

The West Midlands Rail Freight Interchange Order 201X
ES - Vol 1 - Chapter 2: EIA Process and Methodology
Regulation 5(2)(a)
Ramboll - July 2018

2 EIA PROCESS AND METHODOLOGY

Introduction

- 2.1 This chapter of the ES sets out the general approach to the process and to the methodology that is adopted when undertaking the assessment of likely significant environmental effects in this ES. It describes the legislative framework in which the assessment for the Proposed Development was undertaken and identifies the key guidance that was considered. The pre-application submission scoping and consultation process that was adopted to identify the key environmental topics for inclusion in the ES is outlined, as well as the overall assessment methodology adopted.
- 2.2 Whilst the overall approach and methodology is described in this chapter, to accord with appropriate technical guidance a number of chapters depart from this overall approach. Further detail on the methodology for the chapters which depart from this approach is presented in the relevant technical assessment chapters of the ES.
- 2.3 This chapter is accompanied by the following technical appendices within ES Volume 2:
- Technical Appendix 2.1: ES Scoping Report (the 'Scoping Report');
 - Technical Appendix 2.2: ES Scoping Opinion (the 'Scoping Opinion');
 - Technical Appendix 2.3: Outline Demolition and Construction Environmental Management Plan (ODCEMP);
 - Technical Appendix 2.4: Operational Waste Technical Note;
 - Technical Appendix 2.5: Further information on daylight, sunlight and overshadowing issues;
 - Technical Appendix 2.6: Further information on wind microclimate issues;
 - Technical Appendix 2.7: List of 'other developments' for the cumulative effects assessment; and
 - Technical Appendix 2.8: Statement of technical competence for ES authors.

Environmental Impact Assessment

- 2.4 The relevant EIA Directive on the assessment of the effects of certain public and private projects on the environment is transposed into English law for NSIPs through the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('EIA Regulations'). A Scoping Opinion was obtained in 2016 (described in further detail later in this Chapter) in accordance with the 2009 regulations. Nevertheless, the additional elements required by the 2017 EIA Regulations have been included in this ES. These are described later in this chapter.
- 2.5 The EIA Regulations set out the statutory process and minimum requirements for EIA and the content of the ES. Specifically, they prohibit the granting of consent for developments likely to have significant effects on the environment, defined in the EIA Regulations as 'EIA development', unless information on those effects is considered by the examining authority and SoS in reaching its decision on an application. That information includes both the ES, which is the Applicant's own assessment, and any other environmental information provided by consultees, the public, and any other persons about the proposal's environmental effects. In addition, there are specific environmental provisions in the NPS which must be addressed.

- 2.6 There is also additional guidance available on EIA and the application of the EIA Regulations, which has been considered in undertaking this EIA including:
- Relevant PINS Advice Notes;
 - Department for Communities and Local Government (DCLG), 2006. Amended Circular on Environmental Impact Assessment (consultation paper)¹;
 - DCLG, 2006. Environmental Impact Assessment: A guide to good practice and procedures (consultation paper)²; and
 - DCLG, 2014. Planning Practice Guidance: Environmental Impact Assessment³.

EIA Process

- 2.7 EIA is a process that identifies the likely significant environmental impacts (both beneficial and adverse) of a proposed development and aims to prevent, reduce and offset any potential significant adverse environmental effects. EIA is required for certain developments under the EIA Regulations. Some NSIPs always require EIA (defined by the EIA Regulations under Schedule 1), others only require EIA if they are likely to have significant effects on the environment by virtue of their nature, size or location (defined by the EIA Regulations under Schedule 2).
- 2.8 In accordance with Regulation 6(2)(a) of the EIA Regulations, the Proposed Development will be determined as 'EIA development', as the Proposed Development matches the criteria set out under paragraph 10 of Schedule 2 of the EIA Regulations as an 'infrastructure project', specifically under part (c), 'the construction of intermodal transshipment facilities and of intermodal terminals'. Therefore, in accordance with Regulation 8(1) of the EIA Regulations, the Applicant has notified the SoS that it proposes to provide an ES in respect of the Proposed Development.
- 2.9 The assessment carried out on behalf of the Applicant is presented in this ES. The ES should be a clear and concise summary of the Proposed Development and its potential environmental effects - including direct, indirect and cumulative effects - on the natural, built and human environments. The ES is submitted with an application for DCO consent. It provides the Examining Authority, statutory consultees and the wider community with sufficient information to make an objective judgement as to a proposed development's likely significant environmental effects within the context of national, regional and local planning and environmental policy.

Scoping

- 2.10 Scoping is the term used in the EIA Regulations whereby the Applicant can request a formal opinion from the PINS on the content of the ES and the extent of the information to be considered in the assessments. The purpose of scoping is to focus the ES on the environmental issues and potential impacts which need the most thorough attention; to identify those which are unlikely to need detailed study; and to provide a means to discuss methods of impact assessment so as to reach agreement on the most appropriate methodologies.
- 2.11 A Scoping Opinion Request Report was submitted to PINS on 12th September 2016, in line with the EIA Regulations.

¹ Department for Communities and Local Government, 2006. Amended Circular on Environmental Impact Assessment: A consultation paper. DCLG.

² Department for Communities and Local Government, 2006. Environmental Impact Assessment: A guide to good practice and procedures – a consultation paper. DCLG.

³ Department for Communities and Local Government, 2014. Guidance for Environmental Impact Assessment. DCLG.

- 2.12 PINS issued a Scoping Opinion in October 2016, which is provided within Technical Appendix 2.2.
- 2.13 The ES Scoping Process and associated follow-up consultation have informed the content of this ES. The potentially significant environmental topic areas that were identified during the ES Scoping Process and that have been addressed within this ES are listed below:
- Agriculture and Soils;
 - Air Quality;
 - Cultural Heritage;
 - Archaeology (Buried Heritage Assets);
 - Ecology and Nature Conservation;
 - Ground Conditions;
 - Landscape and Visual Impact;
 - Socio-Economics;
 - Transport and Access;
 - Noise and Vibration; and
 - Water Environment and Flood Risk.
- 2.14 The potential impacts of a new development to affect climate change (as well as how the Proposed Development would adapt and be resilient to climate change) would largely be determined by the demolition and construction works of the Proposed Development, as well as the way the new buildings, infrastructure and associated transportation are used during operation. The Applicant would seek to achieve a number of sustainable design initiatives in line with policy requirements. Technical assessments within this ES will consider the Proposed Development's indirect or secondary impacts on and from climate change where appropriate, namely, the Flood Risk Assessment and Air Quality Assessment. In addition, the effects in relation to traffic impacts and the impacts of the shift from road to rail will be addressed within the Transport Assessment.
- 2.15 Accordingly, it is considered that climate change will be comprehensively considered within the ES as a whole.
- 2.16 The ES Scoping process also identified environmental topic areas which are not likely to give rise to significant environmental effects and therefore would not need to be assessed in this ES. PINS agreed with the reasoning that the following elements could be scoped out:
- Coastal Change; and
 - Telecommunication Interference.
- 2.17 However, PINS did not agree that the following could be scoped out of the assessment based on the information provided in the Scoping Report and requested they be included or further justification be provided in the ES as to why their inclusion was not necessary:
- Waste;
 - Light spillage;
 - Daylight, sunlight and overshadowing;
 - Wind microclimate;
 - Odour, smoke and steam; and
 - Aviation.
- 2.18 Table 2.1 sets out what further consideration has been undertaken with regard to these matters and how these are addressed in this ES.
- 2.19 Separate from the Scoping Opinion, PINS provided comments on the draft issue of the DCO application in August 2017. In this response, PINS made the following comment:
- "No reference is made to solar energy within the ES (excepting one cumulative scheme). The ES should include consideration of effects arising from solar arrays such as glint and glare."*
- 2.20 In response, although the Proposed Development design allows for future installation of solar photo-voltaic (PV) arrays on the roofs of the buildings, this is not considered as an integral part of the Proposed Development. The finish of the roofs and cladding of the buildings would not be anticipated to cause glint and glare due to the matt finish, colours and to a lesser extent, the landscaping proposals. In the event that photo-voltaic panels were installed, there would be the potential for glint and glare and this could act cumulatively with an existing solar PV farm situated to the south of Station Drive, approximately 550m to the south of the nearest development plot for the Proposed Development (see Chapter 4: Proposed Development for further detail on development plots). However, according to documents submitted in conjunction with the PV farm Planning application (SSDC ref: 14/00406/FUL) the PV panels are 'non-reflective' and hence this minimises the potential for cumulative effects.
- 2.21 As the installation of solar PV at the Site would be entirely dependent on the occupant of each building, it is proposed that an assessment for glint and glare is undertaken as part of detailed design approval, secured as a DCO Requirement.

Table 2.1: Approach to matters proposed to be scoped out		
Topic	Scoping Opinion	Approach
Waste	<p>Paragraphs 3.21 and 3.22 of the Scoping Opinion states:</p> <p><i>"In light of the nature and scale of the Proposed Development, the SoS does not agree that this matter can be scoped out. The ES should identify and assess the waste management processes and mitigation measures for storing and transporting both on-site and off-site wastes, particularly during construction but also during operation and decommissioning of the proposed development. This would ideally draw on experience from existing facilities.</i></p> <p><i>The ES should also demonstrate that adequate steps have been taken to ensure the effective management of hazardous and non-hazardous waste; and to minimise the volume of waste arising and sent to disposal (except where an alternative is the most sustainable option). All waste types should be quantified and classified."</i></p>	<p>Rather than consider Waste in a specific technical chapter, waste management, compliant with all relevant legislation and adhering to best practice (e.g. Waste Hierarchy) where applicable, is considered as follows:</p> <ul style="list-style-type: none"> Demolition and Construction Phase: Waste management is considered as a key component of the Outline Demolition and Construction Environmental Management Plan, included in Technical Appendix 2.3 of this ES. These elements are summarised under Chapter 5: Demolition and Construction, of this ES. Preliminary estimates for waste volumes split across standard waste categories are provided within Chapter 5: Demolition and Construction, based on industry best practice guidance for construction waste estimates and on preliminary cut/fill models for the Site earthworks; and Operational Phase: An Operational Waste Technical Note has been prepared and is included in Technical Appendix 2.4 of this ES. <p>In terms of the environmental impacts and effects of waste and waste management, it is considered that these are assessed fully across technical disciplines including Chapter 11: Ground Conditions and Chapter 16: Water Environment. The management and handling of hazardous waste versus non-hazardous waste is governed by legislative requirements which would be adhered to for the construction and operational phases of the Proposed Development.</p>
Light spillage	<p>It is stated under paragraph 3.24 of the Scoping Opinion that:</p> <p><i>"The Secretary of State is satisfied that a specific chapter for light spillage is not required. However, as the issue of light spill is proposed to be dealt with at a sub topic level the Secretary of State does not agree to scope out light spill from the assessment. The Applicant should ensure that sufficient information is provided with their application satisfy the requirements of the NPSNN in considering the impact of artificial light on local amenity, aviation, intrinsically dark land landscapes and nature conservation."</i></p>	<p>Light Spillage has been assessed within a Lighting Strategy Report, included as Technical Appendix 12.8 of this ES and considered within the ES under Chapter 12 Landscape and Visual and Chapter 10 Ecology and Nature Conservation.</p>
Daylight, sunlight and overshadowing	<p>Paragraph 3.25 of the Scoping Opinion states:</p> <p><i>"The Secretary of State does not consider that sufficient information has been provided to support this request, therefore daylight, sunlight and overshadowing effects are not scoped out. Specific consideration should be given to potential effects on residential receptors on Croft Lane, to the north of the Proposed Development on the A5 and to the west of the A449."</i></p>	<p>Initial analysis has been undertaken into daylight, sunlight and overshadowing using CAD software to simulate potential overshadowing as a result of the Proposed Development during different times of year. The results of this exercise are presented in Technical Appendix 2.5 of this ES. The model outputs show some limited overshadowing at a number of properties along the A5 to the north of the Site, only during specific times of day on a handful of days during December when the sun is at its lowest. The assessment makes no account for existing shadowing effects created by trees and vegetation along this boundary which would likely negate to some degree any additional effect from the Proposed Development. The report concludes that no likely significant effects are anticipated for daylight, sunlight and overshadowing. Therefore, in depth assessment within the ES is not considered necessary.</p>
Wind microclimate	<p>Paragraph 3.26 of the Scoping Opinion states:</p> <p><i>"The Secretary of State does not consider that sufficient information has been provided at this stage regarding the distribution of tall buildings within the site to support the conclusion that wind microclimate can be scoped out. In particular the ES should outline how microclimate factors have influenced or been considered in the design development."</i></p>	<p>Please see Technical Appendix 2.6 of this ES for further justification regarding the scoping out of wind microclimate in terms of potential effects upon Site occupants / visitors. Potential wind effects relating to off-site amenity use (sailing) are considered within Chapter 14: Socio-economics and Health and within a desk study assessment included as Technical Appendix 14.1.</p>
Odour, smoke and steam	<p>Paragraph 3.29 of the Scoping Opinion states:</p> <p><i>"The Secretary of State does not agree that sufficient information has been provided to support scoping out of odour, smoke and steam effects particularly in the absence of a final design layout."</i></p>	<p>Ramboll liaised with the Environmental Health Officer (EHO) at SSDC to discuss potential effects from odour, smoke and steam. Given the Proposed Development comprises a SRFI with associated warehousing Ramboll don't consider that proposed construction / operation will comprise significant sources of odour, smoke or steam. On this basis, during a telephone conversation the EHO agreed that matters regarding odour, smoke and steam can be scoped out of the EIA.</p>
Aviation	<p>Paragraph 3.27 of the Scoping Opinion states:</p> <p><i>"The Secretary of State notes that the site is located within a high priority military low flying area, therefore the impact of the proposals on defence interests (i.e. low flying military aircraft) must be assessed and is not scoped out, unless otherwise agreed with the Ministry of Defence (MoD)."</i></p>	<p>Information was sent to the MoD regarding the scheme (on the 5th January and the 23rd January 2017). As part of Stage 2 Consultation the Applicant received responses from the MoD and the Civil Aviation Authority, neither of which identified any significant aviation issues / constraints relevant to the Proposed Development. The MoD confirmed there were no "no safeguarding objections" to development proposals.</p>

Consultation and Public Engagement

- 2.22 Details on the technical feedback received during consultation and the ES Scoping process relevant to the environmental assessments are presented in the relevant technical assessment chapters of this ES.
- 2.23 As described in ES Chapter 3: Consideration of Alternatives and Design Evolution, the Proposed Development has evolved through the on-going process of consultation with relevant statutory and non-statutory consultees, local stakeholders, members of the local community and PINs. Further details are included in the Consultation Report (Document 5.1) prepared by Copper.
- 2.24 In terms of the consultation undertaken to date on EIA matters, in addition to some early discussions with statutory consultees, an Environmental Report was produced and publicised as part of the Stage 1 consultation process (13 June – 24 July 2016). The Environmental Report summarised the planning policy, legislation and guidance that will be considered throughout the preparation of this ES, the baseline studies undertaken up to that point, and provided an indication on the potential likely significant environmental effects of the Proposed Development. Following this a draft ES (which comprised a Preliminary Environmental Information Report) was produced and distributed for review as part of a Stage 2 consultation process (July-August 2017). The outcome of the Stage 2 consultation process was used to further refine the design of the Proposed Development (discussed further in ES Chapter 3: Alternatives and Design Evolution), as well as content and methodology of the ES.

Environmental Statement Content

- 2.25 The required content of the ES is set out in Schedule 4 of the 2017 EIA Regulations. Table 2.2 presents these requirements and indicates where in this ES the requirements have been met.

Required Information		Chapter/Section of ES
1	Description of the development, including in particular: <ul style="list-style-type: none"> A description of the location of the development; A description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases; a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases. 	ES Chapter 4: Description of the Proposed Development ES Chapter 5: Demolition and Construction
2	A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication	ES Chapter 3: Consideration of Alternatives and Design Evolution

Required Information		Chapter/Section of ES
	of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	
3	A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	ES Chapters 6 – 17
4	A description of the factors specified in regulation 5(2) likely to be significantly affected by the development: 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.	ES Chapters 6 – 17
5	A description of the likely significant effects of the development on the environment resulting from, inter alia - (a) the construction and existence of the development, including, where relevant, demolition works; (b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources; (c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste; (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters); (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources; (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; (g) the technologies and the substances used.	ES Chapters 6 - 17
6	A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	ES Chapter 2: EIA Process and Methodology ES Chapters 6 - 17
7	A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That 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 phase.	ES Chapters 6 - 17

Table 2.2: Information Required in an Environmental Statement (Schedule 4 of EIA Regulations 2017)

Required Information		Chapter/Section of ES
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.	ES Chapters 6 - 17
9	A non-technical summary of the information provided.	Non-Technical Summary
10	A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	ES Chapters 6 - 17

Table 2.3: Technical Disciplines in 2009 EIA Regulations versus 2017 EIA Regulations

Technical Disciplines ⁴		Approach
2009 EIA Regulations	2017 EIA Regulations	
'Fauna, flora'	'Biodiversity (for example fauna and flora)'	Effects on all aspects of biodiversity and ecology including flora and fauna are assessed in Chapter 10: Ecology and Nature Conservation.
'Water'	'Water (for example hydromorphological changes, quantity and quality)'	Effects on the water environment, including water quality, flood risk and water resources are assessed in Chapter 16: Water Environment and Flood Risk.
'Soil'	'Soil (for example organic matter, erosion, compaction, sealing)'	Effects on soils are considered primarily within Chapter 6: Agriculture and Soils. Further effects relating to ground conditions and contaminated land are assessed in Chapter 11: Ground Conditions.
[ABSENT]	'Land (for example land take)'	Effects relating to land take – in this case loss of agricultural land holdings – are assessed specifically within Chapter 6: Agriculture and Soils.
'Air'	'Air'	Effects relating to air, including emissions and air quality are assessed specifically within Chapter 7: Air Quality.
'Climatic factors'	'Climate (for example greenhouse gas emissions, impacts relevant to adaptation)'	Climate change is considered as an integral component of flood risk assessment, assessed within Chapter 16: Water Environment and Flood Risk. Furthermore, details on Climate Change have been prepared and submitted with the Planning Statement as part of the DCO Application (Document: 7.1A).
'Material assets'	'Material assets'	Effects on material assets, primarily property given that cultural heritage assets are considered below, are assessed in Chapter 14: Socio-economics and Health.
'[Material assets] including the architectural and archaeological heritage'	'Cultural heritage, including architectural and archaeological aspects'	Effects on built heritage and archaeological (below ground) heritage are assessed in Chapter 9: Cultural Heritage and Chapter 8: Archaeology (below ground heritage) respectively.
'Landscape'	'Landscape'	Effects on landscape are assessed in Chapter 12: Landscape and Visual. Effects on built and archeological heritage receptors from landscape and setting impacts are assessed in Chapter 9: Cultural Heritage.
[ABSENT]	'Human Health'	Effects on human health are assessed within Chapter 14: Socio-economics and Human Health. Aspects specifically relating to health effects from air quality and ground conditions (health risks from contaminated land) are assessed within Chapter 7: Air Quality and Chapter 11: Ground Conditions respectively.

2.26 A Scoping Opinion was obtained in 2009 in accordance with the 2009 EIA Regulations. Schedule 4 Paragraph 4 of Regulation 37 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 sets out requirements in terms of the technical disciplines to be covered in EIA which has been compared to the 2009 Regulations (as amended). Of these, 'human health' and 'land take' are the only additional technical disciplines present in the 2017 Regulations. As stated earlier in this chapter the additional requirements of the 2017 EIA Regulations are also covered within this ES. Table 2.3 below sets out each of the required technical disciplines for the 2009 regulations and 2017 EIA Regulations and records where and how they are assessed in this ES.

Table 2.3: Technical Disciplines in 2009 EIA Regulations versus 2017 EIA Regulations

Technical Disciplines ⁴		Approach
2009 EIA Regulations	2017 EIA Regulations	
'Population'	'Population'	Effects on population are considered across all chapters where humans are considered as a primary receptor, including: <ul style="list-style-type: none"> Chapter 6: Agriculture and Soils; Chapter 7: Air Quality; Chapter 11: Ground Conditions; Chapter 13: Noise and Vibration; Chapter 14: Socio-economics and Health; Chapter 15: Transport; and Chapter 16: Water Environment and Flood Risk.

⁴ Disciplines are presented as direct quotes from 2009 and 2017 EIA Regulations

- 2.27 Schedule 4 Paragraph 2 of the 2017 EIA Regulations provides an expanded definition of alternatives assessment in comparison to Schedule 4 Part 1 Paragraph 18 of the 2009 EIA Regulations. The change of wording better defines the assessment of alternatives to bring the regulations in line with current best practice within the industry. The change of wording formalises the need to consider certain aspects of a development, including design, technology, location, size and scale, providing these are '*relevant to the proposed project and its characteristics*'; and the need to present a comparison of the environmental effects of different alternatives.
- 2.28 The narrative around alternatives for the Proposed Development is explored within Chapter 3: Alternatives and Design Evolution, which is explained in more detail under Assessment Approach below. Across the two subheadings, 'alternatives' and 'design evolution', this chapter is considered to present an alternatives assessment in line with the requirements of the 2017 EIA Regulations.
- 2.29 Schedule 4 Paragraph 5 of the 2017 EIA Regulations expands on the requirements for the description of likely significant effects in relation to the 2009 regulations. As above, the primary role of this part of the 2017 EIA Regulations is to bring the regulations up to speed with current best practice within the industry. One key addition however is the use of the term 'risk' under Part (d), in relation to the likely significant effects on human health, cultural heritage or the environment. This is not new as the element of probability/risk has been considered across a number of disciplines in relation to the probability of an effect occurring. Risk is also a key component of assessments for ground conditions and archaeology where effects are less certain.
- 2.30 Part 5 Paragraph 18(5) of the 2017 EIA Regulations describes that the ES should be '*prepared by competent experts*' and be accompanied by a statement '*outlining the relevant expertise or qualifications of such experts*'. The ES has been prepared by various authors all competent experts in their field. A statement describing fields of expertise is included as Technical Appendix 2.8.

Assessment Approach

Consideration of Alternatives

- 2.31 ES Chapter 3: Consideration of Alternatives and Design Evolution explores the objectives of the Proposed Development, the alternatives considered, and describes how the development proposals have evolved in response to environmental and planning opportunities and constraints, as well as consultation comments. It also considers alternative sites throughout Staffordshire and the West Midlands considered for the location of the Proposed Development, based on the Alternative Sites Assessment (Document 7.2) prepared by Quod.
- 2.32 A do-nothing alternative is not considered appropriate and has not been considered further since the Proposed Development is an NSIP the need for which is set out in the NPS.
- 2.33 However, alternatives have been considered with regard to site selection and the course of the design process (such as land uses, layouts and designs) taking into account environmental and other relevant planning and design constraints as part of the design evolution. Narrative is provided on where environmental issues have formed part of the alternatives and design evolution process, and on what changes in design, technology, location, size and scale were implemented to address these where appropriate.

Baseline Characterisation

- 2.34 The purpose of the assessment in this ES is to predict how environmental conditions may change as a result of the Proposed Development. The assessment of the scale and significance of a predicted change is undertaken against a reference condition, known as the baseline. In most cases, the baseline represents the environmental condition of the Site and the surrounding area at the time of the assessment. However, the Transport, Air Quality and Noise

and Vibration chapters also include within their assessments a projected environmental condition in the future (e.g. future traffic flows including cumulative schemes), at 2021, which is during the initial stages of operation of the Proposed Development. Although the Proposed Development would not be expected to be fully completed until 2036, it is assumed for the purposes of this ES that it would operate at full capacity from the 2021 future baseline with regards to traffic flows and operational impacts.

- 2.35 An exception to this approach, Chapter 7: Air Quality considers a specific set of temporal scope scenarios which are defined under the Assessment Methodology section of that technical chapter.
- 2.36 As discussed in Chapter 1: Introduction, the Site is currently dominated by agricultural land, a large quarry and mixed woodland. The Application is seeking approval of the demolition of existing buildings and earthworks; and the construction of the Proposed Development. Therefore, for all environmental topic areas the baseline for this ES is the Site condition pre-demolition.

Sensitive Receptors

- 2.37 Receptors that may be affected the Proposed Development are categorised based on their sensitivity. The criteria for defining sensitivity of receptors is detailed within each technical chapter but is typically described as Low, Medium or High. The type of receptor varies between technical chapters, typically comprising elements of the natural or human environment, the latter including infrastructure.

Impact Assessment

- 2.38 Impact assessments are undertaken for the following stages of the Proposed Development:
- During demolition and construction works - typically assessing the peak construction related activities and vehicle movements to represent a worst case assessment;
 - Once the Proposed Development is complete and operational; and
 - During decommissioning activities of the Proposed Development.
- 2.39 It is proposed that the Proposed Development will be progressed in a phased manner. The exact manner of phasing is unknown at this stage; however an indicative phasing is discussed further in Chapter 4: Description of the Proposed Development. The technical chapters in this ES include assessment considering the indicative phasing.
- 2.40 Detailed methodologies for the assessment of each of the environmental topic areas scoped into the ES are provided within each technical chapter of this ES; however, in general terms, the assessments have been based upon:
- A review of the current (or pre-demolition) situation at and surrounding the Site for the environmental topic area under consideration via various sources of existing information, data and reports;
 - Desk-top studies;
 - Site surveys;
 - Consideration of relevant legislation;
 - Consideration of relevant planning policies (national, regional and local);
 - Identification of likely environmental impacts and effects, with an evaluation of their likely duration, magnitude and significance;
 - Consideration of potentially sensitive receptors that could be affected by the Proposed Development;
 - Expert opinion;
 - The use of technical guidance and best practice; and
 - Specific consultations with appropriate organisations.

- 2.41 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. Mitigation measures relate to the design stage; the demolition and construction stage; the activities associated with the completed Proposed Development; and/or decommissioning activities.
- 2.42 As part of this ES, an iterative approach has been adopted where significant environmental effects identified throughout the EIA process have been avoided where possible in the first instance through the design changes and as 'incorporated mitigation'. Where adverse environmental effects were identified through early assessment work, opportunities to reduce or control impacts and effects, or in some cases, to compensate for impacts and effects, were identified and incorporated into the Proposed Development. In addition, opportunities to enhance the beneficial environmental effects of the Proposed Development have been sought. Key elements of this iterative process are discussed in Chapter 3: Consideration of Alternatives and Design Evolution of this ES.
- 2.43 Key elements of incorporated mitigation relevant to the Proposed Development design and construction have also been included in Chapter 4: Description of the Proposed Development Description and Chapter 5: Demolition and Construction respectively, and are discussed within each technical chapter where relevant.
- 2.44 This ES presents the assessment of the potential effects that are likely to arise as a consequence of a potential impact/change to environmental receptors from the Proposed Development. If any mitigation measures are required, further to that already integrated into the Proposed Development throughout its evolution, these are incorporated into the Proposed Development and the Proposed Development is reassessed to ascertain the likely residual effects and the likely significant environmental effects. This is reported on within each technical chapter of this ES.
- 2.45 A range of potential effects are considered - including direct, indirect (or secondary) and cumulative:
- Direct effects are those which arise as a direct consequence of a project action, e.g. the loss of habitat or the run-off of surface water to a watercourse;
 - Indirect effects include, for example, the decline in the abundance of a species as a result of the loss of habitat or the damage to aquatic vegetation as a result of water pollution. Other common examples include the effect on air quality and ambient noise as a result of increased traffic movements; and
 - Inter and Intra cumulative effects (described in further detail below).
- 2.46 How the Proposed Development might affect the environment relies on predictions about what effects a certain impact will have. Some predictions can be made using mathematical or simulation models, particularly where there are well known relationships between cause and effect. For example, the degree to which noise levels may increase as a result of additional traffic flows can be predicted using a mathematical equation. The level of air pollution from a known traffic flow can also be predicted from a computer-based simulation model. The visibility of a building can be predicted by computer generated photomontages. Other impacts are less easy to predict in quantitative terms; for example, whilst the extent of a loss of a habitat can be measured, the effect on the abundance of individual species is more difficult to predict. In such cases, the ES attempts to quantify the anticipated scale of impact using empirical experience, literature and professional judgement.
- 2.47 In all cases, the overall approach and specific methods of predicting the likely nature and scale of impact and effect is set out in each of the technical assessments. Where used, recognised specific predictive methods are referenced. Any assumptions or limitations to knowledge are

stated. In either case the thought process leading to the conclusions is based on reasonably reliable data and so is considered to be prudent and robust.

- 2.48 In the context of the Proposed Development, temporary effects would be generally those associated with the demolition and construction works, and long-term effects would be those associated with the completed and operational development. Local effects would be those affecting receptors neighbouring the Site, whilst effects upon receptors within the wider SSDC boundary are assessed at a District level. Regional effects would be those affecting receptors within the West Midlands. Effects upon different parts of the country, or England as a whole, are considered to be at a national level. Finally, effects across national boundaries would be considered at an international level.

Basis of Assessment

- 2.49 The SoS recommends that the ES should include a comprehensive description of the parameters used to inform the EIA that is able to be incorporated within the DCO.
- 2.50 The Application has defined the key principles of the Proposed Development in sufficient detail to allow the likely significant environment effects to be assessed, whilst seeking to preserve enough flexibility to allow the developed scheme to accommodate the specific requirements of subsequent occupiers.
- 2.51 In accordance with the PINs 'Advice Note Nine: *Rochdale Envelope*⁵, the Application is seeking approval of a set of parameters within which the development would take place. The parameters are clearly defined by a set of key drawings.
- 2.52 The Parameter Plans referenced and described in Chapter 4 of this ES (Documents 2.5 - 2.7) have enabled the ES team to establish an appropriate 'development envelope' for testing which enables the identification and assessment of the likely significant environmental impacts of the Proposed Development.
- 2.53 For the massing dependent studies of the ES (i.e. Landscape and Visual Impact Assessment, Cultural Heritage, Archaeology (Buried Heritage), Ecology), the impact assessments consider the maximum permissible building envelope defined by the maximum scale/depth and layout parameters within the parameter plans.
- 2.54 Basing the assessments on the maximum scale/depth and layout parameters is considered a robust assessment of the impacts as the massing of the Proposed Development will come forwards through the detailed design and specific approvals in due course. These approvals are secured under requirements of the DCO ('DCO Requirements') and will across the proposed plots, be reflective of the maximum outline scale and layout parameters. The maximum permissible development (in terms of scale and layout or "massing") is considered to represent the worst case scenario in terms of environmental effects, as a larger development massing leads to for example, increased view obstruction.
- 2.55 In terms of the land uses proposed and the amount or 'quantum' of development, the parameters specify the maximum amount of development proposed for warehousing and rail freight uses.
- 2.56 The parameter plans are described in more detail in Chapter 4: Description of the Proposed Development, of this ES.

Significance

- 2.57 The assessment of likely significant environmental effects is important in that it informs the determination by a panel of inspectors appointed by the SoS (the 'Examining Authority') of the overall acceptability of the Proposed Development. Determining significance relies on

⁵ The Planning Inspectorate (2012) *Advice Note 9: Rochdale Envelope, Version 2* [online] Available: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf> [date accessed: 05/05/2017]

- accepted thresholds and criteria where available or, for situations in which such are not available, expert interpretations and value judgments.
- 2.58 Significance is usually a function of the vulnerability or importance of the resource affected (receptor) and the scale (magnitude and duration) of the potential impact. Importance might be a function of international designation or local relevance. Thus, significance is a concept that can be applied objectively to individual effects. Throughout this ES the same terminology is used to describe these individual effects, unless specific alternative terminology exists in recognised issue specific guidance for example in ES Chapter 7: Air Quality.
- 2.59 Where available, significance has been evaluated with reference to definitive standards, accepted/published criteria and legislation. Where it has not been possible to quantify likely effects, qualitative assessments have been carried out, based on expert knowledge and professional judgement. Where uncertainty exists, it has been noted in the relevant assessment and a prudent or conservative approach adopted so that the significance will not be under-estimated.
- 2.60 For transparency, specific conventions have been developed to define significance, wherever possible, using the terminology and criteria listed below:
- The sensitivity of the receptor to the change or potential impact, based on a scale of high, medium and low;
 - The magnitude of the potential impact, based on a scale of high, medium, small, neutral and unknown;
 - The likelihood of the effect occurring, based on a scale of certain, likely or unlikely;
 - Whether the effect is permanent or temporary, and where temporary, the duration of the effect based on a scale of short term, medium term and long term;
 - The geographical extent of the effect at local, borough, regional, national and international levels; and
 - The reversibility of the effect, being either reversible or irreversible.
- 2.61 The duration of a temporary effect is typically as described below:
- Short term: less than 1 year;
 - Medium term: 1 to 5 years; and
 - Long term: greater than 5 years.
- 2.62 Where a technical chapter of this ES uses a different definition of duration for temporary effects this is stated clearly in the methodology section of that chapter.
- 2.63 In order to provide a consistent approach to the presentation of effects, where possible, the following terminology has been used throughout the ES to describe the type/nature of potential and residual effects:
- **Adverse** - detrimental or negative effect to an environmental resource or receptor;
 - **Neutral** - an effect that on balance, is neither beneficial nor adverse to an environmental resource or receptor; and
 - **Beneficial** - advantageous or positive effect to an environmental resource or receptor.
- 2.64 The scale of the predicted effect has then been classified according to the following semantic scale:
- **Negligible** - imperceptible effect;
 - **Minor** - slight, very short term or highly localised effect;
 - **Moderate** - limited effect (by magnitude, duration, reversibility, value and sensitivity of receptor) which may be considered significant; and
 - **Major** - considerable effect (by magnitude, duration, reversibility, value and sensitivity of receptor) which may be more than of a local significance or lead to a breach of a recognised environmental threshold, policy, legislation or standard).

- 2.65 Residual effects have been predicted as either 'significant' or 'not significant'. Significant effects are considered material to the DCO decision process. Based on the above, residual effects of moderate and major scale may be considered significant, but would be dependent on the relevant technical assessment, as well as the existence of published assessment guidance. Where published assessment guidance is not definitive in respect of categorising/determining significant environmental effects, professional judgement would be applied, taking into account the duration, extent and context of the effect, to determine significant effects.
- 2.66 The specific benchmarks have been established by the project team using available national, regional and local policy together with other relevant guidance, recognised best practice and expert judgement. The development of these benchmarks is explained in more detail in each assessment.
- 2.67 Some technical disciplines use discipline-specific guidance on the assessment of effects for EIA, and as such their terminology and criteria may differ from the above described approach. The assessment methodology specific to each discipline is described in full within each technical chapter.

Cumulative Effects

- 2.68 Following the main impact assessment of the Proposed Development, as described above, two types of Cumulative Effects will then be assessed:
- Intra-Project effects of different types of impacts from the Proposed Development that could interact to jointly affect particular receptors at the Site. Potential impact interactions could, for example, 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.
- 2.69 Inter-project Cumulative Effects have been assessed within each technical chapter and summarised in Chapter 17: Cumulative Effects, of this ES. Intra-project cumulative effects are assessed within Chapter 17: Cumulative Effects.

Intra-Project Cumulative Effects

- 2.70 The intra-project effects of different types of impact ('impact interactions') from the Proposed Development on particular receptors have been considered for both the demolition and construction works and once the Proposed Development is completed. However, it is noted that the greatest likelihood of impact interaction, and hence potential significant effects, would occur during the demolition and construction works. Indeed, demolition and construction effects are usually more significant (albeit on a temporary basis) than effects created from a completed development.
- 2.71 Representative groups and/or individual receptors potentially most sensitive to impact interactions (where appropriate) have been identified, rather than undertaking an assessment of each possible receptor. The criteria for identifying such receptors included types of existing and future land uses and occupiers; proximity to the demolition and construction works; likely duration of exposure to impacts; and nature of impacts. Such an approach is considered reasonable and appropriate to identifying likely significant cumulative effects.
- 2.72 It is standard practice for some technical chapters, such as Ecology and Socio-economics, to consider cross-discipline effects as an inherent component of the technical chapter. For example, the Ecology Chapter considers impact interactions from air quality and traffic on ecological receptors. The Socio-economic Chapter accounts for in-combination effects of a range of other technical disciplines on all key socio-economic receptors including recreation

and amenity receptors, human health and local businesses. These interactions are not repeated under Chapter 17: Cumulative Effects.

Inter-Project Effects

- 2.73 Inter-project effects arising from the Proposed Development in combination with 'other developments' during the demolition and construction works and once the Proposed Development is complete have been considered in the ES.
- 2.74 The EIA Regulations require an assessment of potentially significant cumulative effects of the Proposed Development along with other developments. There are no legislative or policy requirements which set out how a Cumulative Effects Assessment (CEA) should be undertaken. However, PINS 'Advice Note 17: Cumulative effects assessment relevant to nationally significant infrastructure projects'⁶ sets out a staged approach that applicants are encouraged to adopt in CEA for NSIPs. The Advice Note suggests adopting a structured and (generally) sequential approach to the CEA process, involving four 'Stages'. This approach was discussed between the Applicant and PINS during a meeting on 27 June 2016. It was agreed that the staged approach to the cumulative effects assessment process (Table 1 within the Advice Note) was intended to reflect an iterative and broad continuum of activity rather than a rigid timetable and that elements of work could be brought forward if required.
- 2.75 Stage 1 of the process involves establishing an appropriate 'Zone of Influence' (ZOI) to help identify 'other development' relevant to the CEA. In accordance with the Advice Note, Table 2.4 presents the proposed ZOIs for the assessment of cumulative effects for the Proposed Development. It should be noted that these may differ from the ZOIs for the assessment of effects of the Proposed Development alone considered within each technical chapter. The ZOIs have been established by the Applicant's consultant team using professional judgment. A 2km ZOI addresses localised cumulative effects from topic areas such as agriculture and soils, geology and ground conditions, and the water environment; a 9km ZOI addresses the potential for cumulative effects associated with landscape and traffic (including secondary traffic effects in relation to air quality and ecology); and the entirety of SCC ZOI captures socio-economic (specifically employment related) effects. Further information on the criteria used in the establishment of these ZOIs is provided within the Scoping Report (Technical Appendix 2.1 of this ES).

Topic Area	Distance From Edge of Site
Agriculture and Soils	2km
Air Quality	9km
Cultural Heritage	9km
Archaeology	2km
Ecology and Nature Conservation	9km
Ground Conditions	2km
Socio-economics	Entirety of SCC area
Transport and Access	9km
Noise and Vibration	9km

Topic Area	Distance From Edge of Site
Water Environment and Flood Risk	2km
Landscape and Visual Impact	Zone of theoretical visibility of the Proposed Development

- 2.76 Following the determination of the ZOIs, the Applicant then considered the criteria for 'other development' selection within the identified ZOIs. The definition of 'major development', as defined within the Town and Country Planning (Development Management Procedure) (England) Order 2015, was used as a starting point for the thresholds of 'other development'. However, alterations to the thresholds have been applied, based upon the team's professional judgment and experience on the scale of developments likely to cause significant environmental effects, to ensure that the CEA is focused and proportionate.
- 2.77 The proposed 'other development' criteria are therefore:
- development comprising more than 10,000 sq m of gross development floor area or more than 150 units;
 - minerals and waste developments;
 - significant highways or infrastructure schemes, as stipulated within Highways England's Road Investment Strategy: Post-2020⁷; and
 - public transport schemes.
- 2.78 A tiered approach was then applied to consider the level of certainty of 'other development' being carried out that falls within the above criteria and ZOI. The level of certainty, or 'Tier' assigned, is as follows:
- Tier 1(a): Under construction (although if it is expected to be completed at the time of commencement of the Proposed Development, the scheme will form part of the baseline);
 - Tier 1(b): permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented;
 - Tier 1 (b): submitted application(s) whether under the Planning Act 2008 or other regimes but not yet determined;
 - Tier 2: projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted;
 - Tier 3: projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted;
 - Tier 3: identified in the relevant development plan (and emerging development plans - with appropriate weight being given as they move closer to adoption) recognising that much of the information on any relevant proposals will be limited; and
 - Tier 3: identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.
- 2.79 On this basis, a desk study was undertaken to determine, with reference to planning applications, relevant development plans and other relevant sources, which developments within the ZOIs fall within the 'other developments' that are relevant to the assessment of potential cumulative effects. The resulting list and location map is presented in Technical

⁶ The Planning Inspectorate [2015] Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure Projects [online] Available: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> [date accessed: 05/05/2017]

⁷ Highways England (2016) Road investment strategy: post-2020 [online] Available: <https://www.gov.uk/government/collections/road-investment-strategy-post-2020> [date accessed: 05/05/2017]

Appendix 2.7. This list and map reflects the temporal scope and scale and nature of the 'other development', in line with Stage 2 of the Advice Note.

- 2.80 Following liaison with SSDC and SCC, more detailed information was gathered for the ES on the 'other developments' for use within the technical topic areas' cumulative impact assessments before proceeding to Stage 3. Once information was gathered on each of the 'other developments', each technical ES topic area compiled a short-list of 'other developments' for their individual CEA, with clear justification for inclusion or exclusion.
- 2.81 The CEA (Stage 4) has been undertaken in accordance with PINS Advice Note Seventeen.
- 2.82 A list and figure of the 'other developments' which Quod agreed with SSDC and SCC is included as Technical Appendix 2.7.

Assumptions and Limitations

- 2.83 The principal assumptions that have been made, and any limitations that have been identified, in undertaking this ES are set out below; assumptions specifically relevant to each technical topic have been set out in each technical chapter of this ES:
- Baseline conditions have been established from a variety of sources, including historical data, but due to the dynamic nature of certain aspects of the environment, conditions at the Site and surrounding land uses may change;
 - It is assumed that information received from third parties is accurate, complete and up to date;
 - The Application is made in full accordance with the EIA Regulations and PINS Advice Note 9: *Rochdale Envelope*, the EIA has been undertaken based on the Proposed Development as described in Chapter 4: Description of the Proposed Development and Chapter 5: Demolition and Construction, of this ES;
 - The assessments contained within each of the ES Volume 1 technical chapters are based on the assumption that mitigation measures set out in application drawings, through regulatory regimes or via the management controls as set out in ES Chapter 4: Description of the Proposed Development and ES Chapter 5: Demolition and Construction are implemented;
 - The assessments contained within the ES Chapter 7: Air Quality and ES Chapter 13: Noise and Vibration utilise nominated emission specifications based on industry-average construction, mechanical and services plant unless otherwise specified in ES Chapter 4: Description of the Proposed Development and ES Chapter 5: Demolition and Construction, as project-specific details will be finalised during the construction planning and procurement stages;
 - Demolition and construction works across the Site would take place substantially in accordance with the phasing described in ES Chapter 4: Description of the Proposed Development;
 - The aim of the ES is not to assess the Proposed Development's compliance/performance against planning policy as this is considered within the Planning Statement that will accompany the Application. Instead reference is made to national, regional and local policy to inform the scope of the assessment, the assessment methodologies applied and the existence of any sensitive receptors to be considered;
 - The Proposed Development has not yet been approved so the conditional tense ('would') has been used to describe the development proposals, situations, potential impacts and likely effects that could/would arise from the introduction of the Proposed Development, as well as the mitigation measures that would be delivered or would be required upon approval of the Proposed Development. This approach does not lessen the Applicant's commitment to deliver the Proposed Development as presented within this ES. Furthermore, each technical assessment (and in particular summary tables at the conclusion of each chapter) clearly sets out the means by which any mitigation measures relied upon, would be secured;

- Where detailed information has not been available, reasonable assumptions have been made, and have been clearly set out, based on experience of developments of similar type and scale to enable assessment of likely significant effects; and
- Consented or reasonably foreseeable 'other developments' will be implemented substantially in accordance with information that is publicly available or that has been provided to the Applicant, and subject to the same regulatory regimes and good practice management controls as the Proposed Development.

Technical Assessment Chapters

- 2.84 Each key environmental topic considered in this ES has been assigned a separate chapter in ES Volume 1 (Chapter 6 to Chapter 16 inclusive). Within each of the technical chapters the assessment is presented and broadly reported in the following format:
- Introduction – which provides a brief introduction to the assessment;
 - Legislation, Policy and Best Practice Context – which provides an overview and review of policy and legislative requirements of relevance to the specific technical area;
 - Consultation Feedback;
 - Assessment Methodology and Significance Criteria – an explanation of the information gathering and assessment methodology as well as an explanation of the approach to defining the significance of likely environmental effects;
 - Limitations and Assumptions;
 - Baseline Conditions - a description of the baseline condition;
 - Assessment of Potential Effects – an assessment of the likely significant effects of the Proposed Development and an evaluation of their significance against defined criteria without the implementation of mitigation;
 - Mitigation Measures and Residual Effects - a description of the mitigation that has been incorporated into the Proposed Development's design and then an assessment of the likely residual effects of the Proposed Development, assuming implementation of mitigation which are identified in accordance with the significance criteria defined in the respective assessments;
 - Summary of the Mitigation Measures and Residual Effects; and
 - Cumulative Effects – an assessment of Inter-project Cumulative Effects.