The Proposed Development includes provision of new community parks and warehouse buildings which will generate local employment.