# Environmental Statement Scoping Report
# Rail Central
December 2015

Rail Central
Northamptonshire

# Contents




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**Ashfield Land**


December 2015

# 1. Introduction

1.1 Ashfield Land Management Limited (Ashfield Land) intends to make an application to the Planning Inspectorate (PINS) for a Development Consent Order (DCO) under the Planning Act 2008 (PA2008) for a new Strategic Rail Freight Interchange (SRFI) within the administrative boundary of South Northamptonshire Council (SNC).

1.2 An application is required to be made to PINS because the proposal is considered to comprise a Nationally Significant Infrastructure Project (NSIP) under the terms of subsections 26(3) to (7) of the PA2008. Within this context, and having due regard to paragraph 4.89 of the National Networks National Policy Statement (NN NPS), the Rail Central project (the Proposed Development):

- is located within England;
- is in excess of 60 hectares in area;
- will be capable of handling consignments of goods from more than one consignor and to more than one consignee;
- will be capable of handling at least four trains per day and will be capable of increasing the number of trains handled;
- will be capable of handling 775 metre trains with appropriately configured on-site infrastructure and layout;
- will be part of the railway network within England;
- will include warehouses to which goods can be delivered from the railway network in England either directly or by means of another form of transport; and
- will not be part of a military establishment..

1.3 The Proposed Development will require a DCO for the proposed construction of:

- the development and use of the site for new warehousing and related development and for all on site infrastructure, landscaping and other works;
- Rail infrastructure (including new sidings);
- On site hotel & pub/restaurant facilities;
- HGV/LGV parking facilities;
- Service depot;
- the stopping up or diversion of any section of highway, footpath or other rights of way which is necessary to enable the scheme to go ahead; and

- the compulsory acquisition of any land or rights which can be shown to be necessary for the implementation and/or operation of the Proposed Development and which cannot be secured by agreement.

1.4 The description of development is likely to be as follows:

*"Development of Strategic Rail Freight Interchange to provide up to 743,200 sq m (8,000,000 sq ft) of storage and distribution buildings with ancillary office accommodation, rail infrastructure (to include new sidings), service depot, HGV facilities, hotel and public house/restaurant, associated access, ground works, highways, landscaping and other accompanying infrastructure works."*

## Environmental Impact Assessment

1.5 The Proposed Development will be of a scale which falls within Schedule 2 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) (EIA Regulations 2009). The EIA Regulations 2009 provide that where development of a type listed within Schedule 2 is likely to give rise to significant environmental effects, the Secretary of State for Transport must not make an order granting development consent unless he/she has first taken the environmental information into consideration, and must state in his/her decision that he/she has done so. Environmental information comprises the information required to be provided by the applicant in the form of an Environmental Statement (ES), including any further or other information, any representations made by specified consultees and any representations made by any other person about the environmental effects of the development. Owing to the nature, size and location and the likely significant effects on the environment of the Proposed Development, Ashfield Land intends to submit an ES with the application for the DCO.

1.6 Ashfield Land has not requested a screening opinion from PINS. In the letter addressed to the Secretary of State that accompanies this request for a Scoping Opinion, Ashfield Land has notified the Secretary of State under Regulation 6(1)(b) of the EIA Regulations 2009 that it proposes to provide an ES. Therefore, in accordance with Regulation 4(2)(a) of the EIA Regulations 2009, the proposed development will be determined as EIA development and will comply with the requirements of the EIA process set out in the EIA Regulations 2009.

1.7 This document comprises a request by Ashfield Land for PINS to adopt a Scoping Opinion to confirm the information to be provided within the ES. This request is made pursuant to the provisions of Section 8 of the EIA Regulations 2009.

1.8 Preparation of the document has been led by Turley, on behalf of Ashfield Land. Expert contributions have been provided by:

**Table 1.1: Environmental Impact Assessment Consultant Team**

| Topic | Consultant |
|---|---|
| Landscape and Visual | RSK |
| Cultural Heritage & Archaeology | CFA Archaeology |
| Ecology & Biodiversity | RSK |
| Highways and Transportation | Transport Planning Associates |
| Noise and Vibration | Spectrum Acoustics |
| Ground Conditions and Contamination | Hydrock |
| Flood Risk and Drainage | Hydrock |
| Utility Infrastructure | Hydrock |
| Air Quality | RPS |
| Socio Economic | Turley |
| Agricultural Land | Reading Agricultural |

# 2. Document Content and Structure

2.1 This scoping report has been prepared in accordance with PINS Advice Note 7. The following chapters provide:

- a description of the application site and its location;
- a description of the Proposed Development and its characteristics in so far as it is possible to do so at this stage;
- a description of the intended approach to the consideration of alternatives;
- an overview of the relevant legislation, policy and best practice guidance documents;
- details of the intended approach to the preparation of the ES;
- the intended scope of assessment for each of the environmental topic areas; and
- contents of the ES.

2.2 The following plan is included within the document:

- **Appendix 1** – Location Plan indicating the PDA (identified by a red line).

# 3. Site Description

3.1 The PDA is in Northamptonshire in the East Midlands region of England and is approximately 20km northwest of Milton Keynes and approximately 6km south of Northampton.

3.2 The site is within the administrative boundary of SNC.

3.3 The site, which comprises a total of approximately 250 hectares, is bound to the east by the Northampton Loop Line and to the south by the West Coast Main Line, beyond which lie agricultural fields and the village of Blisworth. To the north, the site is bound by further agricultural fields and the village of Milton Malsor. The A43 bounds the site to the west. Northampton Road/Towcester Road runs through the site from north to south.

3.4 The site is largely comprised of agricultural land and its topography is such that it sits in a natural bowl. The Grand Union Canal abuts the site to the west.

3.5 In accordance with the EIA Regulations 2009, a site location plan is enclosed at **Appendix 1**, which identifies the land to which this scoping report relates.

# 4. Description of Proposed Development

4.1 The main features of the SRFI comprise a rail link, storage and distribution units with ancillary office accommodation, a service depot and a lorry park facility. Owing to the nature of the Proposed Development and the way in which SRFIs are developed and operated, the application for the DCO will need to retain some flexibility for design and layout options. It is considered that the level of information that is provided with this Request for a Scoping Opinion is sufficient to enable identification of the main elements of the Proposed Development that are likely to give rise to significant environmental effects. Ashfield Land recognises that the Secretary of State and consultees may not be able to provide comments at a detailed level on all aspects of the scope of the ES. However, it is considered there is sufficient detail on the methodologies of proposed assessments, the location of the site and the main elements of the Proposed Development to enable the Scoping Opinion to be provided.

4.2 As it will not be possible to fully detail all parameters of the Proposed Development when the application for the DCO is submitted it is proposed that the DCO will seek to provide and control flexibility in respect of specified parameters. This will allow the detailed requirements of subsequent occupiers to be accommodated in due course whilst defining the key principles of the development in enough detail to allow the likely significant effects on the environment to be assessed. Regard will be had to the Planning Inspectorate Advice note nine - using the "Rochdale Envelope" in defining the flexibility sought.

4.3 The proposed application format makes provision for the approval of a set of parameters and key drawings that will set out the key elements of the scheme. The Development Order is then able to impose a requirement or condition that the detailed design of the scheme must be in accordance with the parameters, unless otherwise agreed.

## Land Uses and Amount

4.4 The scheme comprises the change of use from the current largely agricultural / undeveloped site to provide for the development of a new SRFI facility and accompanying uses.

4.5 As set out in the likely description of development in Section 1, we envisage that the Proposed Development will comprise the following:

- a rail link onto the site;
- Storage and distribution units with ancillary office accommodation, totalling up to 743,200 sq m (8,000,000 sq ft);
- Service depot; and
- Lorry park facility.

4.6 The detailed form and number of units will be subject to modification as potential occupiers are identified. The parameters which will be submitted as part of the DCO

application will provide a sufficient level of detail to demonstrate how the proposed land uses could be brought forward as part of the scheme and will provide sufficient detail to allow assessment of the likely significant environmental effects.

# 5. Consideration of Alternatives

5.1 In accordance with the requirements of Schedule 4, Part 1, Section 18 of the EIA Regulations 2009 (as amended), the ES shall present the main alternatives considered by Ashfield Land during the selection of the Proposed Development area (PDA), having regard to advice in the NN NPS. The ES will explain the iterative design and consultation process undertaken following identification of the PDA. This will include alternatives that have been considered in terms of the scale and configuration of the Proposed Development within the PDA having regard to, amongst other things, the predicted effects of climate change using the high emissions scenario projections for the East Midlands from the UK Climate Change Projections 2009 (UKCP09).

5.2 The ES will explain why certain alternatives have not been taken forward and why the preferred option has been selected.

# 6. Relevant Legislation and Policy

## Introduction

6.1 The ES will include a chapter which presents information on legislation, policy, best practice guidance and other publications material to the assessment of likely significant environmental effects.

## The Decision Making Framework

6.2 The PA2008 established the consenting regime for NSIPs and, currently, PINS is the Examining Authority in respect of NSIP applications with the Secretary of State for Transport (SoS) being responsible for making the final decision on the acceptability of applications, having regard to the recommendations of the Examining Authority.

6.3 Section 104(2) of the PA2008 requires the Examining Authority to take into account the following when considering an application for a DCO.

(i) the national policy statement ('NPS') for the development to which the application relates;

(ii) any local impact report (LIR);

(iii) any matters prescribed in relation to development of the description to which the application relates; and

(iv) any other matters considered important and relevant.

6.4 In this context, the following sections of this chapter will introduce and summarise the policies and guidance which are of relevance to the topic specific assessments and which will be relevant to the submission and determination of the application for a DCO. The summary of relevant policy documents does not contain exhaustive detail. This will instead be presented within the ES.

## National Policy Statement (NPS)

6.5 NPSs are issued by the Government and under section 104 of the PA2008 (as amended) an application for a 'national networks' infrastructure project must be considered and determined in accordance with the NPS, unless to do so would:

- lead to the UK being in breach of its international obligations;
- be unlawful;
- lead to the Secretary of State being in breach of any duty imposed by or under any legislation;
- result in adverse impacts of the development outweighing its benefits; and
- be contrary to regulations about how the decisions are to be taken.

6.6 The NPS is therefore a key source of policy guidance for the Proposed Development and forms the primary basis for decisions by the SoS for Transport.

## National Networks National Policy Statement (2015)

6.7 The NN NPS was designated in accordance with Section 5 (4) of the PA 2008 (as amended) on 14 January 2015. It sets out the Government's policy for the delivery of nationally significant road and rail projects in England, including the development of SRFIs.

6.8 The NN NPS is split into five parts, these are described below:

6.9 Part 1 introduces the purpose and role of the NN NPS in the planning system.

6.10 Part 2 establishes that there is a 'compelling need' to improve the road and rail networks in England to support economic growth and regeneration, particularly in the most disadvantaged areas (paragraph 2.10). It makes clear that the Examining Authority should assess applications for development consent on the basis that the Government has demonstrated that there is an established need for road and rail infrastructure. In specific relation to SRFIs, the NN NPS makes clear that there is a need for an expanded network of SRFIs across the regions, but accepts that the number of suitable locations for SRFIs will be limited due to specific locational requirements (paragraph 2.56). As such, the NN NPS promotes an increase in SRFI capacity at a wide range of locations to ensure flexibility and to meet with the changing demands of the market.

6.11 Part 3 sets out the Government's policy context for the development of nationally significant road and rail projects. In the main, it reflects existing Government policy that is contained in the *National Planning Policy Framework (NPPF)*, whilst also drawing upon the guidance that is set out in a number of transport related publications, including the *Investing in Britain's Future, Strategic Road Network and the delivery of sustainable development* and *Safety* and *Transport for Everyone: an action plan to improve accessibility for all (*Department for Transport Circular 02/2013*).*

6.12 Part 3 of the NN NPS confirms that for road and rail development to be sustainable, schemes should be designed to minimise the social and environmental impacts and improve the quality of life (paragraph 3.2). Notwithstanding this commitment, the NN NPS goes on to acknowledge that the nature of major infrastructure projects is such that some adverse effects may remain, even when allowing for sensitive design and mitigation (paragraph 3.4).

6.13 Part 4 sets out the assessment principles for deciding applications for development consent , in particular it states:

- Given the compelling need for the road and rail infrastructure covered by the NN NPS, there is a presumption in favour of granting development consent for national networks NSIPs. That presumption applies unless specific detailed policies and protections set out in the NPS (and legal constraints set out in the PA2008) indicate that consent should be refused.

- When considering any proposed development and in particular when weighing its adverse impacts against benefits, the Examining Authority and the SoS should take into account its potential benefits (including the facilitation of economic development, job creation and facilitation of any long-term or wider benefits) and its potential adverse impacts (including long-term and cumulative impacts as well as any measures to avoid, reduce or compensate for adverse impact). In this context, the Examining Authority should take into account environmental, safety, social and economic benefits as well as adverse impacts, at national, regional and local levels.

- The NN NPS advises that a judgment in relation to the viability of SFRI projects will be made within the market framework, within which the Proposed Development will operate and, having regard to Government interventions, such as planned investment in the rail network.

- The Examining Authority and SoS is also guided to only impose requirements (in relation to a DCO) that are necessary, relevant to planning, relevant to the development to be consented and reasonable in all other respects.

6.14 Part 4 sets out the overarching policy in relation to a range of issues, including the following, which are of relevance to the Proposed Development:

- Environmental Impact Assessment;

- Habitats Regulations Assessment;

- Consideration of Alternatives;

- Criteria for “good design” for national network infrastructure;

- Climate change adaptation;

- Pollution control and other environmental protection regimes;

- Common law nuisance and statutory nuisance;

- Safety;

- Security considerations;

- Health; and

- SRFIs.

6.15 In specific relation to the Proposed Development, the NN NPS acknowledges that SRFI projects are likely to have significant effects on the environment (paragraph 4.15). In such circumstances, applications for NSIPs must be accompanied by an ES to describe the aspects of the environment that are likely to be significantly affected. This includes consideration of direct and indirect effects.

6.16 This NN NPS accepts that it may not be possible to settle all aspects of the proposed development in precise detail at the time of the application. In such cases the applicant is advised to set out within the ES, to the best of their knowledge, what the maximum extent of the proposed development would be and appraise the potential adverse impacts on this basis to ensure that the potential impacts of the project have been properly assessed (paragraph 4.19).

6.17 The NN NPS makes clear that the Examining Authority should consider and ensure that likely significant effects (at all stages of the project) have been adequately assessed by the applicant. The Examining Authority should also give consideration to the cumulative effects and the ES is required to provide information on the effects of the application proposal in combination with the cumulative effects of other development (both existing and consented).

6.18 In terms of operational requirements, the NN NPS accepts that SRFIs generally need continuous working arrangements (up to 24 hours) and involve large buildings, structures and machinery (paragraph 4.86). As such, the NN NPS stipulates that the siting of SRFIs must be carefully considered and appropriate investigation should be undertaken to investigate the noise, light and other potential impacts.

6.19 The NN NPS gives specific attention to locational requirements of SRFIs or proposed extensions to existing RFIs. It confirms that it is important for SRFIs to be located relative to the markets they will serve (i.e. major urban centres or groups of centres) and with adequate links to the road and rail networks.

6.20 Part 5 identifies a range of generic impacts which may arise from the type of infrastructure covered by the NN NPS. The generic impacts which are considered relevant to the proposed development include:

- Air quality;
- Carbon emissions;
- Biodiversity and ecological conservation;
- Waste management;
- Aviation;
- Flood risk;
- The historic environment;
- Land use (including open space, green infrastructure and green belt);
- Noise and vibration;
- Impact on transport network; and
- Water quality.

6.21 The guidance in relation to the generic impacts listed above will be used to inform the topic specific assessments to the extent that they are relevant to the environmental assessment, for example, where the NN NPS identifies receptors and/or attributes value to them.

## Other Policy Considerations

6.22 Section 104 of the PA2008 identifies that the Secretary of State must have regard to relevant NPSs but also matters that are both important and relevant to the decision. Accordingly, other national policy and development plan policy may be a material consideration in the decision making process for an application for DCO. These documents include:

- National Planning Policy Framework (2012);
- Planning Practice Guidance (2014); and
- Relevant Development Plan Documents.
  - Saved Policies of the South Northamptonshire Local Plan;
  - Adopted West Northamptonshire Joint Core Strategy;
  - Relevant Supplementary Planning Guidance; and
  - Relevant Supplementary Planning Documents.

6.23 The above list of Development Plan Documents is not exhaustive and is expanded on in the specific environmental chapters of this Scoping Report:

# 7. Approach to Environmental Impact Assessment

7.1 The ES will comprise three volumes:

- Volume I (non-technical summary);
- Volume II (main technical studies); and
- Volume III (technical appendices).

## Intended Structure of the ES

7.2 It is intended that the structure of Volume I of the ES will be presented as follows:

**Table 7.1: ES Volume I Structure**

| ES Chapter Number | ES Chapter |
|---|---|
| 1. | Introduction |
| 2. | Site Description |
| 3. | Description of Proposed Development |
| 4. | Consideration of Alternatives |
| 5. | Relevant Legislation and Policy |
| 6. | Approach to EIA |
| 7. | Air Quality |
| 8. | Agricultural Land |
| 9. | Archaeology and Cultural Heritage |
| 10. | Ground Conditions |
| 11. | Hydrology, Drainage and Flood Risk |
| 12. | Utilities |
| 13. | Biodiversity |
| 14. | Landscape and Visual |
| 15. | Noise and Vibration |
| 16. | Highways and Transportation |
| 17. | Socio Economic |

7.3 For consistency, it is intended that the structure of the ES chapters will be as follows:

- Overview (of subject area to be addressed)

- Legislation, Policy and Best Practice
- Assessment Methodology
  - Study Area
  - Baseline Surveys
  - Significance Criteria
  - Baseline Conditions
  - Measures adopted as part of the Proposed Development
  - Assessment of Construction Phase Effects
  - Assessment of Operational Phase Effects
  - Assessment of Decommissioning Phase Effects
- Assessment of Cumulative Effects and Inter-relationships
  - Intra-Project Effects
  - Inter-Project Effects
- Mitigation
- Residual Effects
- Monitoring
- Limitations and Assumptions
- References
- Glossary

# 8. Air Quality

## Introduction

8.1 The key objectives of the air quality assessment are to assess:

- Construction Effects: to evaluate the effects from fugitive dust and exhaust emissions associated with construction activities and to recommend appropriate mitigation measures; and
- Operational Effects: to describe the significance of the potential air quality effects resulting from changes in traffic flow characteristics on the local road network due to the operation of the Proposed Development.

8.2 During the construction phase of the Proposed Development, the major influences on air quality are likely to be dust-generating activities, such as movement of plant and vehicles both on and around the site. Potentially, temporary annoyance effects could be caused by the deposition of construction dust.

8.3 The assessment of operational effects will focus on changes in $NO_2$ and $PM_{10}$ concentrations associated with the proposal. The impact from fine particulate matter, known as $PM_{2.5}$ (a subset of $PM_{10}$) concentrations will also be considered.

## Preliminary Assessment of Baseline Conditions (2015)

### Study Area

8.4 The distance within which impacts from demolition, earthworks and construction activities could potentially occur is 350 m from the red-line boundary. Trackout (dust and dirt/mud deposition) may occur from roads up to 500 m from large sites, as measured from the site exit (without site-specific mitigation). The impact declines with distance from the site, and trackout impacts are only considered up to 50 m from the edge of the road. The study area for the assessment of construction impacts is, therefore, 350 m from the red line boundary and 50 m from the edge of roads up to 500 m away from the proposed development.

8.5 The Highways Agency's Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 1, HA 207/07 states that, when scoping an air quality assessment *"Only properties and Designated Sites within 200 m of roads affected by the project need be considered."* The study area for the assessment of operational impacts and site suitability is within 200 m of roads affected by the Proposed Development.

### Desk Based Research

8.6 Local authority review and assessment documents have been reviewed to identify the location of nearby Air Quality Management Areas (AQMAs). Local authorities are required to go through a process of review and assessment of air quality in their areas, identifying places where objectives are not likely to be met, then declaring Air Quality Management Areas (AQMAs) and putting in place Air Quality Action Plans to improve air quality.

## Field Surveys

8.7 Monitoring of baseline air quality conditions is being undertaken for the purpose of informing background (existing) concentrations at the site and also to provide data to verify modelling. Monitoring commenced in April 2015 and it is proposed to continue monitoring for the duration of the DCO process.

8.8 The monitoring has focused on nitrogen dioxide (a key pollutant of concern), and uses passive diffusion tubes samplers (Gradko tubes 50% TEA /Acetone) deployed in duplicate, at ten locations. The locations for monitoring are summarised below:

**Table 8.1: Monitoring Locations - Diffusion Tube Study for Air Quality**

| Location ID | Location | X | Y |
|---|---|---|---|
| 1 | Crematorium (NN4 9RN) | 473469 | 256802 |
| 2 | Depot (NN7 3AB) | 472626 | 255678 |
| 3 | Collingtree Road (NN4 0NB) | 474581 | 255603 |
| 4 | Collingtree Court (NN4 0NE) | 475002 | 255395 |
| 5 | Marina (NN7 3EF) | 471946 | 255054 |
| 6 | Fairfield Road/Station Road (NN7 3EB) | 471873 | 254600 |
| 7 | Canal (NN7 3DR) | 472313 | 254462 |
| 8 | Footpath (NN7 3DW) | 473196 | 254522 |
| 9 | Barn Lane (NN7 3AG) | 473899 | 254642 |
| 10 | St Johns Road (NN12 8AA) | 470864 | 251669 |
| 11 | Blank | - | - |

8.9 These locations include receptors along the A43 and M1 that might be affected by traffic, and locations on site.

**Figure 8.1: Map of Monitoring Locations – Diffusion Tube Study for Air Quality**


8.10 It is good practice to undertake a colocation study with a continuous monitor to provide a factor to adjust diffusion tube data using the results of continuous monitors (recognised as a more accurate monitoring method). The colocation study has been undertaken using continuous monitoring data from the monitor at Northampton Kingsthorpe, and diffusion tube results from the local authority's colocation study. This is appropriate as they use the same laboratory and tube preparation as this study, and tube changeovers are undertaken monthly according to the same schedule.

8.11 The method for monitoring has been informed by AEA Report to Defra and the Devolved Administrations (Issue 1a Feb 2008): *'Diffusion Tubes for Ambient NO2 Monitoring: Practical Guidance for Laboratories and Users, ED48673043'*.

### Consultations

8.12 The relevant Environmental Health Officers for air quality at SNC and NC have been consulted by e-mail. A response has yet to be received.

## Baseline Conditions

8.13 The results of the first five months of monitoring (unadjusted) are summarised below. All measured concentrations are less than the UK Air Quality Strategy objective for $NO_2$

of 40 µg.m$^{-3}$. Measured average concentrations are notably greater at the Crematorium and Collingtree Court (concentrations in excess of 25 µg.m$^{-3}$), which is unsurprising considering these locations are close to the M1 motorway. Next greatest are the average concentrations measured at the other roadside sites: Depot, Collingtree Road, Marina, Fairfield Road/ Station Road and St Johns Road, where measured average concentrations were between 14 µg.m$^{-3}$ and16 µg.m$^{-3}$. The lowest concentrations were measured at the following locations located on or close to the application site and away from busy roads: Canal, Footpath and Barn Lane.

**Table 8.2: Results (unadjusted) - Diffusion Tube Study for Air Quality**

| Tube ID | Tube Location | Location | $NO_2$ Concentration (µg.m$^{-3}$) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Month 1 | Month 2 | Month 3 | Month 4 | Month 5 | Ave. |
| 1a | 1 | Crematorium (NN4 9RN) | 32 | 27 | 29 | 26 | 32 | 30 |
| 1b | | | 28 | 29 | 31 | 33 | 29 | |
| 2a | 2 | Depot (NN7 3AB) | 13 | 14 | 12 | 15 | 16 | 14 |
| 2b | | | 11 | 13 | 14 | 15 | 18 | |
| 3a | 3 | Collingtree Rd (NN4 0NB) | 13 | * | 13 | 13 | 23 | 16 |
| 3b | | | 15 | * | 12 | 14 | 22 | |
| 4a | 4 | Collingtree Crt (NN4 0NE) | 28 | 27 | 31 | 29 | 29 | 28 |
| 4b | | | 26 | 24 | 29 | 30 | 28 | |
| 5a | 5 | Marina (NN7 3EF) | 10 | 14 | 14 | 20 | 20 | 15 |
| 5b | | | 11 | 14 | 12 | 20 | 19 | |
| 6a | 6 | Fairfield Rd/Station Rd (NN7 3EB) | 13 | 14 | 12 | 17 | 18 | 15 |
| 6b | | | 12 | 15 | 14 | 17 | 20 | |
| 7a | 7 | Canal (NN7 3DR) | 8 | 8 | 7 | 11 | 13 | 10 |
| 7b | | | 9 | 9 | 8 | 11 | 12 | |
| 8a | 8 | Footpath (NN7 3DW) | 9 | 7 | 6 | 11 | 12 | 9 |
| 8b | | | 7 | 8 | 7 | 10 | 12 | |
| 9a | 9 | Barn Lane (NN7 3AG) | 8 | 8 | 7 | 9 | 13 | 9 |
| 9b | | | 8 | 8 | 7 | 9 | 12 | |
| 10a | 10 | St Johns Road (NN12 8AA) | 11 | 12 | 10 | 16 | 20 | 14 |
| 10b | | | 13 | 13 | 10 | 16 | 19 | |
| 11 | 11 | Blank | * | 1 | 1 | 1 | 1 | 1 |

## Characteristics of Potential Effects

8.14 During construction there is the potential for fugitive dust and exhaust emissions from the PDA. The outcome of the assessment of potential effects from fugitive dust and exhaust emissions is a prediction of the risk of impacts during the construction phase. There are four possible levels of risk: 'negligible', 'low', 'medium' and 'high'. The risk will depend on the scale of demolition, earthworks and construction activities, and the number of construction vehicles.

8.15 The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. Changes in road vehicle emissions are the most important consideration during this phase of the development. The assessment of potential air quality effects resulting from changes in traffic flow characteristics on the local road network due to the operation of the proposed development predicts the significance of the impact at existing receptors as a result of the proposed development. There are four levels of significance: 'negligible', 'slight adverse', 'moderate adverse' and 'substantial adverse'. The significance of impacts depends on the number of traffic movements generated by the Proposed Development.

## Proposed Method of Assessment

### Overview

8.16 The approach to this air quality assessment includes the key elements listed below and is consistent with the NN NPS advice on the approach to the assessment of air quality in the case of national infrastructure networks, the national Planning Practice Guidance nPPG together with Defra's Local Air Quality Management Technical Guidance: LAQM.TG(09), the Environmental Protection UK (EPUK) Development Control: Planning for Air Quality document and Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction:

- assessment of existing local air quality conditions through a review of available air quality monitoring data for the area and consideration of relevant Air Quality Review and Assessment (R&A) documents;
- qualitative assessment of potential construction-phase impacts on local air quality;
- quantitative assessment of the impact on local air quality of changes in vehicle emissions resulting from traffic flow changes generated by the proposed development; and
- quantitative assessment of the suitability of the proposed development site for its proposed uses, from an air quality perspective.

### Legislation, Policy and Good Practice

#### *The Ambient Air Quality Directive and Air Quality Standards Regulations*

8.17 The 2008 Ambient Air Quality Directive (2008/50/EC) aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air

pollutants; it sets legally binding concentration-based limit values, as well as target values. There are also information and alert thresholds for reporting purposes. These are to be achieved for the main air pollutants: particulate matter ($PM_{10}$ and $PM_{2.5}$), nitrogen dioxide ($NO_2$), sulphur dioxide ($SO_2$), ozone ($O_3$), carbon monoxide (CO), lead (Pb) and benzene. This Directive replaced most of the previous EU air quality legislation and in England was transposed into domestic law by the Air Quality Standards (England) Regulations 2010, which in addition incorporates the 4th Air Quality Daughter Directive (2004/107/EC) that sets targets for ambient air concentrations of certain toxic heavy metals (arsenic, cadmium and nickel) and polycyclic aromatic hydrocarbons (PAHs). Member states must comply with the limit values (which are legally binding on the Secretary of State) and the Government and devolved administrations operate various national ambient air quality monitoring networks to measure compliance and develop plans to meet the limit values.

***UK Air Quality Strategy***

8.18 The Environment Act 1995 established the requirement for the Government and the devolved administrations to produce a National Air Quality Strategy (AQS) for improving ambient air quality. The Strategy sets UK air quality standards♦ and objectives# for the pollutants in the Air Quality Standards Regulations plus 1,3-butadiene.. There is no legal requirement to meet objectives set within the UK AQS except where equivalent limit values are set within the EU Directives.

8.19 The 1995 Environment Act also established the UK system of Local Air Quality Management (LAQM), that requires local authorities to go through a process of review and assessment of air quality in their areas, identifying places where objectives are not likely to be met, then declaring Air Quality Management Areas (AQMAs) and putting in place Air Quality Action Plans to improve air quality. These plans also contribute, at local level, to the achievement of EU limit values. Defra is currently reviewing the LAQM process.

8.20 For the purposes of this assessment, the limit values set out in the Air Quality Standards Regulations 2010 and the objective levels specified under the current UK AQS have been used. The limit values and objectives relevant to this assessment are summarised below.

**Table 8.3: Summary of Relevant Air Quality Limit Values and Objectives**

| Pollutant | Averaging Period | Objectives/Limit Values | Not to be Exceeded More Than | Target Date |
|---|---|---|---|---|
| Nitrogen Dioxide ($NO_2$) | 1 hour | 200 µg.m$^{-3}$ | 18 times per calendar year | - |
| | Annual | 40 µg.m$^{-3}$ | - | - |

♦ Standards are concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. Standards, as the benchmarks for setting objectives, are set purely with regard to scientific evidence and medical evidence on the effects of the particular pollutant on health, or on the wider environment, as minimum or zero risk levels.

# Objectives are policy targets expressed as a concentration that should be achieved, all the time or for a percentage of time, by a certain date.

| | | | | |
|---|---|---|---|---|
| Particulate Matter ($PM_{10}$) | 24 hour | 50 $\mu g.m^{-3}$ | 35 times per calendar year | - |
| | Annual | 40 $\mu g.m^{-3}$ | - | - |
| Particulate Matter ($PM_{2.5}$) | Annual | Target of 15% reduction in concentrations at urban background locations | - | Between 2010 and 2020 (a) |
| | | Variable target of up to 20% reduction in concentrations at urban background locations (c) | | Between 2010 and 2020 (b) |
| | Annual | 25 $\mu g.m^{-3}$ | - | 01.01.2020 (a) |
| | | 25 $\mu g.m^{-3}$ | | 01.01.2015 (b) |

(a) Target date set in UK Air Quality Strategy 2007

(b) Target date set in Air Quality Standards Regulations 2010

(c) Aim to not exceed 18 $\mu g.m^{-3}$ by 2020

***National Network National Policy Statement***

8.21 The National Policy Statement for National Networks includes guidance for Applicants assessment of "Air Quality and Emissions". This states that: *"Where the project is likely to have significant air quality impacts (both on and off-scheme) the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES)….*

*The ES should describe:*

- *existing air quality levels;*
- *a forecast of air quality at the time of opening, assuming that the scheme is not built (the 'future baseline') and taking account of the impact of the scheme; and*
- *any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of road traffic generated by the project.*

*In addition to information on the likely significant effects of a project, the Secretary of State should be provided with a judgment on the risk as to whether the project would affect the UK's ability to comply with the Air Quality Directive."*

8.22 This NPS refers to assessment of impacts at protected species and habitats as well as human health.

8.23 To address this it is proposed to:

- Carry out a monitoring study to characterise existing air quality levels (as detailed in the Baseline Condition section of this scoping report)
- Predict existing air pollution levels at locations around the site using the detailed dispersion model, ADMS Roads, with a view to verifying and, if necessary, adjusting model input parameters and correcting the model output.
- Predict future air pollution levels at existing receptors around the site using the ADMS Roads model in the first fully operational year, with and without the proposed development.
- Predict future air pollution levels at existing receptors around the site using the ADMS Roads model in the first fully operational year, with the proposed development, with proposed mitigation measures.

***National Planning Policy Framework***

8.24 The National Planning Policy Framework (NPPF) is a material consideration for local planning authorities and decision-takers in determining applications. At the heart of the NPPF is a presumption in favour of sustainable development. For determining planning applications, this means approving development proposals if they accord with the local development plan, unless material considerations indicate otherwise. If the development plan is absent, silent or the policies are out of date, then planning permission should be granted unless any adverse impacts would significantly outweigh the benefits, or specific policies in the NPPF indicate development should be restricted.

8.25 The NPPF sets out 12 core land-use planning principles. The relevant core-principle in the context of this air quality assessment is that planning should "*contribute to conserving and enhancing the natural environment and reducing pollution*". (Paragraph 17)

8.26 Under the heading 'Conserving and Enhancing the Natural Environment', the NPPF states:

*"The planning system should contribute to and enhance the natural and local environment by:*

- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability… (Paragraph 109)*

***National Planning Practice Guidance***

8.27 The national Planning Practice Guidance (nPPG) was issued on-line on 6th March 2014 and isupdated by government as a live document. The Air Quality section of the nPPG describes the circumstances when air quality, odour and dust can be a planning concern, requiring assessment.

8.28 The nPPG advises that whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife).

8.29 The nPPG provides advice on how air quality impacts can be mitigated and notes "Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact. It is important therefore that local planning authorities work with applicants to consider appropriate mitigation so as to ensure the new development is appropriate for its location and unacceptable risks are prevented. Planning conditions (or "requirements") and obligations can be used to secure mitigation where the relevant tests are met.

### Desk Based Studies

*8.30* The Proposed Development lies within South Northamptonshire. SNC has designated an AQMA encompassing the A5 Watling Street, from the Saracens Head crossroads to Silverstone Brook adjacent to 131 Watling Street, due to high levels of nitrogen dioxide ($NO_2$) attributable to road traffic emissions. This AQMA is 5 km to the south-west of the Application Site. The closest AQMA is approximately 1 km to the northeast of the Proposed Development, in neighbouring Northamptonshire (Northampton AQMA No.1), and comprises *"the area of land which runs alongside the southbound carriageway of the M1 motorway within the boundaries of Northampton Borough Council. The area varies in depth from between 40 and 54 metres when measured from the central reservation on the M1."*

### Field Surveys

8.31 Field survey work as described earlier is on-going.

### Consultation

8.32 Data to inform the baseline AQ conditions is available from review and assessment reports for air quality available from the council's website. It may be necessary to ask for clarification or more information from the council, but this will be reviewed at the time the air quality assessment is undertaken.

### Assessing Significance of Effect

#### *Significance Criteria for Development Impacts on the Local Area*

8.33 The EPUK/IAQM Land-Use Planning & Development Control: Planning For Air Quality document advises that:

*"The significance of the effects arising from the impacts on air quality will depend on a number of factors and will need to be considered alongside the benefits of the development in question. Development under current planning policy is required to be sustainable and the definition of this includes social and economic dimensions, as well as environmental. Development brings opportunities for reducing emissions at a wider level through the use of more efficient technologies and better designed buildings, which could well displace emissions elsewhere, even if they increase at the development site.*

*Conversely, development can also have adverse consequences for air quality at a wider level through its effects on trip generation."*

8.34 Professional judgement by a competent, suitably qualified professional is required to establish the significance associated with the consequence of the impacts. This judgement is likely to take into account the extent of the current and future population exposure to the impacts and the influence and/or validity of any assumptions adopted during the assessment process.

***Significance Criteria for New Population Exposure (Site Suitability)***

8.35 The EPUK/IAQM guidance considers that a predicted exceedance of an Air Quality Assessment Level (AQAL) to be significant unless *"provision is met to reduce their exposure by some means".*

***Magnitude of Effect***

8.36 When describing the air quality impact at a sensitive receptor, the change in magnitude of the concentration should be considered in the context of the absolute concentration at the sensitive receptor. The EPUK/IAQM approach for describing the air quality impacts at sensitive receptors is summarised below.

**Table 8.4: Impact Descriptors for Individual Sensitive Receptors**

| Long term average concentration at receptor in assessment year | % Change in concentration relative to Air Quality Assessment Level | | | |
|---|---|---|---|---|
| | 1 | 2-5 | 6-10 | >10 |
| 75% or less of AQAL | Negligible | Negligible | Slight | Moderate |
| 76% - 94% of AQAL | Negligible | Slight | Moderate | Moderate |
| 95% - 102% of AQAL | Slight | Moderate | Moderate | Substantial |
| 103% - 109% of AQAL | Moderate | Moderate | Substantial | Substantial |
| 110% or more than AQAL | Moderate | Substantial | Substantial | Substantial |

***Sensitivity of Receptor***

8.37 The air quality assessment predicts the impacts at a list of discrete receptor locations that could be sensitive to any changes, and at the monitoring locations (for the purpose of verifying the model predictions). Such sensitive receptors are to be selected where the public is regularly present and likely to be exposed over the averaging period of the objective. LAQM.TG(09).

***Duration of Effect***

8.38 Impacts during construction are limited to the construction phase and are short-term and localised.

8.39 Impacts to the local area during operation have the potential to be long-term (15 years onwards for the life of the Proposed Development).

***Significance of Effect***

**Table 8.5: Matrix of Assessing Significance of Effect**

| Assessing Significance of Effects | | | | | |
|---|---|---|---|---|---|
| Magnitude of Effect | Sensitivity of Receptors | | | | |
| | **Very High** | **High** | **Moderate** | **Low** | **Negligible** |
| **High** | Major | Major | Moderate | Moderate | Minor |
| **Medium** | Major | Moderate | Moderate | Minor | None |
| **Low** | Moderate | Moderate | Minor | None | None |
| **Negligible** | Minor | Minor | None | None | None |

*8.40* The impact descriptors (described in the preceding section 'Magnitude of Effect') apply at individual receptors. The EPUK/IAQM guidance states that the impact descriptors *"are not, of themselves, a clear and unambiguous guide to reaching a conclusion on significance. These impact descriptors are intended for application at a series of individual receptors. Whilst it maybe that there are 'slight', 'moderate' or 'substantial' impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances."*

8.41 Professional judgement by a competent, suitably qualified professional is required to establish the significance associated with the consequence of the impacts. This judgement is likely to take into account the extent of the current and future population exposure to the impacts and the influence and/or validity of any assumptions adopted during the assessment process.

## Proposed Cumulative Assessment: Intra-relationship of Effects

8.42 An assessment of the intra-relationship of effects on individual receptors with other topic areas will be undertaken. Construction impacts may occur at ecological receptors within 50 m of roads affected by construction. In addition, operational impacts may be expected at ecological receptors within 200 m of roads affected by the operation of the Proposed Development.

## Proposed Cumulative Assessment: Inter-relationship of Effects

8.43 The impacts of cumulative schemes will be included in the air quality assessment to the extent that flows from cumulative schemes are included in the data for the assessment. Committed developments included in the traffic flows for the assessment will be listed in the air quality assessment report.

## Proposed Assessment of Climate Change

8.44 The dispersion model used to predict the impact of the Proposed Development on the local area includes weather data for previous years. Changes in weather patterns due to

climate change would not be expected to be relevant to the outcome of the air quality assessment.

8.45 Greenhouse gas emissions from the Proposed Development, comparing the improved rail freight movements it offers to a business-as-usual scenario for freight transport, will be assessed. The assessment will form a technical appendix to the ES.

## Proposed Mitigation and Residual Effects

8.46 The outcome of the assessment of potential effects from fugitive dust and exhaust emissions associated with construction will inform the selection of recommended site-specific mitigation measures for the construction phase of the proposed development. The IAQM Guidance lists mitigation measures appropriate for 'low', 'medium' and 'high' risk sites. With implementation of the appropriate mitigation measures the residual effects are expected to be "not significant".

8.47 The outcome of the assessment of potential air quality effects resulting from changes in traffic flow characteristics on the local road network due to the operation of the proposed development will be used to inform selection of recommended site-specific mitigation measures for the operational phase of the proposed development. Site-specific mitigation is likely to be required at existing receptors where a 'moderate adverse' and 'substantial adverse' is predicted. In the event the assessment recommends mitigation, the expected residual impact with mitigation applied, will be described.

## Proposed Assessments to be Scoped Out

8.48 None of the likely key air quality concerns for an assessment of this type have been scoped out at this stage, although it would appear unlikely, based on the monitoring data collected to date, that any AQALs will be exceeded as a result of these development proposals. This preliminary view will be reviewed when traffic data become available.

# 9. Agricultural Land

## Introduction

9.1 This section of the Scoping Report identifies potential impacts with regard to agricultural resources that may occur during the construction and operation of the Proposed Development.

9.2 The principal feature of national policies regarding agricultural land use is the emphasis on safeguarding scarce natural resources in the long-term national interest. Consequently, policies for development in the countryside give a measure of protection to the best and most versatile agricultural land (defined as Grades 1, 2 and 3a in the Agricultural Land Classification (ALC) system).

## Preliminary Assessment of Baseline Conditions (2015)

### Study Area

9.3 The extent of the study area for agricultural land and soil resources coincides with the boundary of the PDA. The extent of the study area for the assessment of impact on farm holdings extends to the boundaries of the holdings that are directly affected by the Proposed Development.

### Desk Based Research

9.4 Background information on soils and agricultural land quality will be derived from existing former Ministry of Agriculture, Fisheries and Food (MAFF) Provisional ALC data; the results of detailed ALC surveys (shown on magic.gov.uk with the reports of the original MAFF surveys available from Natural England); the National Soil Map and associated bulletin, prepared by the Soil Survey of England and Wales; and the ago-climatic database for ALC prepared by the Meteorological Office.

### Field Surveys

9.5 A semi-detailed survey of parts of the site, extending to approximately 200ha, was undertaken and reported in 1999 (Reading Agricultural Consultants, Land south of Milton Malsor, Northampton, Semi-detailed Agricultural Land Classification). As the ALC is concerned with the long-term physical capability and characteristics of the land and the soil resource, the results of this survey will remain valid in describing the agricultural land quality of those parts of the site.

## Baseline Conditions

9.6 The semi-detailed ALC survey found that the most extensive limitation to agricultural land quality is soil wetness which affects the land's workability and accessibility for livestock grazing. Nearly three-quarters of the land surveyed was classified as moderate quality Subgrade 3b, with the remaining one-quarter classified as best and most versatile land in Grades 2 and 3a, where the limitation from wetness is less severe.

## Characteristics of Potential Effects

9.7 The potential effects to be considered as part of this assessment will comprise the area of agricultural land required for the Proposed Development, particularly the area of best and most versatile land in Grades 2 and 3a; the potential damage to and loss of the soil resource; and the impacts on the farm holdings occupying the PDA particularly in respect of the viability of farming the residual areas of land remaining to the farm holdings. These effects all occur during the construction phase of the Proposed Development.

9.8 The potential effects to be considered during the operational phase of the development relate to the extent to which any re-used soils on the site are able to continue to fulfil one or more of their ecosystem functions; and any potential effects from the Proposed Development on the operations of neighbouring agricultural land.

## Proposed Method of Assessment

### Overview

9.9 There is a well-established methodology for classifying the quality of agricultural land, contained within guidance issued by MAFF in 1988. Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. Grade 1 land is 'excellent quality' agricultural land with very minor or no limitations to agricultural use, and Grade 5 is 'very poor quality' land, with severe limitations due to adverse soil, relief, climate or a combination of these. Grade 3 land is subdivided into Subgrade 3a ('good quality' land) and Subgrade 3b ('moderate quality' land). The best and most versatile land is defined as Grade 1, 2 and 3a.

### Legislation, Policy and Good Practice

9.10 The primary legislation is the European Union Thematic Strategy for Soil Protection (2006) which outlines the condition of soils in Europe and aims to ensure their protection and sustainable use. The overarching aims are to prevent further soil degradation, preserve soil functions, and restore degraded soils to a standard appropriate to their intended use.

9.11 Paragraph 5.168 of the NN NPS requires applicants to take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, applicants should seek to use areas of poorer quality land in preference to that of a higher quality. The NN NPA also requires applicants to identify any effects, and seek to minimise impacts, on soil quality, taking into account any mitigation measures proposed.

9.12 Paragraph 5.176 of the NN NPS also requires the decision-maker to take account of the economic and other benefits of the best and most versatile agricultural land and to give little weight to the loss of agricultural land in grades 3b, 4 and 5, except in areas where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy.

9.13 This policy is echoed in paragraphs 109 and 112 of the NPPF.

9.14 There is no policy in the NPPF on the effect of development on farm holdings, although paragraph 28 emphasises the need to support economic growth in rural areas to create jobs and prosperity by, other amongst means, promoting the development and diversification of agricultural and other land-based rural businesses.

9.15 The nPPG repeats policy in paragraph 112 of the NPPF in respect of the quality of agricultural land and confirms that the planning system should protect and enhance valued soils because they are an essential finite resource that provides important ecosystem services, such as a growing medium for food, timber and other crops, a store for carbon and water, a reservoir of biodiversity and a buffer against pollution.

9.16 Other guidance and good practice that will be referred to in the assessment includes:

- Defra's Soil Strategy for England – Safeguarding Our Soils
- Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites
- The Government White Paper, The Natural Choice: Securing the Value of Nature

### Desk Based Studies

9.17 No further desk-based research and assessment above that already undertaken of the preliminary assessment is proposed.

### Field Surveys

9.18 A detailed ALC and soil survey will be required of those parts of the PDA not previously surveyed by Reading Agricultural Consultants in 1999. Furthermore, consultation will be required with Natural England to confirm whether or not it is satisfied that the semi-detailed survey undertaken in 1999 provides a sufficiently robust description of the baseline conditions. The 1999 report itself indicated that:

9.19 These findings are based on a semi-detailed examination. Thus if the land were resurveyed in greater detail it is possible that there would be local changes to the grading. However, it is not anticipated that these would be substantial."

9.20 A detailed ALC survey will involve an interpretation of published geological, topographical, soil and agro-climatic information in the light of the ALC guidelines, followed by a site survey examining soil profiles using hand-held augers and spades. Samples may be taken for laboratory analysis. The soil characteristics will then be described and analysed in terms of the MAFF guidelines to verify or inform the predicted grade of agricultural land.

9.21 Information on existing agricultural use and circumstances of the PDA will be obtained primarily from the existing owners and occupiers. The information collected will include a description of the existing size, location and use of farm holdings; and the existing scale and nature of agricultural and non-agricultural enterprises based on farm holdings and their associated capital and labour inputs. This will enable an assessment to be made of potential impacts on farm viability and local farm businesses affected by the Proposed Development.

## Consultation

9.22 Consultation will be required with Natural England in respect of the level of detail undertaken for the existing ALC survey, and whether a more detailed survey would lead to a material change in the baseline conditions of the site.

9.23 Consultation will also be undertaken with the landowners and occupiers of the site.

## Assessing Significance of Effect

### *Magnitude of Effect*

9.24 The magnitude of change to agricultural land is assessed according to the criteria set out in Table 9.1. The thresholds for determining the magnitude of change have been derived taking into account the statutory consultation procedures with Natural England for development involving the loss of agricultural land.

**Table 9.1: Defining Magnitude of Effect for Agricultural Land**

| Sensitivity | Definition of Magnitude |
|---|---|
| High | The Proposed Development would directly lead to the loss of over 50ha of agricultural land |
| Moderate | The Proposed Development would directly lead to the loss of between 20ha and 50ha of agricultural land |
| Low | The Proposed Development would directly lead to the loss of between 5ha and 20ha of agricultural land |
| Negligible | The Proposed Development would directly lead to the loss of less than 5ha of agricultural land |

9.25 The magnitude of change on soil resources takes into account the continued ability of a soil to fulfil its primary functions, as set out in Table 9.2.

**Table 9.2: Defining Magnitude of Effect for Soils**

| Sensitivity | Definition of Magnitude |
|---|---|
| High | The Proposed Development would directly lead to the loss of soil or reduction in its quality so that it can no longer perform its principal social, economic or environmental service |
| Moderate | The Proposed Development would lead to the inappropriate reuse of a soil so that its principal social, economic or environmental service is diminished |
| Low | The Proposed Development would lead to the reuse of the soil in a way which does not affect its principal social, economic or environmental service |
| Negligible | Soil resource remains unaffected |

9.26 The impacts on farm holdings relate primarily to the loss of land and other key farm infrastructure (dwellings, buildings and other structures such as irrigation reservoirs and slurry pits) and the fragmentation of land from the residually farmed area. Guideline criteria for determining the magnitude of change are presented in Table 9.3.

**Table 9.3: Defining Magnitude of Effect for Farm Holdings**

| Sensitivity | Loss of land | Loss of farm infrastructure |
|---|---|---|
| High | Loss of 20% or more of all land farmed | Direct loss of farm dwelling, building or structure |
| Moderate | 10% or more and less than 20% of all land farmed | Loss of or damage to infrastructure affecting land use |
| Low | 5% or more and less than 10% of all land farmed | Infrastructure loss/damage does not affect land use |
| Negligible | Less than 5% of all land farmed | No impact on farm infrastructure |

### Sensitivity of Receptor

9.27 The sensitivity of agricultural land is assessed according to its grade within the ALC.

**Table 9.4: Defining Sensitivity of Agricultural Land**

| Sensitivity | Definition |
|---|---|
| Very high | Grade 1, excellent quality agricultural land |
| High | Grade 2 and Subgrade 3a, very good to good quality agricultural land |
| Moderate | Subgrade 3b, moderate quality agricultural land |
| Low | Grade 4, poor quality agricultural land |
| Negligible | Grade 5, very poor quality agricultural land |

9.28 The sensitivity of the soil resource reflects its textural characteristics and its susceptibility to smearing and compaction. The least sensitive soils are those with a high sand fraction (sands, loamy sands and sandy loams); the most sensitive are those with a high clay and silt fraction (clay, silty clays, heavy clay loams and heavy silty clay loams); with medium textured clay loams being of moderate sensitivity.

9.29 The sensitivity of farm holdings is determined by the extent to which they have the capacity to absorb or adapt to impacts, which will be determined primarily by their nature and scale. In general terms, larger farm holdings will have a greater capacity to absorb impacts and will be less sensitive. However, the scale of the land holding is reflected in the magnitude of change and the percentage land-take from the farm. For example, the loss of 100ha from a 400ha farm would be a high impact (25%) whereas the same land-take from a 1,000ha farm would be low (10%). The sensitivity criteria therefore

concentrate on the nature of the receptor in order to avoid giving undue weight to the scale of operations.

**Table 9.5: Defining Sensitivity of Farm Holdings**

| Sensitivity | Definition |
|---|---|
| Very high | None |
| High | Farms in which the operation of the enterprise is dependent on the spatial relationship of land to key infrastructure, and where there is a requirement for frequent and regular access between the two, or dependent on the existence of the infrastructure itself, e.g. dairying, irrigated arable cropping and field-scale horticulture, and intensive livestock or horticultural production |
| Moderate | Farms in which there is a degree of flexibility in the normal course of operations, e.g. combinable arable farms and grazing livestock farms (other than dairying) |
| Low | Off-lying areas of farmed land |
| Negligible | Off-lying non-commercial land |

### Duration of Effect

9.30 Most of the effects on agricultural land and farm holdings will take place in the short-term, including and on completion of the construction period.

### Significance of Effect

9.31 The significance of effect for each receptor will be determined by combining the magnitude of the likely effect with the sensitivity of the receptor, as shown in Table 6.

**Table 9.6: Matrix of Assessing Significance of Effect**

| Assessing Significance of Effects | | | | | |
|---|---|---|---|---|---|
| Magnitude of Effect | Sensitivity of Receptors | | | | |
| | **Very High** | **High** | **Moderate** | **Low** | **Negligible** |
| **High** | Major | Major | Moderate | Moderate | Minor |
| **Medium** | Major | Moderate | Moderate | Minor | None |
| **Low** | Moderate | Moderate | Minor | None | None |
| **Negligible** | Minor | Minor | None | None | None |

9.32 Those effects that are moderate or greater will be considered significant in EIA terms.

## Proposed Cumulative Assessment

### Intra-relationship of Effects

9.33 An assessment of the intra-relationship of effects on individual receptors with other topic areas will be undertaken. Other environmental topic areas which may be affected by the results of this assessment could be socio-economics, in terms of the effects on existing employment, and ecology, landscape and water, in terms of the varying functions of soils.

### Inter-relationship of Effects

9.34 An assessment of likely significant cumulative effects will be undertaken with a list of schemes relevant to the individual topic area to be agreed in advance with the host local authority and other relevant statutory consultees.

## Proposed Assessment of Climate Change

9.35 An assessment of climate change will be undertaken and presented in the Environmental Statement. The assessment will include:

- The effects of a changing climate on the proposed development; and
- The effects of the proposed development on the environment.

## Proposed Mitigation and Residual Effects

9.36 Mitigation measures will be identified and considered to minimise potentially significant adverse effects on agricultural land, soils and farm holdings in so far as is practicable. Compensatory measures, particularly in respect of farm holdings, will be described.

9.37 The residual effects of the development post implementation of identified mitigation will be confirmed.

## Proposed Assessments to be Scoped Out

9.38 No assessments are proposed to be scoped out from this topic.

# 10. Archaeology and Cultural Heritage

## Introduction

10.1 This section of the ES will consider the potential both for direct effects on archaeological and heritage assets within the Proposed Development Area (PDA), resulting from the construction of the proposed development, and for indirect effects upon the setting of key heritage assets within the wider landscape. The assessment will also identify measures that will be taken to mitigate any predicted significance adverse effects.

## Preliminary Assessment of Baseline Conditions (2015)

### Study Area

10.2 The cultural heritage study area consists of two parts:

- **The Inner Study Area:** the PDA within which details of cultural heritage assets were gathered through desk-based assessment and field survey. Cultural heritage assets within 1km of the PDA were also identified to inform the assessment of the potential for buried archaeological remains to survive within the PDA.

- **The Wider Study Area:** extending to 2km from the PDA, used for identification of key cultural heritage assets with statutory protection whose settings may be affected by the proposed development.

### Desk Based Research

10.3 Detailed desk-based assessment was carried out in March 2015. Up-to-date information was obtained from the following sources:

- Details of the locations and extents of Scheduled Monuments, Listed Buildings, Registered Parks and Gardens and Registered Battlefields were downloaded from the Historic England Designation Data Download Area.

- Information on known cultural heritage assets and Conservation Areas was obtained from the Northamptonshire Council Historic Environment Record (HER).

- Additional information on heritage assets was gathered from a number of sources including: Heritage gateway, Pastscape and Images of England.

- Ordnance Survey 6" to 1 mile map coverage (1884 to 1953) was examined to provide information on sites and features of potential archaeological interest and on historic land-use development.

- Available on-line modern aerial photography (GoogleEarth™, Bing™) was examined to provide information on current land-use.

- Bibliographic, documentary and internet sources (including 'A43/Milton Malsor SDA: Archaeological Desk-based Assessment', Chadwick 1999 & 'Archaeological Fieldwalking Survey on Land at Milton Malsor, South of Northampton', Morris

2008) were used to provide general historic background information on the study area, listed buildings and other heritage resources relevant to the PDA.

10.4 The assessment was conducted in accordance with the Chartered Institute for Archaeologists' 'Code of Conduct' (CIfA 2014) and 'Standard and Guidance for Historic Environment Desk-based Assessment' (CIfA 2014).

### Field Surveys

10.5 A reconnaissance site visit was undertaken on 31st March 2015 within the Inner Study Area. The fieldwork was carried out in order to assess the information previously obtained through desk-based assessment, to identify the extent and condition of any visible archaeological or historic environment sites or features, and to assess the topography and geomorphology of the proposed development site. This assessment also provided information on the archaeological potential of the PDA.

10.6 At the time of the field survey much of the area had been ploughed and access was restricted to field edges and public rights of way, although clear views could be gained across fields and vegetation growth did not pose a significant impediment to the identification of earthworks.

## Baseline Conditions

10.7 The PDA is predominantly flat arable farmland. Early prehistoric activity (Mesolithic to Bronze Age) within the proposed development site is evidenced by find-spots of worked flint artefacts and flakes; however no specific prehistoric settlement remains have been recorded. There is evidence for early prehistoric activity within the wider area, with the remains of a Bronze Age beaker cemetery (HER Ref: MNN13065) identified to the northwest of Milton Malsor, approximately 0.5km to the north of the PDA.

10.8 Cropmarks of two potential Iron Age/Romano-British sites are located in the western half of the proposed development site and the remains of what may have been a Romano-British pottery kiln site just north of Deveron House, were recorded in the 1940s. Iron Age and Roman-British pottery and other Roman finds such as tile and quern fragments recovered from the topsoil, during field walking of the proposed development site, suggest considerable activity within the area during these periods. Within 1km of the proposed development there are several late prehistoric and Romano-British settlements, including Gayton Roman Villa/Temple (HER Ref: MNN9021) to the southwest, Iron Age to Romano-British settlements, to the south around Blisworth (HER Refs: MNN4134, MNN6147, and MNN103131), and to the north around Milton Malsor (HER Refs: MNN6134, MNN6138 and MNN6591). In addition, the remains of a possible Romano-British cemetery (HER Ref: MNN13066) were uncovered during sand extraction works in the 1950s immediately to the north of the proposed development site.

10.9 Evidence was found in the 1940s to suggest that a possible Saxon cemetery once survived on the outskirts of Milton Malsor, just within the proposed development site. There is evidence for settlement dating to this period in the wider landscape, with a possible early Middle Saxon site recorded just to the east of Milton Malsor (HER Ref: MNN6129) and potential late Saxon remains recorded to the east of Blisworth (HER Ref: MNN140656).

10.10 Medieval pottery, recovered from previous archaeological investigations within the proposed development site, is most likely to have been deposited during the spreading of manure in the medieval era. Relict ridge and furrow has been recorded over much of the site, which, when combined with the evidence for manure spreading, indicates that the proposed development site was utilised primarily as farmland from the medieval period onwards; a use that continues today. Morris (2008) has suggested that particular concentrations of medieval pottery, particularly within fields at the southern boundary of the PDA, may potentially indicate the location of a former medieval site in this area.

10.11 Within 2km of the PDA there are two Scheduled Monuments, one Grade I Listed Building, nine Grade II* Listed Buildings, 116 Grade II Listed Buildings and one Historic Park and Garden.

## Characteristics of Potential Effects

### Direct Effects

10.12 It is considered likely that buried archaeological remains are preserved within the proposed development site. Construction of the proposed development has the potential to disturb, damage or destroy such remains. Other construction activities, such as vehicle movements, soil and overburden storage and landscaping also have the potential to cause direct, permanent and irreversible effects on any buried archaeological remains that may be present.

### Indirect Effects

10.13 Preliminary analysis indicates that the cultural heritage assets which are likely to be most sensitive to effects on their settings are

- Milton Malsor Conservation Area and Grade II Listed Building, The Rectory (No. 1039735) both of which are located immediately south of the proposed development.
- The Berry Ringwork, Scheduled Monument (No: 1010253) located on the edge of Rothersthrope village.
- Courteenhall, Registered Park & Garden, located 1.3km to the southeast of the proposed development.

10.14 The visual effect on the setting of these assets and the other statutory designated sites within 2km of the PDA will be evaluated.

## Proposed Method of Assessment

### Overview

10.15 The objective of the study is to assess the PDA, in terms of its archaeological and historic potential and significance. The cultural heritage chapter within the ES will:

- Identify the cultural heritage baseline;
- Consider the PDA in terms of its archaeological and historic environment potential;

- Assess the potential and predicted effects of the construction and operation of the development on the baseline cultural heritage resource, within the context of relevant legislation and planning policy guidelines; and,
- Propose measures, where appropriate, to mitigate any predicted significant adverse effects.

10.16 For the purpose of the study, cultural heritage resources include:

- Scheduled Monuments and other archaeological features.
- Listed Buildings and other buildings of historic or architectural importance.
- Conservation Areas and other significant townscapes.
- Historic Parks and Gardens and other historic landscapes.
- Historic Battlefields.
- Any other sites with cultural heritage designations identified in the relevant Local Development Plans.

### Legislation, Policy and Good Practice

10.17 The study will be conducted with reference to the relevant planning policy, including:

- The National Networks National Policy Statement (NN NPS) 2014
- The National Planning Policy Framework (NPPF) 2012;
- The West Northamptonshire Joint Core Strategy Local Plan (Part 1) (WNJSPC) 2014;
- South Northamptonshire Council Local Plan 1998-2006 (1997) relevant 'Saved' Policies.

10.18 Legislation governing the protection and conservation of cultural heritage assets includes:

- The Ancient Monuments and Archaeological Areas Act 1979;
- National Heritage Act 1983;
- The Planning (Listed Buildings and Conservation Areas) Act 1990;
- The Town and Country Planning (Development Management Procedure) (England) Order 2010.

10.19 All work will be conducted in accordance with the Chartered Institute for Archaeologists (CIfA) 'Code of Conduct' (2014) and 'Standards and Guidance for Historic Environmeny Desk-based Assessment' (2014). Other relevant guidance including 'Conservation Principles' (English Heritage 2008), 'Seeing History in the View: A Method for Assessing

Heritage Significance within Views' (May 2011) and 'The Setting of Heritage Assets' (October 2011) will also be followed.

### Desk Based Studies

*10.20* Early historic maps (for example Tithe maps, Enclosure maps) held in the Northamptonshire Archive will be examined to obtain historic land-use development.

### Field Surveys

10.21 A walkover reconnaissance field survey of the PDA was carried out as part of the preliminary baseline assessment (see above for details). No further field survey will be required.

### Consultation

10.22 Historic England and the Northamptonshire County Archaeologist will be consulted to agree the approach to assessment, to obtain professional opinion on the likely effects of the proposed development upon cultural heritage assets, and to discuss approaches to mitigation.

### Assessing Significance of Effect

10.23 The effects of the Proposed Development on cultural heritage assets will be assessed on the basis of their type (direct physical effects, indirect effects on setting, cumulative effects), nature (beneficial, neutral or adverse), and longevity (reversible, short-term, medium-term or long-term; irreversible, permanent). The assessment will take into account the magnitude of effect and the assessment of sensitivity of the asset.

### Magnitude of Effect

10.24 The criteria for assessing the magnitude of direct effects is shown in Table 10.1 below. The magnitude of change is the degree of change to the baseline condition of a cultural heritage feature that would result from the construction of one or more elements of the Proposed Development. The magnitude of effects are assessed in the categories negligible, low, medium or high.

**Table 10.1: Definition of Magnitude of Effect**

| Level of Magnitude | Definition |
|---|---|
| High | A fundamental change to the baseline condition or setting of the cultural heritage asset, leading to a material and complete alteration of character. |
| Moderate | A discernible change to the baseline condition or setting of the cultural heritage asset, leading to a material, partial alteration of character. |
| Low | A slight, detectable change of the baseline condition or setting of the cultural heritage asset, resulting in a partial, non- material, alteration of character. |
| Negligible | A barely distinguishable change to baseline condition or setting of the cultural heritage asset, resulting in a non-detectable, non- material, alteration of character. |
| None | No change to the baseline condition or setting of the heritage asset. |

### Sensitivity of Assets

10.25 The heritage sensitivity of an asset (Table 10.2) is dependent upon the asset's statutory designation and a variety of perceived heritage values, as set out in 'Conservation Principles: Policies and Guidance' (English Heritage 2008).

**Table 10.2: Heritage Sensitivity of Cultural Heritage Assets**

| Heritage Sensitivity | Asset Type |
|---|---|
| Very High | Assets recognisably of international importance, including:<br>• Inscribed World Heritage Sites (including candidate sites)<br>• Internationally recognisable scheduled archaeological sites and listed buildings<br>Extremely well-preserved historic landscapes with exceptional coherence, time-depth, or other critical factors. |
| High | Assets recognisably of national importance, including:<br>• Scheduled Monuments, sites proposed for scheduling and site of demonstrable scheduled quality<br>• Grade I & Grade II* Listed Buildings<br>• Conservation Areas containing many listed buildings<br>• Grade I& II* Registered Parks & Gardens<br>Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factors. |
| Moderate | Assets of regional importance, including:<br>• Grade II Listed Buildings<br>• Grade II Registered Parks & Gardens<br>• Conservation Areas |
| Low | Assets of local importance<br>• Archaeological sites and areas of local importance<br>• Unlisted buildings and townscapes of some historic or architectural interest |
| Negligible | Other archaeological remains or historic landscape features, including:<br>• Sites of former archaeological features<br>• Unlisted buildings of little or no historic or architectural interest<br>• Poorly preserved examples of particular types of feature<br>• Artefact find-spots |

### Duration of Effect

10.26 The assessment will take into consideration the duration of the effect, the following timescales will be utilised:

- Short-term: 0 to 5 years including the construction period and on completion;
- Medium-term: 5 to 15 years including establishment of replacement and proposed mitigation planting; and
- Long-term: 15 years onwards for the life of the Proposed Development.

### Significance of Effect

10.27 The effect on the cultural heritage asset depends upon both the magnitude of effect and the sensitivity of the cultural heritage asset. Using the terminology recommended by English Heritage[1]. Table 10.3 presents the matrix that will be used to inform the process.

**Table 10.3: Matrix of Assessing Significance of Effect**

| Magnitude of Effect | Sensitivity of Asset | | | | |
|---|---|---|---|---|---|
| | Very High | High | Moderate | Low | Negligible |
| High | Major | Major | Moderate | Minor | Minor |
| Moderate | Major | Moderate | Moderate | Minor | Negligible |
| Low | Minor | Minor | Minor | Negligible | Negligible |
| Negligible | Negligible | Negligible | Negligible | Negligible | Negligible |

10.28 A Major adverse effect would constitute 'Substantial Harm' and a Moderate adverse effect would constitute 'Harm' in the context of advice presented in Section 12 of the NPPF. Effects of Major or Moderate significance are considered to be significant in terms of the EIA regulations. Minor and Negligible effects are not considered to be significant in the context of the EIA regulations.

## Proposed Mitigation and Residual Effects

10.29 Mitigation measures designed to prevent, reduce or offset significant adverse effects will be proposed where appropriate, and residual effects will be assessed taking into account the likely effectiveness of the mitigation proposed.

[1] The setting of heritage assets: English Heritage guidance. (English Heritage 2011)

# 11. Ground Conditions

## Introduction

11.1 This chapter will identify the existing soil and geological conditions and development constraints, evaluate the potential for contamination and assess the potential effects on ground conditions during both the construction and operational phase.

11.2 A range of impacts associated with the design, construction and operation of the Proposed Development will be considered, including potential ground contamination, ground improvement, earthworks, foundation solutions, slope stability and associated geotechnical issues.

## Preliminary Assessment of Baseline Conditions (2015)

### Study Area

11.3 The extent of the Ground Conditions study area is the site area itself and the immediate surrounding area.

### Desk Based Research

11.4 A Phase 1 Desk Study has been undertaken for the site. This has used information from the various sources listed below to allow assessment of the Proposed Development on the site and surrounding area:

- Environment Agency;
- Local Authority;
- Highways Agency;
- Landowners;
- British Geological Survey;
- Defra; and
- a commercial third party Environmental Database.

### Field Surveys

11.5 A site walkover survey has been undertaken by Hydrock. This included all accessible areas of the Proposed Development Area (PDA), with site photographs and descriptions being incorporated in the Hydrock Phase 1 Desk Study. The walkover has been undertaken in accordance with best practice guidance.

### Consultations

11.6 No consultations have been undertaken to date with regards to ground conditions. Consultations will be undertaken during preparation of the ES, based on the results of the Hydrock Phase 1 Desk Study.

## Baseline Conditions

11.7 The assessment will consider the potential environmental impact of the Proposed Development on the geology, soils and groundwater beneath the site and in the local area.

11.8 The Phase 1 Desk Study has indicated the site has remained mainly as farmland since the earliest Ordnance Survey map edition of the late 19th Century with development essentially limited to a filling station and transport yard adjacent to the A43 and Lodge and Manor Farms in the central east of the site. However, numerous small farm buildings have been constructed across the site and demolished later in the 20th Century. Two former sand and gravel pits are present in the northwest of the site which are assumed to have been subsequently infilled.

11.9 A transport yard in the northeast of the site is not shown on any of the historical maps and is assumed to be modern.

11.10 The surrounding area has remained as farm land since the earliest map edition with the exception of a number of sand and gravel pits to the north and brick pits to the west. A trading estate comprising an abattoir, garage and factory were constructed to the west of Northampton Road in the 1980s.

11.11 The Phase 1 Desk Study will form the baseline section of the ES. From this, the ES will assess the environmental impacts of the Proposed Development in terms of the ground conditions. The assessment involves consideration in terms of the naturally occurring geological conditions and any man-made deposits, known as Made Ground. Consideration is given to the physical nature of the rocks, soils and Made Ground, together with information on existing chemical contamination and geotechnical features arising from the former and existing uses of the site. The hydrogeological regime, comprising the groundwater in any permeable deposits (rock, soil or Made Ground) beneath the site, and the hydrological regime (surface water), will be described in so much as they interact with land contamination.

11.12 The findings of the baseline study will be summarised in the ES and will include:

- Site History;
- Geology;
- Hydrogeology;
- Hydrology;
- Unexploded Ordnance;
- Potential Contamination Sources; and
- Potential Geotechnical Risks.

11.13 The above data will be used to collate a conceptual site model to determine the likely contaminant linkages which could give rise to unmitigated environmental effects and the features that could give rise to unmitigated geotechnical effects.

## Proposed Method of Assessment

### Overview

11.14 Environmental effects and mitigation measures identified by the EIA process are intended to protect workers on, and end-users of, the Proposed Development. The ES will also contain assessments of any potential impacts of wider extent than the site area itself. The baseline study will be used to assess any effects as a result of the Proposed Development during the construction and operational phases.

11.15 The potential impacts to the environment arising from construction works and the new use of the Site as a commercial development will be evaluated. If required, measures will be proposed to mitigate any unacceptable negative impacts and any residual impacts will be discussed.

11.16 In respect of assessing the safety of Proposed Development, consideration is given to the physical integrity of the Proposed Development, usually regulated by the Building Control Officer and the chemical integrity of the site, usually regulated by the Environmental Health Officer (but in conjunction with the Environment Agency where the pollution of Controlled Waters is an issue). The design of new developments is augmented by site investigations and risk assessments to provide assurance that the safety (fitness for purpose) condition is met.

11.17 The design of a new development in conjunction with the identification and assessment of likely significant effects is an iterative process through which the sustainability of a new development is increased by considering environmental issues, examining alternatives considered by the developer, highlighting environmental effects and proposing appropriate mitigation and monitoring measures. Environmental effects and mitigation measures intended to protect workers on, and end-users of, the Proposed Development are derived in the site investigation and risk assessment process and are appropriate to the EIA process as well. The ES also contains assessments of any wider potential impacts than those restricted to the PDA itself.

11.18 Chemical issues of development sites are normally related to contaminants remaining from previous land uses either on the site or adjacent to it. The methodology adopted for determining whether or not a site is contaminated is broadly similar to that required under Part 2 of the Environmental Protection Act 1990 and involves the concept of pollution linkages.

11.19 The existing soil and groundwater conditions are assessed in the baseline study by the Phase I assessment (desk study and walk-over survey), which reviews potential source-pathway-receptor linkages. These potential source-pathway-receptor linkages are then investigated by undertaking ground investigation works (Phase II site investigation), which conforms or rejects the presence of the potential source-pathway-receptor linkages. Following the site investigation generic and detailed risk assessment, followed by risk evaluation are undertaken.

11.20 No ground investigation has been undertaken to date. The ES assessment will be based upon the Phase 1 Desk Study.

11.21 Environmental issues related to ground contamination are considered by preliminary risk assessment of pollution linkages. A pollution linkage is said to exist where three conditions are satisfied:

(i) there is a source of chemical contaminant with the potential to cause harm to human health, property (including buildings) or the wider environment;

(ii) there is a receptor (e.g. people, property, the environment) which might be harmed by the source of contamination; and

(iii) there is a pathway by which the source can reach the receptor, so that harm can be caused.

11.22 On any particular site, there may be multiple sources, pathways and receptors and each source-pathway-receptor pollution linkage must be examined and the risk assessed. This is usually done in a series of stages or tiers, starting with a general, more conservative approach, but becoming more in-depth and site-specific if a more detailed approach is warranted (usually where the issues are very complex to resolve). The stages of assessment are summarised as:

(i) hazard identification;

(ii) generic risk assessment;

(iii) detailed risk assessment; and

(iv) risk evaluation.

11.23 The stages of assessment are in detailed Table 11.1.

**Table 11.1: Risk Assessment Stages**

| Hazard Identification |
| --- |
| The potential pollution linkages are listed, and judgement is used to determine which of these can be considered plausible, i.e. there is a realistic probability that environmental damage might take place.<br><br>Only the plausible linkages need be considered further, in the generic risk assessment. |
| **Generic Risk Assessment** |
| All the plausible linkages are considered in the light of ground investigation test results.<br><br>The concentrations of chemicals in the ground are compared, using specified statistical techniques, with published values (Generic Assessment Criteria), which are deemed indicative of minimal risk, for example to human health, plant life or the water environment. |

### Detailed Risk Assessment

Where concentrations exceed the assessment criteria there is a need to carry out mitigation measures.

Mitigation can include more detailed risk assessment using site-specific conditions rather than generic ones.

Mitigation measures can also include engineering work (also known as remediation), such as removal or treatment of the contaminant or severing of the pathway between the contaminant and the potential receptor, thereby breaking the linkage.

It is not always possible to completely remove an environmental impact and a residual impact may remain, or some secondary impacts may be generated. Accepting a secondary or residual impact may often involve a trade-off, which must be judged to be reasonable. An example of a trade-off might be the removal of contaminated soil from a development site, but the secondary impact would be increased lorry traffic and risk of road traffic accidents during the removal.

### Risk Evaluation

Risk Evaluation is used frequently in the decision making process.

This may involve more in-depth scientific analysis or professional judgement and local experience and can take place at any stage in the assessment process.

The generic criteria are by design very conservative in terms of providing protection to health. Consequently, a moderate exceedance of a criterion does not mean a sudden change from acceptable risk to unacceptable risk. Risk Evaluation takes things like this into account.

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## Legislation, Policy and Good Practice

11.24 The Proposed Development will be guided by the following national policy on transport and land use planning:

- Planning Act 2008.
- The National Network National Policy Statement (NN NPS) 2014.
- The National Planning Policy Framework (March 2012).
- Planning Practice Guidance (PPG).
- Part 2A of the Environmental Protection Act 1990.
- The Environment Agency Groundwater Protection Policy (GP3) (August 2013).
- The Water Resources Act 1991, as amended by the Water Act 2003, taking into account the provisions of the following Directives:

- Water Framework Directive (2000/60/EC and daughter directive 2006/118/EC as amended by 2013/39/EU).
- Waste Framework Directive (2006/12/EC).
- Drinking Water Quality Regulations which define clean water fit for drinking and are used in the assessment of the potential for contamination of Controlled Waters, including:
  - The Water Supply Regulations (2010).
  - Groundwater (England & Wales) Regulations (2009).
  - Private Water Supply Regulations (2009).

11.25 Reference will also be made to the following local policy where relevant, including:

- Local Plan, including the West Northamptonshire Joint Core Strategy Local Plan, which includes the following relevant policies specific to this Chapter:
  - Policy BN9 - Planning For Pollution Control
  - Policy BN10 - Ground Instability;
- Supplementary Planning Documents, Supplementary Planning Guidance and Planning Briefs;
- South Northamptonshire Local Plan ; and
- Neighbourhood Planning, Planning Reform and Village Design Statements

11.26 The South Northamptonshire Council, Environmental health team provide comment with regards to the Contaminated Land Strategy in the following documents:

- "South Northamptonshire Council Contaminated Land Strategy". This indicates the Council adopts a "suitable for use", which consists of three elements:

(a) ensuring that land is suitable for its current use;

(b) ensuring that land is made suitable for any new use; and

(c) limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought.

- "Contaminated Land - A Guide for Developers and their advisors". This indicates the three key components of Environmental Risk Management are: Risk Assessment; Options Appraisal; and the Implementation of the Remedial Strategy. This guidance also indicates that works should be undertaken in accordance with CLR11 and the first step is a preliminary risk assessment.

11.27 In accordance with best practice, the following published guidance documents will also be used in the assessment:

- Boyle, R. and Witherington, P. January 2007. Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present. Report No. 10627-R01 (04). NHBC, Milton Keynes. 93pp + apps.
- Building Research Establishment (BRE). 2001. Concrete in aggressive ground. BRE Special Digest 1, Parts 1 to 4. BRE, Garston.
- British Standards Institute. 2000. Investigation of potentially contaminated sites, Code of Practice. BS10175. BSI, London.
- British Standards Institute. 2007. Code of practice for the characterization and remediation from ground gas in affected developments. BS 8485. BSI, London.
- British Standards Institute. 1999. Code of practice for Site Investigations. BS 5930. BSI, London.
- Contaminated Land Report CLR11 - Model procedures for the management of land contamination, Environment Agency/Defra. These Model Procedures are referred to throughout this report.
- Environment Agency. 2006. Remedial Targets Methodology. Hydrogeological Risk Assessment for Land Contamination. The Environment Agency, Bristol, 123pp.
- Environment Agency, 2004. "Model procedures for the management of land contamination." Contaminated Land Report 11, Bristol: The Environment Agency.
- Environment Agency, undated. "Works at construction and demolition sites. Pollution Prevention Guideline 6", Bristol: The Environment Agency.
- Environment Agency, undated. "Works in, near or liable to affect watercourses. Pollution Prevention Guideline 5", Bristol: The Environment Agency.
- Miles S, J. C. H., Appelton, J. D., Rees, D. M., Green, B. M. R., Adlam. K. A. M. and Myres. A. H. 2007. Indicative Atlas of Radon in England and Wales. Health Protection Agency and British Geological Survey. Report HPA-RPD-033.
- Scivyer C. 2007. Radon: Guidance on protective measures for new buildings, extensions, conversions and refurbishment (2007 edition). Building Research Establishment Report BR 211. BRE, Garston.
- Wilson, S., Oliver, S., Mallett, H., Hutchings, H. and Card, G. 2007. Assessing risks posed by hazardous ground gases to buildings. CIRIA Report C665. CIRIA, London. 182pp.

### Desk Based Studies

11.28 No additional desk based assessment is proposed other than that presented in Hydrock Report R/151171/G001.

### Field Surveys

11.29 Field surveys will comprise:

- Supplementary walkover surveys in areas of the site which have been made accessible since the original walkover survey; and
- Site investigation works if deemed necessary following discussions with the LPA.

### Consultation

11.30 The findings of the Hydrock Phase 1 Desk Study will be discussed with the Environmental Health Office during the ES, with the aim of confirming the baseline assessment.

### Assessing Significance of Effect

11.31 The potential impacts and receptors resulting from the construction and operational phases of the Proposed Development will be assessed based on the Preliminary Conceptual Model of geo-environmental site conditions. Positive and negative impacts will then be identified and options may then be outlined for mitigating any potential negative impacts from the scheme construction and operation allowing the final impact to be confirmed. Cumulative impacts of the proposed scheme in relation to other known proposed schemes will also be addressed where necessary.

11.32 A qualitative risk assessment will be undertaken to confirm the magnitude of the assessed impacts to identified potential receptors which are likely to include human receptors (e.g. people living and working nearby), as well as controlled waters and ecology.

### Magnitude of Effect

11.33 The magnitude of impacts is judged on the consequences of the impact. In terms of contamination, for example, this would be the degree of exceedance of the assessment criteria and the whether this takes place locally or across large areas of the Site. However, in a Phase 1 risk assessment where there are no data to quantitatively determine the extent and level of the contamination, professional judgement is used as to estimate the likely degree of exceedance based on experience from other, similar sites (see Table 11.2).

**Table 11.2: Defining Magnitude of Effect**

| Impact Type | Major | Moderate | Minor | Negligible |
|---|---|---|---|---|
| General definition with respect to contamination impacts to human health, new planting and Controlled Waters | Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. | Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. | Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of no harm but not unacceptable intake or | Concentration of contaminants is likely to (or is known from previous data to) be less than that indicative of no harm.<br><br>i.e. less than |

| | | | | |
|---|---|---|---|---|
| | i.e. much greater than required for “significant harm or the significant possibility of significant harm” under EPA1990 Part 2A.<br><br>Concentrations are high enough to cause acute (short-term) effects. | i.e. greater than required for “significant harm or the significant possibility of significant harm” under EPA1990 Part 2A. | contact.<br><br>i.e. greater than the GAC screening value but less than that required for “significant harm or the significant possibility of significant harm” under EPA1990 Part 2A. | the GAC screening value. |
| Human health impacts from chemicals in the ground. | Short-term (acute) effects likely to result in significant harm e.g. high concentration of cyanide on the surface of an informal recreational area. | Long-term (chronic) effects likely to result in significant harm e.g. high concentration of contaminants close to the surface of a development site. | Harm but probably not significant harm unless particularly sensitive individual within the receptor group. May be aesthetic/olfactory impacts. | No measurable effects. |
| New planting impacts from chemicals in the ground. | Complete and rapid die-back of landscaped areas. | Stressed or dead plants in landscaped areas. | Damage to plants in landscaped areas, e.g. stunted growth, discoloration. | No measurable effects. |
| Controlled Waters impacts from chemicals in the ground. | Short-term pollution, e.g. major spillage into controlled water.<br><br>Substances leaching from contaminated soil cause receiving waters | Pollution of sensitive water resources, e.g. leaching into major or minor aquifers or rivers.<br><br>Substances leaching from contaminated | Pollution of non-sensitive water bodies e.g. leaching into non-classified groundwater or minor ditches.<br><br>Substances leaching from contaminated | No measurable effects.<br><br>Substances leaching from contaminated soil do not cause receiving waters to exceed surface water and |

| | | | | |
|---|---|---|---|---|
| | to exceed surface water and groundwater quality indicators (EQS/DWS) over a large area. | soil cause receiving waters to exceed surface water and groundwater quality indicators (EQS/DWS) in limited areas. | soil cause receiving waters to slightly exceed surface water and groundwater quality indicators (EQS/DWS) (based on professional judgement). | groundwater quality indicators (EQS/DWS). |
| Ecosystems impacts from chemicals in the ground. | Short-term risk to a particular ecosystem or organism forming part of that ecosystem in a designated protected area, e.g. by contamination spillage.<br><br>Damage to a protected area of international significance (e.g. Ramsar site). | Death of species in a particular ecosystem in a designated protected area, e.g. by contamination spillage.<br><br>Damage to a protected area of national significance (e.g. Site of Special Scientific Interest). | Minor change in a particular ecosystem in a designated protected area, but not significant harm.<br><br>Damage to a locally important area. | No measurable effects.<br><br>Plausible pollution linkage but no important or protected area. |
| Site workers impacts from chemicals in the ground. | Risk assessment required to determine required personal protective equipment (PPE) and this may involve high level of protection similar to USEPA Level A, B or C. | Risk assessment required to determine required personal protective equipment (PPE)and this may involve high level of protection similar to USEPA Level B, C or D. | Risk assessment required to determine required personal protective equipment (PPE) and this may involve moderate level of protection similar to USEPA Level C or D. | No measurable effects, but simple personal protective equipment (PPE) required (similar to USEPA Level D protection, i.e. overalls, boots, goggles, hard hat). |
| Buildings etc. impacts from | Catastrophic damage, e.g. | Damage renders unsafe | Damage to sensitive | No measurable effects. |

| | | | | |
|---|---|---|---|---|
| flammable ground gas. | gas explosion causing collapse. | to occupy. | buildings etc. | |
| Damage to building products form chemicals in the ground (e.g. sulfate attack of concrete, organic solvent decay of plastics). | Maximum soil concentration exceeds industry accepted trigger value over a large area. | Maximum soil concentration exceeds industry accepted trigger value in limited areas. | Maximum soil concentration slightly exceeds industry accepted trigger value in limited areas. | Maximum soil concentration less than industry accepted trigger value. |
| Human health impact from ground gases. Such as radon and landfill gas where exceedance of a risk-based trigger indicates the potential for harm. | Pollution linkage identified over a large area. | Pollution linkage identified in limited areas. | Pollution linkage uncertain. | Plausible pollution linkage not established. |
| Impacts to people, property or infrastructure cause by excessive ground movements. | Major damage involving destruction of buildings or infrastructure, blocking of river courses and major flooding or loss of life. | Significant damage to property or infrastructure, minor damage to river channels, injury to people. | Minor damage to property or infrastructure, minor blocking of river channels. | Minor ground movements but no significant damage to property, infrastructure, river channels or human health. |

**Sensitivity of Receptor**

11.34 The following receptors are considered in the assessment of environmental impacts from land condition:

- site preparation and construction workers;
- off-site population
- the surrounding ecosystem;
- end users of the Site (residents, workers, visitors etc.);
- structures, and the construction materials used, in the development;

- landscape planting and private gardens in the development;
- the groundwater environment; and
- the surface water environment.

11.35 The sensitivity of these receptors is a matter of professional judgement. With respect to human populations, the methodology of CLR11 has been followed in that the most sensitive receptors within a particular group are required to be protected. For example, a female child under the age of 6 is the critical receptor in the residential setting, which is the critical receptor for The Site. The sensitivity of the water environment depends on whether it is used for human consumption or provides support for aquatic ecosystems.

11.36 The risks associated with the ground gases methane (CH4) and carbon dioxide (CO2) will be assessed using guidance provided by BS 8485:2007 which cites the guidelines published in CIRIA C665 (Wilson et al. 2007) and the available desk study information. These guidelines were written so as to be mutually consistent and are based on interpretation of the gas concentrations and the gas flow rates measured in boreholes, amongst other variables. They are compliant with the model procedures of CLR11. The risk from radon has been assessed by reference to the radon atlas and other guidance produced by the Health Protection Agency, British Geological Survey and Building Research Establishment.

11.37 The geotechnical risks assessed in this chapter relate to any abnormal ground conditions that might exist. For example, particular aspects such as ground instability arising from excessive ground movements.

11.38 In this chapter, the sensitivity is taken to be the likelihood that one of the sensitive receptors suffers the impact. These are judged to be:

- high likelihood;
- moderate likelihood;
- low likelihood; or
- unlikely.

### Duration of Effect

11.39 In this chapter, the duration of the effect will also be taken into consideration. The following definitions of timescales will be used be:

- Short-term: 0 to 5 years including the construction period and on completion;
- Medium-term: 5 to 15 years including establishment of replacement and proposed mitigation planting; and
- Long-term: 15 years onwards for the life of the Proposed Development.

### Significance of Effect

11.40 The significance of a potential impact is based on the combination of the magnitude and sensitivity of that impact as given in the matrix in Table 11.3. Note that the degree of 'significance' is not the same as the definition of 'significant harm' as defined by the Environmental Protection Act 1990 in the context of the statutory contaminated land regime.

**Table 11.3: Matrix of Assessing Significance of Effect**

| | | Sensitivity | | | |
|---|---|---|---|---|---|
| | | High Likelihood | Moderate Likelihood | Low Likelihood | Unlikely |
| Magnitude | Major | Major significance | Major significance | Moderate significance | Minor significance |
| | Moderate | Major significance | Moderate significance | Minor significance | Negligible significance |
| | Minor | Moderate significance | Minor significance | Minor significance | Negligible significance |
| | Negligible | Minor significance | Negligible significance | Negligible significance | Negligible significance |

11.41 In addition, beneficial and adverse impacts are judged to be adverse or beneficial and temporary or permanent.

11.42 Tables will be presented for:

- Potential Significant Effects from Ground and Hazardous Substances (Construction Phase); and
- Potential Significant Effects from Ground and Hazardous Substances (Operational Phase)

11.43 These will include consideration of the likely effects of the present quality of the land on the Proposed Development and its eventual users, and any effects the Proposed Development and new use of this land might have on the contamination and geotechnical status of the Application Site and surrounding area.

11.44 The tables will list all effects, including those which have been assessed to be negligible or of minor significance. This is to demonstrate that they have been considered and discounted in terms of the ES, although certain actions will be embedded in the design of the Proposed Development and these are mentioned in the tables. Effects deemed to be of moderate significance or above are considered further and relevant to the EIA process and are summarised below.

11.45 It should be noted that the term "toxic etc." is used as shorthand notation to include all likely harmful effects such as toxic, carcinogenic, mutagenic etc.; and the word "artificial"

is used to describe the introduction of a substance to the Application Site by site user/construction worker activities.

## Cumulative Effects

11.46 Consideration will also be given to the potential for cumulative effects of the Proposed Development in combination with the schemes identified by the LPA.

## Climate Change

11.47 The Chapter will also include (as required) an assessment of climate change, which will include:

- the effects of a changing climate on the Proposed Development; and
- the effects of the proposed development on the environment.

## Proposed Mitigation and Residual Effects

11.48 Where necessary likely mitigation measures will be identified and their final impacts assessed in the same manner. It is expected that construction effects will be mitigated by means of the Proposed Development of:

- Construction Sequence and Programme;
- Construction Environmental Management Plan (CEMP) - Air, noise, dust, light, odour;
- Site Waste Management Plan (SWMP) - Demolition & Construction;
- Materials Management Plan (MMP) - Soils reuse & earthworks;
- Construction Code of Practice (CCoP) - Considerate construction planning.

## Conclusion

11.49 This chapter will be written to identify the existing soil and geological conditions and development constraints, evaluate the potential for contamination and assess the potential effects on ground conditions during both the construction and operational phase.

11.50 A range of impacts associated with the design, construction and operation of the Proposed Development will be considered, including potential ground contamination, ground improvement, earthworks, historical quarrying, foundation solutions, slope stability and associated geotechnical issues.

11.51 The Chapter will be guided by national and local policy, along with recognised best practice published guidance documents.

11.52 The assessment will use the existing Phase 1 Desk Study to form the baseline and will assess the environmental impacts of the proposal in terms of the ground conditions.

11.53 The potential impacts and receptors resulting from the construction and operational phases of the Proposed Development will be assessed based on a Preliminary Conceptual Model of geo-environmental site conditions.

11.54 A qualitative risk assessment will be undertaken to confirm the magnitude of the assessed impacts to identified potential receptors.

11.55 The potential impacts to the environment arising from construction works (Construction Phase), and the new use of the PDA as a commercial development (Operational Phase) will be evaluated. Measures will be proposed to mitigate any likely significant adverse negative impacts and any residual impacts will be discussed.

11.56 In addition consideration will also be given to the potential for cumulative effects of the Proposed Development in combination with the schemes identified by the LPA.

11.57 As there has not been any investigation undertaken as yet, no topics have been identified as suitable for scoping out at this stage.

# 12. Hydrology, Drainage and Flood Risk

## Introduction

12.1 As part of the Proposed Development a site specific flood risk assessment is required to understand any flood related risks to the development and surrounding area. The assessment provides recommendations where appropriate to mitigate flood risk and address the impact of climate change on flood risk related issues.

12.2 The assessment will be prepared based on the national and local policy requirements including any relevant statutory searches relating to flood risk, a summary of which is provided below.

## Preliminary Assessment of Baseline conditions

### Study Area

12.3 Whilst the predominant focus of this assessment is for land within the Proposed Development Area (PDA), an assessment, along with any required mitigation measures, of the impact of the proposals on the wider area is also assessed. This is to ensure that the proposed development will have no adverse effect on third party land and, where required, any risk identified addressed by suitable mitigation.

### Desk Based Research

12.4 This assessment has been undertaken via a desk top study. The main source of information has been via readily available flood risk from both the Environment Agency and Northampton Borough Council.

### Field Surveys

12.5 At the time of writing, no field surveys for flood risk and drainage have been undertaken.

### Consultation

12.6 To date consultation has been with the Environment Agency through the development and flood risk department undertaken in June 2015. This confirmed the level of flood risk detail currently available for the PDA and the immediate surrounding area. No further detail flood risk or site specific discussions have been held.

## Baseline Conditions

### Study Area

12.7 The PDA is intersected by a watercourse which is named (for the purpose of this assessment) as the Milton Malsor Brook. The Milton Malsor Brook flows in a predominantly northerly direction through the approximate centre of the site before draining into a watercourse a short distance to the north of the PDA. It is believed that the watercourse is referred to locally as the Shoal Creek. After the confluence of the two watercourses, the Shoal Creek flows in a westerly direction, under the Grand Union Canal before ultimately draining into the River Nene, some 500m downstream.

12.8 Based on available Ordnance Survey Contour mapping site levels are shown to fall towards the Milton Malsor Brook within the approximate centre of the PDA with an

approximate low point of 70m AOD. Land to the west of the watercourse is shown to fall from an approximate high of around 85m. Land to the east is shown to have less of a fall with levels falling from a high of around 80m.

***Water Supply***

12.9 The existing potable water supply network for the area is operated and maintained by Anglian Water. Anglian Water's Water Resources Management Plan 2014 states that supplies are derived from River Welland and Nene. Water abstracted from these watercourses is pumped into storage at Rutland Water. The Water Resources Management Plan 2014 states that Anglian Water are expecting target headroom to increase. However, and to ensure there is no deficit, Anglian Water have proposed a number of options to deal with any potential increase in demand.

12.10 The entire Anglian region has been designated as being an area of 'serious' water stress by the EA's map of areas of relative water stress.

***Fluvial Flood Risk***

12.11 The PDA is shown by the EA's Flood Zone Mapping to be predominantly within Flood Zone 1 (land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding in any year (<0.1%)). However, small areas of the PDA immediately adjacent to the Milton Malsor Brook are shown to be at an increased risk with some land at high risk and within Flood Zone 3, which is assessed as having a greater than 1 in 100 annual probability of river (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. Other small areas of the site are shown to be within Flood Zone 2 which is land comprising land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.

***Surface Water Quality***

12.12 There are no licensed surface water abstractions shown along the Milton Malsor Brook or within 1km of the PDA.

***Surface Water Flood Risk***

12.13 The Environment Agency's Flooding from Surface Water mapping predicts a flood exent that is shown to be similar to the extents shown on the Fluvial Flood map. As such, the lower elevated sections of the site that immediately border the Milton Malsor Brook are shown to be at an increased risk from this source.

12.14 Whilst the predicted surface water flooding extents are shown to closely match the EA's Fluvial Flood Map, two additional flow routes through the site are shown. These flow from the high section of land to the west in an easterly direction and into the Milton Malsor Brook. These are recognised as being at low risk.

***Groundwater Flood Risk***

12.15 The British Geological Survey mapping indicates that the site is predominantly underlain by the Dyrham Formation and the Whitby Mudstone formation and these are both considered as being low in permeability. As such, and given the Milton Malsor Brook flows through the approximate centre of the PDA, it is considered that groundwater levels would be in hydraulic connectivity with normal channel water levels. As such, and

in order to adopt a conservative approach, the 1 in 100 year fluvial outline is considered as being representative of the 'worst case' groundwater flooding scenario.

12.16 On this basis (zone 3 being the worst case groundwater flooding) it is considered that only the lower elevated sections of the PDA that immediately border the watercourse would be at an increased risk from this source.

***Groundwater Quality***

12.17 The PDA and immediately surrounding area has not been identified as being located within a Groundwater Source Protection Zone or a Principal Aquifer.

12.18 No groundwater abstraction licenses have been identified within 1km of the site and none have been identified within the Milton Malsor catchment.

***Foul Water***

12.19 An Anglian Water Sewage Treatment works is located to the immediate south of the PDA. The exact details of these works is currently unknown. Discussions in relation to this are ongoing.

***Infrastructure Failure Flooding***

12.20 The PDA is currently shown as being predominantly undeveloped and occupied by grassed fields. As such, it is considered that there is likely to be only limited engineered sewer networks serving, or running through, the PDA. At the time of writing, sewer plans have not yet been received from Anglian Water and, as such, infrastructure within the PDA may yet be identified and remains subject to confirmation.

12.21 Whilst the identification of any infrastructure within the site remains subject to confirmation, if present, it is considered that in the event of a failure (as a result of a blockage of collapse of the sewer) any generated overland flows would follow the existing topography of the site and drain towards the Milton Malsor Brook and towards the lower elevated sections of the PDA.

***Artificial Sources***

12.22 The EA's Flooding from Reservoir Mapping shows that the PDA is not located within an area that is considered as being within the maximum extent of predicted flooding from reservoirs.

12.23 In addition no other recognised artificial sources are likely to impact the PDA. The closest source of artificial source flooding is the Grand Union Canal which is located 600m to the west of the PDA but this is significantly remote so as to have no impact on the site.

## Characteristics of Potential Impacts

### Water Supply

12.24 Based on the findings of Anglian Water's Water Resources Management plan, options for improvements are proposed to ensure that there is no long term deficit in relation to water supply.

### Fluvial Flood Risk

12.25 As works are proposed to significantly alter land levels immediately adjacent to the watercourses along with new culverted sections, there is the potential for impact on flood risk.

### Surface Water Flood Risk

12.26 The PDA is currently 'Greenfield' land and the proposed development will result in an increase in the hardstanding area and as such will result in a significant increase in both peak surface water runoff and volume leaving the PDA. Whilst it is considered that this will be managed via a surface water drainage strategy, this has not been made available at the time of writing and as such the potential impact on surface water flooding risk for both the PDA and third party land downstream would be expected.

### Groundwater Flood Risk

12.27 Given the proximity of the PDA to the Milton Malsor Brook and the underlying geology, the PDA and all construction works are considered to be suitably elevated in relation to the local groundwater levels.

### Foul Water

12.28 Whilst the exact details of the existing sewage treatment works to the immediate south of the PDA are currently unknown it is considered that suitable management and maintenance schedules are currently in operation to minimize any risk from these works. This is obviously subject to confirmation and discussions with Anglian Water.

### Infrastructure Failure Flooding

12.29 As part of the Proposed Development a new sewer network will be installed and as such this would increase the potential risk for infrastructure failure flooding within the PDA when compared to the baseline conditions. However, and given that any flooding from this source would be from either a blockage or collapse of any new system this is considered as being a residual risk.

## Proposed Method of Assessment

### Guidance Used

12.30 The key guidance documents used in the preparation of this chapter include the NPPF and the accompanying Planning Practice Guidance as referenced within the Nation Networks National Policy Statement. Particular use has also been made of the Northamptonshire SFRA for the area. Information has also been provided by the EA in relation to predicted flood risk and any known historical incidents of flooding (via their website only at this stage).

### Legislation, Policy and Good Practice

12.31 In line with current legislation and policy the flood risk assessment will be prepared based on the documents listed below.

***National***

**Table 12.1: Flood Risk and Drainage National Planning Policy**

| National Policy | Key Provisions |
|---|---|
| National Networks National Policy Statement | Sets out the need and government policies for nationally significant infrastructure rail and road projects for England. The flood risk and drainage section references the National Planning Policy Framework and Planning Policy Guidance. |
| National Planning Policy Framework | Section 10 of the NPPF defines the wider aims and objectives for dealing with flooding, coastal change and climate change. This includes the requirements for strategic and site specific flood risk assessments. This is referenced as a supporting document within National Networks National Policy Statement. |
| Flood and Water Management Act 2010 | The Flood and Water Management Act places a duty on all flood risk management authorities to co-operate with each other. The acts also include amendments to the Reservoir Act of 1975 where the volume of water classified as a reservoir has been revised from 25,000cum to 10,000cum. |

***Local***

**Table 12.2: Flood Risk and Drainage Local Planning Policy**

| Local Policy | Key Provisions |
|---|---|
| Northampton Borough Council Strategic Flood Risk Assessment 2009 | The Northampton Borough Strategic Flood Risk Assessment (SFRA) provides an overarching view of flood risk issues within the area, along with recommended principles for guiding future development, in respect of flood risk, flood mitigation measures, drainage systems and the water environment. The SFRA is closely linked to the local plan and supports the Sequential approach to new developments. |

## Method of Assessment

12.32 To assess the impacts of the Development, a set of threshold criteria have been defined to establish the sensitivity, magnitude and significance of the impacts identified.

12.33 The sensitivity of receptors is a matter of professional judgement and is taken to be the likelihood that one of the sensitive receptors suffers the impact. These are judged to be:

- High – Little ability to absorb impact without fundamentally altering baseline condition (i.e. water resources classified as ‘over-abstracted’; Site within Flood Zone 3; no capacity within receiving surface water drainage system; Water Framework Directive overall ecological classification of ‘high’ or ‘good’ in surrounding watercourse(s); Site underlain by Groundwater Source Protection Zone and/or local abstractions; and, no capacity within receiving foul water drainage system).

- Medium – Moderate capacity to absorb impact without significantly altering baseline condition (i.e. water resources classified as ‘over-licensed’ / ‘no water available’; Site within Flood Zone 2; limited capacity within receiving surface water drainage system; Water Framework Directive overall ecological classification of ‘moderate’ in surrounding watercourse(s); Site underlain by Principal Aquifer; and, limited capacity within receiving foul water drainage system).

- Low – Receptor tolerant of impact without detriment to baseline condition (i.e. water resources classified as ‘water available’; Site within Flood Zone 1; unlimited capacity within receiving surface water drainage system; Water Framework Directive overall ecological classification of ‘poor’ or ‘bad’ in surrounding watercourse(s); Site underlain by Secondary Aquifer; and, unlimited capacity within receiving foul water drainage system).

12.34 The magnitude of impacts is judged on the consequences of the impact, in terms of the potential magnitude of impacts broadly in accordance with the criteria below:

- High – Results in loss of attribute and/or quality and integrity of attribute (i.e. fundamental change to: water resources available within the region; flood risk posed to the Development and/or surrounding areas; capacity within receiving surface water drainage system; water quality within surrounding watercourse(s) and/or groundwater; and, capacity within receiving foul water drainage system).

- Medium – Results in impact on integrity of attribute, or loss of part of attribute (i.e. notable change to those attributes noted above).

- Low – Results in some measurable change in attribute’s vulnerability, but of insufficient magnitude to affect use or integrity (i.e. measurable change to those attributes noted above).

- Negligible – Results in insignificant impact on integrity of attribute (i.e. insignificant change to those attributes noted above).

12.35 The significance of a potential effect is based on the combination of the sensitivity of receptor and magnitude of that impact, as given in the matrix table below.

## Significance of Effect

**Table 12.3: Matrix for Assessing Significance of Effect**

| Receptor Sensitivity | Impact Magnitude | | | |
|---|---|---|---|---|
| | High | Medium | Low | Negligible |
| High | Severe | Major | Moderate | Negligible |
| Medium | Major | Moderate | Minor | Negligible |
| Low | Moderate | Minor | Negligible | Negligible |

12.36 In addition, impacts are judged to be beneficial or adverse; to be on a short, medium (typically associated with the construction phase) or long (typically associated with the operational phase) term basis; and, to be on a Local, Borough, County, Regional, National or International scale. If impacts are assessed to be severe, major, moderate, or minor significance these will need to be addressed in the subsequent assessment with relevant mitigation also highlighted. Those of negligible significance will require further assessment.

## Proposed Cumulative Assessment

12.37 During preparation of the ES consultation with the local planning authority will be undertaken to ensure that any developments that have the potential to give rise to cumulative effects with the Proposed Development are identified and a cumulative assessment undertaken and presented in the ES.

## Proposed Assessment of Climate Change

12.38 As part of the Flood Risk and Drainage works a detailed assessment of the predicted impacts of climate change will be undertaken for both the site and the wider area. This will include ensuring that any proposed surface water drainage strategy will provide suitable storage from effects associated with climate change predictions. Any issues identified will be appropriately assessed with suitable mitigation highlighted to ensure any matter can be scoped out.

# 13. Utilities

## Introduction

13.1 This section covers the approach to assessing:

- The extent and location of existing utility services associated with the PDA.
- The need for any diversions to allow the development of the PDA.
- The impact of any offsite utility reinforcement to allow the development of the PDA.

13.2 The assessment of surface and foul water are contained within Section 10.

## Preliminary Assessment of Baseline conditions

### Study Area

13.3 The study area for baseline conditions is limited to the PDA boundary and extended as necessary to record the routes of services that approach it.

### Desk Based Research

13.4 Asset plan requests have been made to all utility providers operating in the area of the PDA.

### Field Surveys

13.5 No field surveys have been undertaken at this time. Full site access will be arranged for the baseline assessment in the ES.

13.6 Field surveys will be a visual inspection of above ground service elements undertaken to verify plan data provided by the utility companies.

### Consultation

13.7 No consultations have been made to date.

## Baseline conditions

### Study Area

13.8 Those services currently identified as having the potential to be affected by the development of the PDA are identified below:

**Table 13.1: Services**

| | |
|---|---|
| Electricity | Western Power Distribution |
| Gas | National Grid Distribution |
| Water | Anglian Water |

| | |
|---|---|
| Pipelines | BPA |
| Comunications | British Telecom<br>BskyB Telecommunications Ltd<br>Instalcom Ltd |
| Others | Network Rail |

## Characteristics of potential impacts

### Infrastructure

13.9 It is not anticipated that the diversion of existing utility services or the provision of new utility services will have an environmental effect on any identified receptors.

## Proposed Method of Assessment

### Overview

- Undertake a desk based study of existing services; and
- Undertake a visual inspection of the site.

### Legislation, Policy and Good Practice

13.10 'PAS 128: 2014 – Specification for underground utility detection, verification and location' will be used as the basis for good practice when identifying existing services.

13.11 The level of quality proposed for the Environmental Impact Assessment will be Type C

### Desk Based Studies

13.12 It is not proposed to undertake any further desk based studies at this stage unless the field survey identifies elements that require further enquiry.

### Field Surveys

13.13 A visual only inspection will be made of the site to verify data gathered by desk based studies.

### Consultation

13.14 No consultation will be undertaken as part of the assessment of baseline conditions. Consultations with utility providers will be undertaken in relation to any proposed diversions or off-site reinforcement.

### Assessing Significance of Effect

13.15 The following tables are provided to confirm the framework for assessing the impact of proposed utility works in terms of magnitude of effect; sensitivity of receptor and significance of effect.

***Magnitude of Effect***

**Table 13.2: Magnitude of Effect**

| Sensitivity | Definition of Magnitude |
|---|---|
| Very High | Existing utility services disrupted for prolonged periods (hours) of time<br>Major traffic disruption for prolonged periods of time.<br>Destruction of wildlife habitat.<br>New above ground utility services (high level - e.g. pylons) at close proximity |
| High | Existing utility services disrupted for short periods (tens of minutes) of time<br>Major traffic disruption for short periods of time.<br>Long term effect (10 years +) on wildlife habitats.<br>New above ground utility services (high level - e.g. pylons) at a distance |
| Moderate | Existing utility services disrupted for very short periods (< ten minutes) of time<br>Minor traffic disruption for prolonged periods of time.<br>Medium term effect on wildlife habitat.<br>New above ground utility services (low level – e.g. telegraph poles) at close proximity |
| Low | Existing utility services disrupted with negligible effect.<br>Minor traffic disruption for short periods of time.<br>Short term effect (< 5 years) on wildlife habitat.<br>New above ground utility services (low level – e.g. telegraph poles) at a distance, and cabinets at street level. |
| Negligible | No disruption of existing utility services.<br>No traffic disruption.<br>No effect on wildlife habitats.<br>No new above ground services. |

***Sensitivity of Receptor***

**Table 13.3: Defining Sensitivity of Receptor**

| Sensitivity | Definition |
|---|---|
| Very High | Locations where viewers are highly attuned to their surroundings and are presented with new above ground services in close proximity |
| High | Locations where viewers are highly attuned to their surroundings and |

| | |
|---|---|
| | are presented with new above ground services at a distance |
| Moderate | Locations where viewers have a moderate awareness of their surroundings such as motorists on rural roads and local rail passengers who are presented with views of new above ground services. |
| Low | Locations where viewers have a passing awareness of their surroundings such as motorists on motorways and mainline rail passengers who are presented with views of new above ground services. |
| Negligible | No direct views of new services (either buried services or shielded views of new above ground services |

***Duration of effect***

13.16 The durations used in the assessment will be as follows:

- Short term 0 to 5 years including construction
- Medium term 5 to 15 years
- Long term 15 years onwards for the life of the development

### Significance of effect

**Table 13.4: Matrix for Assessing Significance of Effect**

| Magnitude of Effect | Sensitivity of Receptors | | | | |
|---|---|---|---|---|---|
| | Very High | High | Moderate | Low | Negligible |
| High | Major | Major | Moderate | Moderate | Minor |
| Medium | Major | Moderate | Moderate | Minor | None |
| Low | Moderate | Moderate | Minor | None | None |
| Negligible | Minor | Minor | None | None | None |

13.17 The threshold at which an effect will be considered a 'significant' effect in EIA terms would be 'Major'.

## Proposed Cumulative Assessment: Interrelationship of Effects

13.18 A cumulative assessment of significant effects will be undertaken. It is possible that the diversion or introduction of new utility services may have a short term impact on Highways and Transport and Biodiversity assessments. The local planning authority will be consulted to identify any developments that have the potential to give rise to cumulative effects with the Proposed Development. A cumulative assessment will be undertaken, using publically available information and data, and presented in the ES.

## Proposed Assessment of Climate Change

13.19 The diversion or provision of new utilities to the site will not have a direct impact to climate change. Any assessment of climate change relative to the services provided by utility companies would not be contained within this section.

## Proposed Mitigation and Residual Effects

13.20 Where significant environmental effects are identified, mitigation measures (in so far as they are practical) and their effectiveness will be proposed.

# 14. Biodiversity

## Introduction

14.1 This chapter considers the effects that the Proposed Development might have on biological, ecological and nature conservation resources including habitats, species, and individual sites of nature conservation value. It is based on the project description set out in Section 1. It addresses effects at all stages of the project cycle, including site clearance and construction, operation, and decommissioning. It addresses temporary and permanent direct impacts (*e.g.* habitat loss) and indirect impacts (*e.g.* disruption of ecological systems at the landscape scale). Cumulative effects from inter-relations between effects and interactions with those of other schemes will also be addressed.

14.2 The ecological effects will assessed by using the best available data to develop 'realistic worst-case' predictions. The assessment will take account of opportunities for ecological mitigation and habitat enhancement for wildlife.

## Preliminary Assessment of Baseline Conditions (2015)

### Study Area

14.3 The study area centres on the Proposed Development Area (PDA) loosely bounded by railways to the east and south (the Northampton Loop and the West Coast Main Line respectively), by the A43 to the west, and by minor roads running east-west through Milton Malsor to the north.

14.4 While potential ecological impacts will mostly be contained within the PDA, sensitive sites outside it could be affected, as could ecological functioning at the landscape scale. The study area therefore extends to everywhere within 5 km of the PDA boundary for the most important ecological sites (mainly statutory designated sites) and for landscape ecological systems, and to everywhere within 2 km for less important ecological sites (mainly non-statutory designated sites).

### Desk Based Research

14.5 Data on statutory designated sites within 5 km of the PDA boundary, non-statutory designated sites within 2 km, and protected species within 2 km were requested or gathered from the sources listed in Table 14.1.

14.6 Publications (and documents in the public domain) consulted included:

- The Northamptonshire Local Biodiversity Action Plan (Northamptonshire Biodiversity Partnership 2008);
- the vascular plant red list for England (Stroh *et al.* 2014);
- the biological 'red-data book' for Northamptonshire (Colston *et al.* 1996);
- county Floras for Northamptonshire (Druce 1930, Karley 1983, Gent *et al.* 1995); and

- unpublished reports on Great Crested Newts (FPCR).

**Table 14.1: Data Sources**

| Information Obtained | Available From |
|---|---|
| Protected and noteworthy[1] species-records<br>*1 – This term is used because alternatives such as 'notable' have specific meanings in connection with species status.* | Northamptonshire Biodiversity Records Centre (NBRC) |
| Statutory designated site locations and citations | Natural England website: https://designatedsites.naturalengland.org.uk/ |
| Non-Statutory designated site locations and citations | Northamptonshire Biodiversity Records Centre (NBRC) |
| Designations and legal protection of noteworthy species | Joint Nature Conservation Committee (JNCC) website |
| Details of species and habitats listed on the Northamptonshire LBAP | Northamptonshire Biodiversity Action Plan |
| Information on Broad and Priority Habitats and Species Action Plans for the UK | Joint Nature Conservation Committee (JNCC) website |
| Information on Broad and Priority Habitats and Species Action Plans for the UK | Bing Maps |

## Field Surveys

14.7 A Phase 1 Habitat Survey and partial preliminary ecological assessment (PEA) was carried out by RSK on 23 and 24 March 2015. This was sub-optimally early in the year, and mainly intended as a means to appraise the needs for further survey. It followed mapping methods set out in JNCC (2010) as modified for use in environmental impact assessment (Institute of Environmental Assessment 1995); and it met requirements set out in guidelines for preliminary ecological appraisal set out by the Chartered Institute of Ecology and Environmental Management in CIEEM (2012). It described habitat types in the study area and identified features of ecological interest; it also appraised habitat suitability for protected vertebrate animal species.

14.8 Specifically, a preliminary search for signs of the following protected vertebrate animal species was carried out in connection with the assessment of habitat suitability:

- Badger (Meles meles);
- bat species (foraging and roosting) following guidance in Hundt (2012);
- nesting birds;
- Great Crested Newt (Triturus cristatus) and other amphibians;

- reptile species; and
- Otter (Lutra lutra) and Water Vole (Arvicola amphibius).

### Consultations

14.9 No consultations have been undertaken to date.

## Baseline Conditions

### Overview

14.10 The PDA occupies gently undulating land on more-or-less neutral loams south of Milton Malsor in Northamptonshire. It has an intensively farmed landscape with most fields under arable or improved grass, as does the surrounding district. A few fields in the south-west have semi-improved (or perhaps unimproved) grassland. Boundaries are mostly marked by species-poor *Crataegus monogyna* (Hawthorn) hedges many of which have large ditches or small streams.

14.11 The village of Milton Malsor lies to the north and there are houses, commercial premises and light industrial premises along Towcester Road which bisects the site from north to south, and there is an industrial estate adjacent to the north-western corner of the site. Otherwise there are scattered houses, farms and plant nurseries plus a disused dual-carriageway service area. Railways largely bound the PDA to the east and south, and the dual-carriageway A43 does so to the east, but some parts of the PDA lie beyond them. Adjacent to the south-western corner of the site is the canal and marina complex of Blisworth junction, and towpaths bound the PDA in some places.

### Protected Sites and Species

14.12 There are no statutory designated sites for nature conservation within 5 km of the PDA. The closest European designated site is the Upper Nene Valley Gravel Pits SPA; 5.6 km north west of the PDA. Taking into consideration the activities that are proposed to take place at the PDA both during construction and operation, it is considered very unlikely that sites further afield than 5 km could be affected. Though the PDA falls within risk zones for SSSIs, it is not clear that the Proposed Development would involve any of the risk-activities specified.

14.13 Information on the 21 non-statutory designated sites that fall within 2 km is given in Table 14.2.

**Table 14.2: Non-Statutory Sites within 2km of the Site Boundary**

| Site Name | Designation | Distance (m) |
|---|---|---|
| Nene Valley Nature Improvement Area | Nature Improvement Area | Covers part of north-west of site |
| The Nene Valley NIA covers an area of 41,000 hectares running through Northamptonshire to the eastern fringes of Peterborough. It includes the River Nene and its tributaries, gravel pits, reservoirs, wetlands and farmland. | | |
| Unidentified site off Towcester Road | Potential Wildlife Site | Within the site |

| | | |
|---|---|---|
| No information | | |
| Unidentified site on A43 embankment | Potential Wildlife Site | Adjacent to site |
| No information | | |
| Unidentified site at Blisworth Junction | Potential Wildlife Site | Adjacent to site |
| No information | | |
| Grand Union Canal - Northampton Arm | Local Wildlife Site | Adjacent to site |
| The site qualifies as a Wildlife Site due to its diverse aquatic plant communities and bankside grassland habitats. | | |
| Unidentified site off Station Road | Potential Wildlife Site | 20m |
| No information | | |
| Gayton Meadow | Potential Wildlife Site | 320m |
| Unmanaged grassland with a mixture of wet and dry grassland species including abundant marsh thistle. | | |
| Roade Cutting | Potential Wildlife Site | 420m |
| No information provided on nature conservation interest | | |
| Gayton Reserve Lake | Local Wildlife Site | 585m |
| A small lake and associated wetland area forming a useful wildlife habitat on the edge of the caravan site. The lake qualifies as a Wildlife Site due to its aquatic community and the wetland vegetation. | | |
| Unidentified site south-east of Rothersthorpe | Potential Wildlife Site | 765m |
| No information | | |
| Junction 15 Grassland | Potential Wildlife Site | 1,050m |
| This site holds four indicators from the neutral grassland indicators list; although a reasonable number this is not enough to qualify as a CWS. However, with appropriate management the quality if the grassland habitat may improve sufficiently to meet the CWS selection criteria | | |
| Unidentified site at Courteenhall | Potential Wildlife Site | 1,095m |
| No information | | |
| Collingtree | Potential Wildlife Site | 1,100m |
| No information | | |
| Unidentified site at The Poplars, Rothersthorpe | Potential Wildlife Site | 1,110m |

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| No information | | |
| Collingtree Golf Course | Local Wildlife Site | 1,225m |
| A stream and series of lakes and ponds through Collingtree Golf Course which provide a useful wildlife corridor and good wetland habitat. The complex qualifies as a Wildlife Site as 15 wetland indicator species were recorded alongside further aquatic and emergent species and plant communities. | | |
| Unidentified site south of Rothersthorpe | Potential Wildlife Site | 1,240m |
| No information | | |
| Unidentified site east of Gayton | Potential Wildlife Site | 1,245m |
| No information | | |
| Unidentified site on Grand Union Canal | Potential Wildlife Site | 1,250m |
| No information | | |
| Bliswoth Rectory Farm Quarry | Potential Wildlife Site | 1,500m |
| This ex-quarry and surrounding grassland has some relatively species rich neutral-calcareous grassland | | |
| Unidentified site north of Gayton | Potential Wildlife Site | 1,540m |
| No information | | |
| Wootton Railway Embankments | Local Wildlife Site | 1,930m |
| This site qualifies as a LWS because it contains a lichen listed in the Northamptonshire Red Data Book as a Northamptonshire Scarce Species. The acid grassland is currently too degraded to qualify as LWS. It is under serious threat and will be lost entirely unless management is altered soon. | | |

### Habitats

14.14 The survey area contains habitat types that are ubiquitous throughout lowland Britain.

14.15 Semi-improved agricultural grasslands in the western part of the application site may prove to have relatively high nature conservation value. Various brickwork structures at the edges of the site support exceptional collections of plants, especially ferns. A wooded pit and a field under invasion by scrub near Towcester Road, and woodland beside the railway west of Towcester Road have not been accessed. They too could have relatively high nature conservation value. Other features making a high contribution to local biodiversity include:

- the network of hedges with ditches and small streams;

- ponds and field-corner patches of woodland or scrub; and
- mixed rough grassland and scrub at the disused service area on the A43.

14.16 Other features of high nature conservation value immediately adjacent to the application site boundary include the following:

- canal towpaths and other features adjacent to the south-western boundaries of the site (though probably outside them);
- railway embankments (though perhaps outside boundaries); and
- road verges especially those along Towcester Road, along the northern edge of the site, and in the vicinity of Navigation Cottages.

14.17 Otherwise, the PDA contains broad habitat and vegetation types of lower nature conservation value as follows:

- arable fields;
- improved agricultural grassland;
- species-poor semi-improved agricultural grassland;
- rough grassland;
- amenity-turf;
- recent broad-leaved plantation woodland;
- scattered broad-leaved and coniferous trees;
- nettle-bed and other tall ruderal vegetation; and
- ephemeral vegetation.

14.18 Though detailed vegetation surveys have not been carried out, from the PEA it was evident that at least the following National Vegetation Classification (NVC) types are present within the PDA:

- In improved grassland MG7a *Lolium perenne* leys and related grasslands, *Lolium perenne-Trifolium repens* leys;
- in semi-improved grassland MG6a *Lolium perenne-Cynosurus cristatus* grassland, typical sub-community;
- in rough grassland on road verges, field margins, hedge-bottoms and ditch banks MG1a *Arrhenatherum elatius* grassland, *Festuca rubra* sub-community or where tall semi-ruderal herbs such as *Urtica dioica* (Common Nettle) are abundant MG1b *Arrhenatherum elatius* grassland, *Urtica dioica* sub-community.

- in more ruderal grasslands on road edges, trackways *etc*. various sub-communities of OV23 *Lolium perenne-Dactylis glomerata* community;

- in diverse places on roadsides, field corners, railway linesides *etc.* semi-ruderal tall-herb vegetation types mostly referable to the NVC type OV24a *Urtica dioica-Galium aparine* community, typical sub-community or – where *Chamerion angustifolium* (Rosebay Willowherb) is abundant mainly on railway land OV27b *Epilobium angustifolium* community, *Urtica dioica-Cirsium arvense* sub-community or – where *Rubus fruticosus* agg. (Bramble) is abundant on railway land and transitions to scrub elsewhere (especially hedge-bottoms) OV24b *Urtica dioica-Galium aparine* community, *Arrhenatherum elatius-Rubus fruticosus* sub-community;

- in field-corner scrub, low-growing W24a *Rubus fruticosus-Holcus lanatus* underscrub, *Cirsium arvense-Cirsium vulgare* sub-community or taller W21a *Crataegus monogyna-Hedera helix* scrub, *Hedera helix-Urtica dioica* sub-community and more locally W22a *Prunus spinosa-Rubus fruticosus* scrub, *Hedera helix-Silene dioica* sub-community;

- in semi-ruderal scrub the proposed NVC type *Sambucus nigra-Urtica dioica* community (Rodwell *et al.* 2000); and

- on wet ditch banks and in ditch bottoms OV26e *Epilobium angustifolium* community, *Urtica dioica-Cirsium arvense* sub-community and S23 Other water margin vegetation.

14.19 Additional grassland, woodland and wetland NVC types may be present in areas that could not be accessed in March 2015.

## Protected Animal Species

### *Introductory*

14.20 Some information on protected animal species is available from the background data search and the PEA, but it is incomplete owing to restrictions on access in March 2015 and the need for surveys at other times of the year to confirm species presence or absence. Requirements for further survey are set out later in this chapter.

### *Badger*

14.21 There is sketchy evidence of Badgers within the application site and habitat suitable for Badgers is widespread. Badgers are notoriously liable to colonise new areas within short timescales, and could therefore become a concern almost anywhere in the application site. Badger setts could already be present in places not accessed in March 2015, especially woodland around Towcester Road.

### *Bats*

14.22 Several trees and buildings within the application site could provide summer roosting places for bats.

14.23 Hedgerows and field margins throughout the site could provide commuting routes and foraging areas for bats, as might railway corridors on the boundaries of the application

site. The canal corridor where it impinges on the south-western part of the application site could be important in this respect, especially where it is lined by trees.

***Birds***

14.24 The PDA has habitat suitable for a typical assemblage of farmland birds. Given the size of the PDA there is potential for occasional rarities to occur.

***Great Crested Newts and Other Amphibians***

14.25 Grassy field margins, hedgerows and field-corner patches of woodland and scrub within the application site provide suitable terrestrial habitat for amphibians including Great Crested Newts. The PEA identified 13 ponds inside or within 500 m of the application site that might theoretically support breeding populations of Great Crested Newts, though 5 were - for diverse reasons - deemed to have only low potential. An 'isolated large population' was recorded in one of these ponds 250 m to the east of the PDA during surveys for another project in 2014 (FPCR 2014).

***Otters and Water Voles***

14.26 The small watercourses within the PDA are not suitable for resident otters though they navigate along them while traversing their territory. No evidence of otters was observed in the PEA.

14.27 Neither was evidence of Water Voles observed in the PEA. But habitat suitable for Water Vole is present on streams within the PDA, and Water Voles therefore remain a matter to be addressed.

***Reptiles***

14.28 Habitat suitable for common reptiles (Grass Snake, Slow Worm and Common Lizard) – including some highly suitable habitat - is present throughout the PDA in field margins, hedgerows, scrub and woodland. Reptiles therefore remain a matter to be addressed.

## Characteristics of Potential Effects

***General***

14.29 The main effect of the Proposed Development is likely to be permanent loss of habitat for a range of plants and animals and habitat types due to land take. There may also be temporary loss of land during construction. This is likely to affect all the plants, animals and habitat types described in the Baseline Conditions, but concern is likely to centre on the following:

- semi-improved or perhaps unimproved grassland mostly in the western part;
- hedges with ditches and small streams throughout the PDA;
- field-corner ponds and patches of scrub or woodland; and
- extensive loss of habitat for reptiles (other protected animal species are likely to be relatively local in occurrence within the PDA).

14.30 Owing to the size of the area beneath the development footprint, there may also be effects on a range of plants, animals and habitat types from fragmentation and barrier

effects at the landscape ecological scale. In this case – though several of the receptors described in the Baseline Conditions could be affected - concern is likely to centre on the following:

- hedgerow networks;
- foraging and commuting habitat for bats; and
- metapopulations of Great Crested Newts.

14.31 Potential effects during construction (most of which can be reduced by standard mitigation practices) may otherwise be summarised as follows:

- direct mortality of protected species from construction activity;
- disturbance to plants and animals both within the PDA and in areas surrounding it from various aspects of construction activity including noise and dust generation;
- disturbance to plants and animals both within the application site and in areas surrounding it from personnel and vehicle movements during construction;
- effects on aquatic and waterside plants and animals from pollution and silt-laden run-off;
- encouragement or spreading of invasive plants and animals through various aspects of construction supply and activity; and
- indirect effects on animal populations in the wider area from displacement of populations from within the PDA, reduction in populations that provide available food resources, *etc*.

14.32 A very similar set of effects might arise from demolitions during decommissioning.

14.33 Potential effects during operation might include the following:

- direct mortality of protected species from site activity, especially vehicle movements;
- disturbance to plants and animals in areas surrounding the PDA from site activity, personnel and vehicle movements;
- effects (including pollution effects) on aquatic and waterside plants and animals from site run-off (subject to drainage design); and
- disturbance to plants and animals - especially bats - in areas surrounding the PDA from artificial lighting.

### Protected Sites and Protected Species

14.34 No European sites will be affected, directly or indirectly, by the Proposed Development. As the Proposed Development, either alone or in combination with existing and known future projects, is likely to affect a European site, Ashfield Land and is not proposed to

provide a report with the application for the purposes of the Conservation of Habitats Species Regulations 2010 (as amended).

14.35 Among European protected species the ecological assessment will address potential impacts on bat species (all species European protected) and Great Crested Newts. Otters will also be addressed in the ecological assessment though they are much less likely to be affected.

14.36 No other statutory protected sites will be directly affected (SSSIs or NNRs). The remote possibility of indirect effects on sites within 5 km will be addressed.

14.37 Other animal species having statutory protection that may be affected include nesting birds, reptiles, Water Voles and Badgers. These will be addressed.

### Proposed Method of Assessment

***Overview***

14.38 The ecological assessment will follow guidelines provided by the Chartered Institute of Ecology and Environmental Management (IEEM 2006). These are the industry standard endorsed not only by CIEEM but also by other relevant professional institutes, (notably IEMA), by statutory consultees (notably Natural England and Environment Agency), and by interested NGOs (notably the Wildlife Trusts). The CIEEM guidelines are recommended for ecology in EIA in planning guidance (ODPM 2006).

14.39 The assessment will address habitats, plant and animal species, ecological communities, and sites of special importance for any of these. It will address these receptors in their scientific, ecosystem functioning, and nature conservation aspects only. It will not address them in respect of their contribution to agriculture or the landscape, nor in their socio-economic aspects. These matters will be addressed in the appropriate chapters.

## Legislation, Policy and Good Practice

### Legislation

14.40 The ecological assessment will have regard to wildlife legislation summarised in Table 14.3, and to national and local Biodiversity Action Plans.

**Table 14.3: Wildlife Legislation**

| Legislation | Description |
|---|---|
| International | |
| The Bonn Convention | The 1979 Convention on the Conservation of Migratory Species of Wild Animals (also known as the Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range in the territories of the signatories. Appendix 1 lists migratory species threatened with extinction. Appendix 2 lists migratory species that need or would significantly benefit from international co-operation. |

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| The Bern Convention | The 1982 Convention on the Conservation of European Wildlife and Natural Habitats (also known as the Bern Convention) imposes legal obligations on signatory States to protect over 500 wild plant species and more than 1000 wild animal species. These obligations are implemented in the UK through the Wildlife and Countryside Act, 1981 (as amended). |
| The Convention on Biological Diversity | The Convention on Biological Diversity which came into force in 1993 has three main goals, which comprise:the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of the benefits arising from the use of genetic resources. Under the Convention, Contracting Parties are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity. In 1994, the UK Government ratified the Convention, and published the UK Biodiversity Action Plan (UK BAP). |
| The Habitats Directive / The Birds Directive | Natura 2000 comprises a network of ecologically valuable designated areas in Europe established under the terms of EU Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive) and EU Directive 2009/147/EC on the conservation of wild birds (The Birds Directive). The main aim of the Habitats Directive is "to promote the maintenance of biodiversity" through the protection of habitats or species. Annex I lists habitat types for which sites should be designated, and Annex II lists species for which sites should be designated. The main aim of the Birds Directive is to provide a framework for the conservation and management of wild birds in Europe. Annex I lists habitat types to be protected, and Annex II lists species that can be hunted. Accordingly, the network comprises Special Areas of Conservation (SAC) designated under the Habitats Directive, and Special Protection Areas (SPA) designated under the Birds Directive. Furthermore, within the UK, it is a matter of policy that Ramsar sites, candidate SACs and proposed SPAs are treated as designated areas. |
| National | |
| Wildlife and Countryside Act, 1981 (as amended) | The Wildlife and Countryside Act, 1981 (as amended) is the principal mechanism for wildlife protection in the UK. It was originally aimed at consolidating and amending previous legislation to implement the requirements of the Bern Convention and the Birds Directive. Under the Wildlife and Countryside Act, 1981 the main site protection measure in the UK (*i.e.* the statutory designation of Sites of Special Scientific Interest (SSSI)) is established. It provides a range of protection relating to wild birds, other animals, and plants |
| The Countryside and | The Countryside and Rights of Way Act, 2000 extends the |

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| Rights of Way Act, 2000 | ability of the public to enjoy the countryside whilst also providing safeguards for Land Owners / Land Occupiers.<br>Accordingly, the Countryside and Rights of Way Act 2000:gives a statutory right of access to open country and registered common land; modernises the rights of way system; gGives greater protection to SSSIs; provides better management arrangements for Areas of Outstanding Natural Beauty (AONBs); and strengthens wildlife enforcement legislation. In addition, the Countryside and Rights of Way Act, 2000 provides stricter enforcement for wildlife offences. These include increased penalties available to the courts for offences committed under the Wildlife and Countryside Act, 1981 (as amended). |
| The Natural Environment and Rural Communities (NERC) Act (2006) | Every public authority must, in exercising its functions, have regard to the purpose of conserving biodiversity, so far as it is consistent with the proper exercise of its functions. This is known as the Biodiversity Duty and is set out in Section 40 of the NERC Act 2006. Section 41 of the Natural Environment and Rural Communities Act, 2006 requires that the Secretary of State produces a list of habitats and species of principal importance for conservation. The list is used to guide decision makers such that they have regard to the conservation of biodiversity when carrying out their normal functions. |
| Conservation of Habitats and Species Regulations, 2010 (as amended) | The Conservation of Habitats and Species Regulations, 2010 (as amended) place a duty on planning authorities to have regard to the requirements of the Habitats Directive so far as they may be affected by the exercise of their functions. In this regard, the Conservation of Habitats and Species Regulations, 2010 (as amended) implement the relevant requirements of the Habitats Directive and provide specific protection for European sites of nature conservation importance (the Natura 2000 network) and for European Protected Species. |
| National Parks and Access to the Countryside Act 1949 | This provided the framework for creating National Parks, Areas of Outstanding Natural Beauty and Local Nature Reserves. |
| Hedgerow Regulations (1997) | Important hedgerows are protected from removal (*i.e.* up-rooting or otherwise destroying) by The Hedgerows Regulations 1997. In this regard, various criteria are used to identify “important” hedgerows for wildlife, landscape or historical reasons. Accordingly, approval under the Hedgerows Regulations 1997 is required for the removal (*i.e.* up-rooting or otherwise destroying) of designated important hedgerows. |
| Species | |
| Badger | Badgers (*Meles meles*) are protected under the Wildlife and Countryside Act, 1981 and more specifically under the |

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| | Protection of Badgers Act, 1992. Under these Acts, it is an offence to wilfully take, kill, injure or ill-treat a Badger, to possess a dead Badger or any part of a Badger or to interfere with, obstruct, destroy or damage a Badger sett. Under these Acts, Badgers are also protected against disturbance whilst within a sett. Accordingly, badgers can only be disturbed under a Licence from Natural England. In terms of Badger setts, the Protection of Badger Act, 1992 defines a Badger sett as "*any structure or place which displays signs indicating the current use by a Badger*". Natural England takes this definition to include seasonally used Badger setts. |
| Bats | All species of bat (*Chiroptera* spp.) and their roosts are fully protected under Schedule 5 of the Wildlife and Countryside Act, 1981 and as European Protected Species under the Conservation of Habitats and Species Regulations, 2010. It is an offence for any person to: intentionally or recklessly kill, injure or capture a bat; intentionally or recklessly disturb a bat; intentionally or recklessly damage, destroy or obstruct a bat's place of shelter (bat roost); possess or transport a bat (or any part of a bat) unless legally acquired; or sell, barter or exchange a bat (or any part of a bat). Where an offence is committed there are very limited defences available. However, no offence is committed where anything is done under and in accordance with the terms of a licence (known as a European Protected Species Licence) granted by Natural England. The circumstances in which a European Protected Species Licence may be granted are set out at Regulation 53 of the Conservation of Habitats and Species Regulation 2010.<br><br>In addition, as a signatory to the Bonn Convention (Agreement of Bats in Europe), the UK is also required to protect bat habitat. This requires the identification and protection of important feeding areas from damage or disturbance. Under this interpretation, a bat roost is "*any structure or place which any bat uses for shelter or protection*". As bats tend to reuse the same roosts, legal opinion is that the protection of bat roosts are considered to apply regardless of whether bats are present. However, there is currently no guidance on when a bat roost ceases to be protected if it is not used. Based on their protection under the Conservation of Habitats and Species Regulations, 2010, all species of bat are designated as a European Protected Species. Therefore, in order to undertake any activity which would result in any of the above offences being committed, it is necessary to obtain a European Protected Species Licence from Natural England. In addition to the legal protection afforded to bats, Barbastelle Bat, Bechstein's Bat, Brown Long-eared Bat, Greater Horseshoe bat, Lesser Horseshoe bat, Noctule and Soprano |

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| | Pipistrelle are listed on the UK BAP and on Section 41 as species of principal importance. All bats are listed on the Leicester, Leicestershire and Rutland BAP as priority species. |
| Birds | All species of wild bird and their nests are fully protected under Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended). It is an offence for any person to:intentionally kill, injure or capture any wild bird; intentionally damage or destroy the nest (whilst being built or in use) or eggs; or possess, transport or sell any wild birds.In addition, certain species of wild bird are given further protection by Schedule 1. For these species, it is also an offence for any person to:<br>Intentionally or recklessly disturb these species while building a nest; intentionally or recklessly disturb these species while in, on or near a nest containing eggs or young; or disturb the dependant young of these species. Therefore, clearance of vegetation during the bird breeding / nesting season could result in an offence occurring under the Wildlife and Countryside Act, 1981 (as amended). The bird breeding / nesting season can be taken to occur between March to August inclusive, although is subject to variations based on species, geographical and seasonal factors. In addition to the legal protection afforded to birds, 49 bird species are listed on the UK BAP as priority species are listed on the UK BAP and on Section 41 as species of principal importance. A further 4 birds are listed on the Leicester, Leicestershire and Rutland BAP these are Barn Owl, Nightingale, Redstart and Sand Martin. |
| Common Toad | Common Toad is a priority species under the UK Biodiversity Action Plan, protected under *Section 41* of the *Natural Environmental and Rural Communities (NERC) Act 2006*. Therefore it is required that planning authorities ensure that Common Toads are protected from the adverse effects from development. |
| Great Crested Newts | Great Crested Newts (*Triturus cristatus*) are fully protected under Schedule 5 of the Wildlife and Countryside Act, 1981 and as European Protected Species under the Conservation of Habitats and Species Regulations, 2010. It is illegal an offence for any person to: possess a Great Crested Newt (alive or dead); deliberately kill, injure or capture a Great Crested Newt; intentionally or recklessly disturb a Great Crested Newt; or deliberately take or destroy the eggs of a Great Crested Newt. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by Great Crested Newt. All life stages of Great Crested Newt are afforded the same level of protection. Where an offence is committed there are very limited defences available. However, no offence is committed where anything |

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| | is done under and in accordance with the terms of a licence (known as a European Protected Species Licence) granted by Natural England. The circumstances in which a European Protected Species Licence may be granted are set out at Regulation 53 of the Conservation of Habitats and Species Regulations, 2010Based on their protection under the Conservation of Habitats and Species Regulations, 2010, Great Crested Newt are designated as a European Protected Species. Therefore, in order to undertake any activity which would result in any of the above offences being committed, it is necessary to obtain a European Protected Species Licence from Natural England. In addition to the legal protection afforded to Great Crested Newt, they are also listed on the UK BAP as a priority species and on Section 41 as species of principal importance. Furthermore, Common Toad is also listed on the UK BAP. |
| Invertebrates | The following list gives details of the UK's (focusing here on England) domestic wildlife legislation, national biodiversity policies and relevant international statutes. Most of these measures aim to protect vulnerable species, but some invasive alien species are also covered by legislation: UK invertebrate species protected by international statutes *i.e.* The Conservation (Natural Habitats &c.) Regulations 1994 and The Conservation of Habitats and Species Regulations 2010; and The Bern Convention and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); invertebrate species listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) for England and Wales; invertebrate species listed under Section 41 of the Natural Environment and Rural Communities Act for England and under Section 42 for Wales *i.e.* invertebrate species of principal importance; invertebrate species endangered by trade and listed under the EU CITES Regulations; and invertebrate species listed on Schedule 9 of the Wildlife and Countryside Act 9 (as amended) *i.e.* invasive invertebrate species. In addition to the legal protection afforded to invertebrate species, many are listed on local Biodiversity Action Plans. |
| Reptiles (Common species) | The following list gives details of the UK's (focusing here on England) domestic wildlife legislation, national biodiversity policies and relevant international statutes. Most of these measures aim to protect vulnerable species, but some invasive alien species are also covered by legislation: UK invertebrate species protected by international statutes *i.e.* The Conservation (Natural Habitats &c.) Regulations 1994 and The Conservation of Habitats and Species Regulations 2010; |

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|---|---|
| | and The Bern Convention and Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); invertebrate species listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) for England and Wales; invertebrate species listed under Section 41 of the Natural Environment and Rural Communities Act for England and under Section 42 for Wales *i.e.* invertebrate species of principal importance; invertebrate species endangered by trade and listed under the EU CITES Regulations; and invertebrate species listed on Schedule 9 of the Wildlife and Countryside Act 9 (as amended) *i.e.* invasive invertebrate species. In addition to the legal protection afforded to invertebrate species, many are listed on local Biodiversity Action Plans. |
| Invasive Plants | The Wildlife and Countryside Act, 1981 provides the primary controls on the release of non-native species into the wild in Great Britain. Under Section 14(2) this Act, it is an offence to "*plant or otherwise cause to grow in the wild*" of any plant listed on Schedule 9, Part II. Over 46 species of plant are listed on Schedule 9, Part II. |

## Policies

14.41 The ecological assessment will have regard to the NN NPS. This document outlines the approach to be taken by the Secretary of State with respect to biodiversity and includes ensuring that Applicants have given appropriate weighting to protected nature conservation sites and species; and looking at how the project can take advantage of opportunities for building beneficial biodiversity into the scheme in and around the application site. This may include looking at options for biodiversity offsetting to counteract any impacts on biodiversity which cannot be avoided or mitigated. The Policy Statement refers to the Government's document: Biodiversity 2020: A Strategy for England's wildlife and ecosystem services. This document describes the Government's aim to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.

14.42 The NPPF dated March 2012 replaced Planning Policy Guidance Notes (PPGs) and Planning Policy Statements (PPSs) which formerly provided national planning guidance to Local Planning Authorities (LPAs). The NPPF is a material consideration in planning decisions. It sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so, and provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

14.43 The main section (Section 11) of the National Planning Policy entitled Conserving and Enhancing the Natural Environment, includes the following points which are relevant to the proposals:

- Paragraph 109 of the NPPF states that "the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures".

- Part 110 - In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment.

- Part 111 - Planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed, provided that it is not of high environmental value.

- Part 113 - Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geo-diversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.

- Further information in parts 114-119 provide guidance to the Local Planning Authority on their planning polices and criteria for planning permission with regard to minimising impacts on biodiversity and geodiversity.

### Desk-based Studies

14.44 Records of bats to a distance of 5 km from the site boundary will be requested from Northamptonshire Biodiversity Records Centre.

14.45 Further species records will be requested from Vice-county Recorders for species groups (*e.g.* the Botanical Society of the British Isles recorder for Northamptonshire) and special interest groups (*e.g.* the Northants Bat Group, Northamptonshire Diptera Group, Butterfly Conservation – Bedfordshire and Northamptonshire branch). The full list of groups to be contacted will be subject to consultation advice.

14.46 Records will also be requested from non-governmental natural history and conservation groups that are likely to be consulted as part of the ecological assessment process.

14.47 An air-photo assessment of hedge networks in an 2-5 km buffer around the PDA will be conducted.

14.48 Owing to the size of the application site, a desk-based appraisal of ponds in areas surrounding the PDA will be conducted to assess whether Great Crested Newt populations in ponds within the application site are peripheral constituents of metapopulations in the wider area. This will be largely based on air-photography, mapping, and existing Great Crested Newt survey data.

14.49 A further search for published literature and reports of previous surveys relevant to the survey area will be conducted.

### Field Surveys

14.50 It is evident from the PEA already carried out that the following additional field surveys will be required:

- initial surveys of areas for which access was not available in March 2014 (and any follow-on surveys that arise from the findings);
- a full survey of hedgerows within the PDA to standards sufficient to identify Important Hedges under *The Hedgerows Regulations 1997*;
- ground-truthing hedgerow surveys from roads and PRoWs in support of the air-photographic study of hedges in areas surrounding the PDA (*Section 1.5.3*);
- botanical surveys of semi-improved and perhaps unimproved grasslands to NVC standard;
- botanical surveys and River Corridor Surveys of streams (some major ditches may also require survey to be undertaken as part of the hedgerow survey) ;
- breeding bird surveys;
- detailed Badger survey;
- bat activity surveys;
- surveys of buildings for bats (which may lead to a requirement for emergence surveys);
- surveys of trees bats (which may lead to a requirement for tree-climbing surveys or emergence surveys);
- surveys of ponds for Great Crested Newts (which may lead to population surveys);
- reptile surveys (which may lead to population surveys); and
- otter and water vole surveys.

14.51 Subject to consultation responses, it may also be necessary to survey for groups that will need to be addressed at some level in the ES - Barn Owls, Brown Hares, Hedgehogs, Common Toads and Lepidoptera (and less probably other species groups).

### Consultation

14.52 The following organisations having a statutory role in the EIA process (competent authorities and statutory consultees) will be consulted:

- the local authority Planning and Biodiversity officer;

- Natural England;
- Environment Agency; and
- British Waterways.

14.53 In addition, a wide range of non-statutory natural history and nature conservation groups will be consulted (possibly subject to advice from the statutory consultees) including:

- Royal Society for the Protection of Birds;
- the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire;
- the Northamptonshire Biodiversity Partnership;
- Buglife;
- Groundwork North Northants;
- the Northants Bat Group; and
- Butterfly Conservation – Bedfordshire and Northamptonshire branch.

## Assessing Ecological Impact

### Overview

14.54 The CIEEM guidelines approach ecological assessment by first determining the value of receptors (species, communities, habitat or sites) on a geographical scale (international, national, county *etc*.) and then - using full characterisation of the impact – determining it as significant if it affects the integrity or conservation status of the receptor. Impacts are expressed as significant at the geographical level at which the receptor is valued.

### Valuing Receptors

14.55 The starting point will be to determine which ecological receptors should be assessed in detail. For this they should be of a value such that impacts upon them could be significant (in terms of legislation or policy), and they should be potentially vulnerable to significant impacts arising from the development (IEEM 2006).

14.56 Ecological receptor value will be determined on by considering different aspects of ecological value including designations, biodiversity value, potential value, secondary or supporting value, social value, economic value, legal protection and multi-functional features. These will be applied to the receptors in a geographical context (Table 14.4).

**Table 14.4: Examples of Receptor Values in a Defined Geographical Context**

| Receptor Value | Examples |
|---|---|
| International | Citation features of an internationally designated site or candidate site, *e.g.* a Special Protection Area (SPA), Special Areas of Conservation (SAC), Ramsar Sites, Biogenetic / Biosphere Reserve, World Heritage Sites *etc*. Features of non-designated sites that |

| | |
|---|---|
| | unequivocally meet the standards for such designation. A population of an internationally important species, *e.g.* a European protected species. |
| National | Citation features of a nationally designated site, *e.g.* a Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Marine Nature Reserve (MNR) or a site that would meet selection criteria for such designation, *e.g.* SSSI selection criteria. A significant area of a priority habitat identified in the UK BAP, or smaller areas of such habitat essential to maintain wider viability. A population of a nationally important species, *e.g.* species with a high category of listing on UK Red Lists. |
| Regional | Sites not selected as SSSIs but of comparable value. Viable areas of key habitat identified in regional BAPs or smaller areas of habitat essential to maintain wider viability. A population of a species listed as being nationally scarce (occurring in fewer than 100 10 $km^2$ but more than 15) in the UK or in a regional BAP, or a species with a medium-high category of listing on UK Red Lists. |
| County | Sites designated by local authorities, *e.g.* Sites of Importance for Natural Conservation (SINC), Local Nature Reserves (LNR). A significant area of habitat identified in a county BAP. An exceptionally species-rich and well-connected hedgerow network. Semi-natural ancient woodland greater than 0.25 ha. A population of a species listed in a county BAP due to regional rarity or localisation. |
| District | Sites designated by local authorities as having lower-tier importance, Sites of Borough Importance (for nature conservation). An extensive and intact hedgerow network. Semi-natural ancient woodland smaller than 0.25 ha.<br>Any regularly occurring, locally significant population of a species listed in a district BAP due to regional rarity or localisation. A population of a species having greater than local vale. |
| Local | Areas of habitat that appreciably enrich the local habitat resource (*e.g.* species-rich hedgerows, ponds). Sites that retain other elements of semi-natural vegetation that, due to their size, quality or the wider distribution within the local area, are not considered for the above classifications. Populations of species that appreciably enrich the biodiversity resource in the local context. |
| Site | Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. A good example of a common or widespread species. |

### Characterising Impacts

14.57 The following characteristics of an impact will be considered in assessing impact magnitude:

- extent - the area over which an impact occurs;

- duration - the time for which an impact is expected to last;
- reversibility - a permanent impact is one that is irreversible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it, a temporary impact is one from which a recovery is possible;
- timing - whether impacts occur during critical life-stages or seasons; and
- frequency - i.e. how often will the impacts occur: once or on multiple occasions.

14.58 The IEEM guidelines set criteria for establishing the magnitude of potential impacts on ecological receptors as set out in Table 14.5.

**Table 14.5: Definitions for Magnitudes of Impacts**

| Magnitude | Criteria/Definitions |
|---|---|
| High | Change is likely to cause a direct adverse permanent or long-term impact (over more than 10 years) on the integrity or value of the receptor |
| Medium | Change is likely to impact adversely on the integrity/ value of the receptor but recovery is predicted in the medium term (5 to 10 years); it is predicted that there is no permanent impact on its integrity |
| Small | Change is likely to adversely impact on the integrity/ value of the receptor, but recovery is expected in the short term (1 to 4 years) or recovery is within the bounds of likely natural variation |
| Negligible | The change likely to be encountered is well within the bounds of natural variation. No effect is detectable, or recovery from a negligible effect is likely to occur within a short time scale (<1 year) |

14.59 Again following IEEM guidelines, a degree of confidence will be attached to the assessment of the magnitude of an impact as follows:

- certain or near-certain – probability estimated at 95% or higher;
- probable – probability estimated above 50% but below 95%;
- unlikely – probability estimated above 5% but below 50%; or,
- extremely unlikely – probability estimated at less than 5%.

## Significance of impacts

14.60 In the IEEM guidelines an ecologically significant impact is defined as ‘an impact (negative or positive) on the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area.’

14.61 Integrity is defined as follows - 'The coherence of its ecological structure and function, across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of population of the species for which it was classified'.

14.62 Based on the EC Habitats Directive, conservation status is defined as follows - 'For habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area; and for species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.'

14.63 An impact on – for example – a receptor valued at the national level that is adjudged to be non-significant may nevertheless be significant at a lower geographical level. Thus for example an impact that does not affect the integrity of the designation features of a SSSI may nevertheless be adjudged to have a significant impact on other SSSI features that are of county value.

14.64 Whether or not an impact is significant depends simply on whether the integrity or conservation status of the receptor is affected. The level of significance is then implicit in the level at which the receptor is valued, so that, for example, a significant impact may be identified on a receptor valued at the district level.

### Placing the IEEM Estimate of Significance in the Whole ES Context

14.65 The IEEM approach assigns a geographical level to all impacts that are significant on the basis set out above. These are significant impacts in EIA terms, and would therefore trigger a requirement for mitigation, at least for impacts significant at the local level or above. But at the lower geographical levels they are not necessarily of equal importance to impacts recognized as significant in other disciplines. It will therefore be assumed – on a case by case basis - that impacts at the district level are equivalent to impacts of minor to moderate significance in other disciplines (some local impacts may exceptionally be equivalent to impacts of minor significance in other disciplines), that impacts at the county level are equivalent to moderate impacts in other disciplines, and that impacts at higher levels are equivalent to major impacts in other disciplines.

## Proposed Cumulative and Inter-relationships Assessment

### Intra-relationship of Effects

14.66 The ecological assessment will take into account estimates of effects supplied by other disciplines, *e.g.* noise levels. Ecological considerations are unlikely to affect other disciplines, but the possibility of interactions in that direction will be considered.

### Inter-relationship of Effects

14.67 The ecological assessment will take into account likely significant cumulative effects arising from the Proposed Development in association with other schemes.

## Proposed Assessment of Climate Change

14.68 Though there are few ecological features in the study area that would be significantly affected by small levels of climate change, available information on climate change predictions will be taken into account when considering future baselines.

## Proposed Mitigation and Residual Effects

14.69 Ecological mitigation measures for potential adverse effects of the Proposed Development will be set out, and any residual impacts will be clearly identified.

14.70 Compensation measures are likely to be required for effects that cannot be mitigated *in situ* – especially habitat loss. Biodiversity offsetting protocols will be employed to make sure that such compensation is demonstrably commensurate with good practice.

## Proposed Assessments to be Scoped-out

14.71 At this stage, none of the likely impacts have been scoped out, except in so far as no attention has been paid to highly improbable receptors of impact, *e.g.* species not known to occur in the district surrounding the PDA.

# 15. Landscape and Visual

15.1 This chapter considers the potential for significant landscape and visual effects of the Proposed Development.

15.2 A full description of the proposal is provided in Section 1, however the key stages of the Proposed Development that will be assessed within the landscape and visual chapter of the ES are:

- activity related to the construction of the Proposed Development, i.e. site clearance, the presence of temporary construction compounds, access tracks, illumination to allow 24-hour working and use of cranes for cable unloading;
- the construction and permanent operation of the Proposed Development; and
- the decommissioning of the Proposed Development

15.3 As it will not be possible to provide full details of the Proposed Development when the application for the DCO is submitted, the LVIA will consider a 'realistic worst case' approach to the proposed design parameters as set out below, and as advised in PINS Advice note nine: Rochdale Envelope (2012).

## Preliminary Assessment of Baseline Conditions (2015)

### Study Area

15.4 Following the findings of the preliminary landscape and visual desk and site based assessment, the boundary of the study area has been defined as a 5 km radius around the PDA boundary.

15.5 It is considered that the nature and form of the Proposed Development would be such that no significant landscape and visual effects would be experienced outside of this study area.

15.6 The study area provides a boundary to the focus of assessment, identification of key receptors and the selection of representative viewpoints and it is shown on Figure 1 (**Appendix 2**).

### Desk Based Research

15.7 In preparing this scoping report, reference has been made to the following information sources:

- Survey data related to the site, e.g. topographical and arboricultural surveys;
- Drawings relating to the development proposals and their construction;
- Ordnance Survey mapping and aerial photography;
- Development plans and emerging guidance containing information relating to landscape designations and landscape related policies at the local, regional and national level;

- Published landscape character assessments; and
- The Multi-Agency Geographical Information for the Countryside website; managed by Natural England (available at http://www.magic.gov.uk).

15.8 Relevant details of information gained from these reference sources will be provided subsequently in the 'Baseline Conditions' section.

### Field Surveys

15.9 A preliminary field survey was undertaken during periods of clement weather from public highways, public rights of way and publically accessible areas, including areas of public open space. The site and study area was visited on: 30th April 2015.

15.10 Site work involved:

- A corroboration of the findings of the desktop review;
- Gathering of additional information on landscape elements, character, views and localised screening; and
- Confirming a list of preliminary viewpoints and taking reference photographs.

### Consultations

15.11 No consultation has been undertaken to date.

## Baseline Conditions

15.12 The following summary of baseline conditions has been prepared following a desk based assessment and a field survey. Please refer to **Appendix 2** which illustrates the location of designations which are of relevance to this chapter.

### Designations

15.13 There are no national, regional or local landscape designations on the PDA.

15.14 Considering the wider study area, there are three Registered Parks and Gardens. Courteenhall is located 1.0 km east of the PDA, Stoke Park is located approximately 4.2 km south of the site and Easton Neston is located approximately 4.9km south, south-west of the PDA.

15.15 With respect to local landscape policy areas (which have been referred to in the previous section), the South Northamptonshire 'Tove Valley Special Landscape Area' is located 3.0 km to the south of the PDA.

15.16 In addition to the landscape designations and policy areas identified, there are Conservation Areas located within the study area. Conservation Areas are primarily heritage designations, however their setting is of potential relevance to this report. Conservation Areas identified are:

- Milton Malsor, which is located adjacent to the northern boundary of the PDA;
- Blisworth, which is located 0.5 km south of the PDA;

- Gayton, which is located 1.0 km west of the PDA;
- Rothersthorpe, which is located 1.0 km north-west of the PDA;
- Courteenhall, which is located 1.0 km east of the PDA;
- Stoke Bruerne, which is located 3.0 km south of the PDA;
- Hulcote, which is located 4.8 km south-west of the PDA;
- Easton Neston, which is located 5.0 km south-west of the PDA;
- Bugbrooke, which is located 4.5 km north-west of the PDA; and
- Kislingbury, which is located 4.5 km north-west of the PDA.

### Landscape description of the site

15.17 The PDA largely consists of large scale arable farmland, with some smaller scale pastoral fields located within its north-eastern extent, just to the south of the village of Milton Malsor. Given the extent of the PDA and the limited level of buildings, there is a low level of tree and hedgerow cover. Field boundaries generally have some hedgerow or intermittent tree cover, however this is limited. There are occasional belts of dense and mature deciduous tree planting beside linear infrastructure features, such as the A43 road at the western extent of the PDA and the railway line at the eastern extent of the PDA.

15.18 There are a small number of farm buildings within the PDA boundary, located in the eastern extent of the PDA, and there is a disused service station within the western extent of the PDA, beside the A43.

### Landscape Character

15.19 Landscape character context has been established using information published at national and county levels, and supported by field observations. Information from the following sources has been reviewed as part of the scoping process:

- Natural England, National Character Areas (NCA). The site falls within NCA Profile 89: Northamptonshire Vales (2014); and
- Northamptonshire County Council (2005) Current Landscape Character Assessment

#### *National Landscape Character Assessment*

15.20 At a national level, the site is located within NCA Profile 89: Northamptonshire Vales, the location of which is illustrated at **Appendix 3** and its key characteristics are:

- *"An open landscape of gently undulating clay ridges and valleys with occasional steep scarp slopes. There is an overall visual uniformity to the landscape and settlement pattern;*
- *Diverse levels of tranquillity, from busy urban areas to some deeply rural parts;*

- *Mixed agricultural regime of arable and pasture, with arable land tending to be on the broader, flat river terraces and smaller pastures on the slopes of many minor valleys and on more undulating ground;*

- *Relatively little woodland cover but with a timbered character derived largely from spinneys and copses on the ridges and more undulating land, and from waterside and hedgerow trees and hedgerows, though the density, height and pattern of hedgerows are varied throughout;*

- *A strong field pattern of predominantly 19th-century and – less frequently – Tudor enclosure;*

- *Distinctive river valleys of the Welland and the Nene, with flat flood plains and gravel terraces together with their tributaries (including the Ise). Riverside meadows and waterside trees and shrubs are common, along with flooded gravel pits, open areas of winter flooded grassland, and wetland mosaics supporting large numbers of wetland birds and wildfowl;*

- *Frequent large settlements that dominate the open character of the landscape, such as Northampton and Wellingborough, and associated infrastructure, including major roads, often visually dominant;*

- *Frequent small towns and large villages often characterised by red brick buildings and attractive stone buildings in older village centres and eastern towns and villages. Frequent imposing spired churches are also characteristic, together with fine examples of individual historic buildings;*

- *Relatively frequent, prominent historic parklands and country house towards the outer edges and close to more wooded areas. Other characteristics include ridge and furrow and nationally important townships such as Sutton Bassett and Clipston; and*

- *Localised high concentrations of threshing barns and high status timber framed farm buildings from the 18th century or earlier."*

***County Landscape Character Assessment***

15.21 Within the Northamptonshire County Assessment (Northamptonshire County Council, 2005), the majority of the site falls within Landscape Character Type 13: Undulating Hills and Valleys and specifically its character area sub-division 13b: Bugbrooke and Daventry, the location of which is illustrated at **Appendix 4** and its key characteristics are:

- *"The Bugbrooke and Daventry Character Area is the most extensive area of the Undulating Hills and Valleys character areas and occurs on the western and southern side the River Nene Broad River Valley Floodplain. It extends from the western county boundary, around the eastern edge of Daventry, to the southwestern edge of Northampton;*

- *Whilst this undulating landscape has a pronounced series of hills and valleys to the west, to the south and east it becomes more subtle due to its proximity to the*

*River Nene and its floodplain. Views along the undulations are generally long and open, although landform and vegetation frequently limit more extensive, panoramic views;*

- *Land cover in the area is a combination of both arable and pastoral farmland in fields of varying size. There is, however, a predominance of improved pastures with grazing cattle and horses surrounding the settlements dispersed through the character area, and often on steeper slopes such as those around Borough Hill;*
- *Woodland is limited to small, predominantly broadleaved woodland copses sparsely scattered throughout the area and becoming less frequent south of the River Nene. A number of well treed field boundaries also contribute to the overall woodland cover and often emphasise the undulating landform; Woodlands within this location are also ancient, including Everdon Stubbs;*
- *…recreational facilities include the Grand Union Canal Walk, Macmillan Way, Knightley Way and Nene Way National Trails and numerous public rights of way. Man made reservoirs are also a significant feature of the landscape;*
- *The landscape is well settled with a number of larger village settlements…These are generally compact and extend up the valley slopes. Distant views are also possible of the large urban centre of Northampton. Between the villages, the settlement pattern includes scattered farmsteads and dwellings located both adjacent to roadsides, and set back from the road and accessed via minor tracks. Some areas remain unsettled, however, with the only means of access on foot;*
- *Crossing the landscape and connecting settlement is a network of minor roads along with a number of more major roads, including a limited stretch of the M45 and M1, the A361, A45(T), A43(T) and the A5(T) Watling Street Roman Road."*

15.22 A small extent of the south-eastern part of the PDA is located within Landscape Character Type 6: Undulating Claylands and specifically its character area sub-division 6a: The Tove Catchment, the location of which is illustrated at **Appendix 4** and its key characteristics are:

- *"The Tove Catchment Character Area lies to the southwest of Northampton and comprises the largest of the Undulating Claylands. The area forms the catchment of the River Tove… the river itself becomes a significant landscape feature east of Towcester, forming part of the River Valley Floodplain. The streams have eroded broad, gentle, convex sloped valleys, resulting in the distinctive undulating landform;*
- *A section of the Grand Union Canal also passes through the area from Blisworth to south of Stoke Bruerne. The Blisworth Tunnel comprises an underground section of the canal, and is identifiable by a series of locally prominent airshafts visible as a series of mounds in the landscape;*
- *Land cover is typically a combination of both arable and pasture farming with improved pasture largely located around village settlements bordering the River*

*Tove and its tributaries, and also on sloping valley sides. Where pastoral fields predominate, a more intricate and intimate pattern prevails;*

- *A significant number of the woodlands are also ancient woodland. Woodland associated with estate parklands are particularly significant in the character area. The 300 ha estate of Easton Neston House includes a Grade II* listed building with formal gardens, pleasure grounds and landscaped park. The 150 ha Grade II registered landscaped park at Courteenhall, developed in 1791 by Humphrey Repton, and Stoke Bruerne Park are both notable;*

- *Whilst woodland is not a prominent feature on the Undulating Claylands, there are a number of moderately sized woodland blocks. These create a more localised woodland character in places that contain views, and result in a more intimate landscape; and*

- *The landscape is relatively well settled with numerous villages scattered throughout the area. Communication routes are extensive in the area, including the A43, A5 and A508. Glimpsed views are also possible towards the M1 on the north eastern edge of the character area."*

***Landscape Character Summary***

15.23 Landscape character has been appraised from the national level to the local scale commensurate to the proposed scheme. Field based observations have identified that the PDA and study area are broadly typical of the descriptions identified within the Northamptonshire County Assessment and specifically character areas: 13b: Bugbrooke and Daventry; and 6a: The Tove Catchment. However, following site based surveys and the review of published assessments, a summary of the landscape character of the PDA and study area can be provided as follows:

- This is a gently undulating landscape. Views are more open to the north and north-west, however landform and vegetation frequently limit more extensive, panoramic views. In addition, some man-made landforms, such as road and rail embankments, provide an effective visual barrier;

- Land cover, particularly within the PDA, is a combination of both arable and pastoral farmland in fields of medium to large size;

- Woodland cover is relatively limited and consists mainly of small, predominantly broadleaved woodland copses sparsely scattered throughout. Field boundaries have intermittent tree and hedgerow cover, particularly within the PDA itself, with more extensive areas of planting being located adjacent to villages within the area and adjacent to infrastructure such as roads, railway and canals;

- The study area is largely rural and consists of small villages, the closest of which to the site are Milton Malsor, Blisworth and Gayton. However, part of the northern extent of the study area includes the urban form of Northampton, the nearest point of which to the site is 2.0 km north. There are long-range views from the vicinity of the site of more elevated areas within Northampton, which therefore does have an influence on the character of the site and its immediate surroundings; and

- The PDA is located directly adjacent to some large scale transport routes which have an urbanising influence on it. These are:

  – The west coast mainline, which is located directly adjacent to the southern boundary of the site, part of which is on embankment, raising it above the PDA;

  – A local railway line (the Northampton Loop), which is located adjacent to the eastern boundary of the PDA and which is also located on an embankment. This line spurs off from the west coast mainline, approximately 0.5 km south-east of the PDA;

  – The A43 road, which is located adjacent to the western boundary of the PDA and is also on an embankment;

  – The M1 motorway, which is located 1.0 km north of the PDA, however it does have less influence on the PDA and study area as it is within cutting and surrounded by woodland for long extents; and

  – The Grand Union Canal, which is located directly adjacent to the western boundary of the PDA.

### Visual Context and Potential Visual Receptors

15.24 The existing PDA is relatively visually contained due to a combination of: natural undulations in the landform; man-made landforms, such as road embankments; and intermittent woodland and hedgerow cover.

15.25 Directly adjacent to the south-western boundary of the PDA, an embankment upon which the west coast mainline is located provides a visual barrier. Users of the west coast mainline are likely to have open views across the PDA, however it is acknowledged that views would be glimpsed due to the high speed of trains on this route. Slightly further south, beyond the west coast mainline, the landform rises to a ridgeline, upon which the village of Blisworth is located. Only a small number of buildings within Blisworth have views of the existing site and they include upper storeys of Prospect Court Business Park in the eastern extent of Bilsworth. Views of the PDA are possible, from a footpath which is located on a northern facing slope just to the north of Blisworth. These views include the west coast mainline in close proximity and the entirety of the PDA.

15.26 A ridgeline located adjacent to the eastern boundary provides a visual barrier to views from the east. Trees and hedgerows at field boundaries and adjacent to the Northampton Loop railway line provide a further visual barrier in this direction, preventing views of the PDA from Courteenhall Registered Park and Garden and the A508 road.

15.27 To the north and north-east of the PDA, views are screened by a combination of landform undulations and vegetation cover. However, there are close range views from a small number of properties in the south-eastern extent of Milton Malsor. Further north there are sporadic views from residential properties located on the highest ground within Northampton. From some upper storey windows, such as from properties in the vicinity

of Penvale Road, there are glimpsed views of the PDA. However, in the most part, views out from ground levels within the Northampton conurbation are screened by the built form.

15.28 To the west of the PDA, the embankment upon which the A43 road is located provides a screen to views, however its elevated position and limited surrounding tree cover does allow views of the PDA, particularly from the southbound carriageway. There is higher ground beyond the A43, in the vicinity of the villages of Gayton and Rothersmere. There are potential views of the PDA from the eastern extents of these villages, however a combination of vegetation and buildings within the villages provide an effective visual screen to views of the PDA.

15.29 The Grand Union Canal passes adjacent to the western corner of the PDA, however a combination of mature hedgerow cover and road and rail embankments, provide an effective screen to views of the PDA. Users of the Grand Union Canal Walk would have glimpsed winter time views of the site from a short extent, however views would be limited.

***Representative Viewpoints***

15.30 The following representative viewpoints in Table 15.1 will be considered in the assessment of the Proposed Development. The position of viewpoints is illustrated at **Appendix 5**.

**Table 15.1: Representative Viewpoints**

| VP No. | Name | Grid Ref. | Direction & Distance from Site | Justification |
|---|---|---|---|---|
| VP1 | Milton Malsor | SP 73690 55335 | NE, Adjacent | Representative of views from a public right of way and properties in the south-eastern extent of Milton Malsor |
| VP2 | Path to east of site | SP 74220 54570 | E, Adjacent | Representative of views from a public right of way to the east of the PDA |
| VP3 | Path to south east of site | SP 73900 53600 | SE, Adjacent | Representative of views from a public right of way to the south-east of the PDA |
| VP4 | Blisworth | SP 73360 53820 | S, 0.3 km | Representative of views from a footpath that leads north-east out of |

| | | | | |
|---|---|---|---|---|
| | | | | Blisworth |
| VP5 | Railway Cottages | SP 72900 54200 | S, Adjacent | Representative of views from residential receptors located directly adjacent to the PDA |
| VP6 | Grand Union Canal Walk | SP 72194 54651 | W, Adjacent | Representative of views from gaps in hedgerow beside a public right of way |
| VP7 | A43 | SP 72200 55100 | W, Adjacent | Representative of users of the south-bound carriageway |
| VP8 | Gayton | SP 70850 54880 | W, 1.2 km | Representative of views from the eastern extent of Gayton |
| VP9 | Rothersthorpe | SP 71804 56502 | NW, 1.0 km | Representative of views from a footpath that leads south out of Rothersthorpe |
| VP10 | Northampton | SP 74985 57744 | NNE, 2.6 km | Representative of glimpsed views from presidential properties in an elevated part of the southern extent of Northampton |
| VP11 | Nene Way | SP 71894 59756 | NNW, 4.2 km | Representative of glimpsed views from presidential properties in an elevated part of the southern extent of Northampton |

### Characteristics of Potential Effects

15.31 The potential landscape and visual effects of constructing the Proposed Development may be broadly defined in the following stages:

### Potential effects during construction

15.32 Landscape effects:

- Direct effects upon specific landscape elements within and adjacent to the PDA boundary, e.g. clearance of grasslands, field boundaries, trees, woodlands and watercourses;

- Effects on the landscape character of the Proposed Development and the surrounding study areas due to the presence of construction operations; and

- Effects upon any special interests for example on landscapes such as nationally or locally designated sites.

15.33 Visual effects:

- Effects on specific views and on the general visual amenity experienced by people

### Potential effects during operation

15.34 The operational landscape and visual effects of the Proposed Development may be broadly defined as follows:

***Landscape effects:***

- Direct effects upon specific landscape elements within and adjacent to the cable route, e.g. grasslands, field boundaries, trees, woodlands and watercourses;

- Effects on the landscape character of the PDA and its surroundings; and

- Effects upon any special interests in and around the PDA for example on landscapes such as nationally or locally designated sites.

***Visual effects:***

- Effects on specific views and on the general visual amenity experienced by people

15.35 As the Proposed Development proposal will include landscape and visual mitigation, operational effects will be considered at Year 1 (opening year) and Year 15 (design year). Year 15 is an accepted point at which landscape and visual effects of the Proposed Development can be assessed and at which it is possible to take into account the effect of mitigation planting which has reached an appropriate level of maturity.

### Potential effects during decommissioning

15.36 If complete decommissioning is required this is likely to include removing the above ground infrastructure including foundations to allow the land to be reinstated to its original use and condition, which in most cases would be agricultural use. The landscape and visual effects during decommissioning will be similar to those during the construction period, and any potential significant effects will be temporary in nature, No significant adverse residual effects are anticipated, and it is likely that potential residual landscape visual effects of decommissioning will be beneficial in nature.

## Potential cumulative effects

15.37 The assessment will include potential cumulative effects as a result of the Proposed Development with other major developments.

## Proposed Method of Assessment

### Overview

15.38 The purpose of a Landscape and Visual Impact Assessment (LVIA) is to identify and describe the likely landscape and visual effects of a development and to determine whether or not they would be significant. The LVIA will consider the effects of the Proposed Development on both the landscape as an environmental resource and on people's visual amenity. The intended use of this environmental information is to inform stakeholders and to assist decision making. An LVIA is undertaken in a sequence of iterative stages:

- Identification of aspects of the development that may give rise to significant effects on the landscape resource or on visual amenity;
- Description of baseline landscape and visual conditions: for the landscape assessment this provides an understanding of the character and value of the landscape resource and for the visual assessment this identifies the people in specific locations that may be visually affected;
- Identification of the landscape and visual receptors that may be affected by the development and an initial assessment of the likely significant effects upon them;
- Identification of mitigation measures appropriate to the development and its landscape context; and
- Assessment of the residual landscape and visual effects of the development incorporating mitigation and categorisation of their significance to decision makers.

15.39 The significance of the likely effects of the Proposed Development on identified landscape receptors will be assessed using professional judgement. This professional judgement may take into account a number of different considerations including the susceptibility of different landscape receptors to the likely changes that would be associated with the scheme; the value or importance that is attached to them; and the degree, geographical extent, duration and reversibility of the change to the landscape that is likely to arise. The relevance and weighting of these many considerations will vary depending on the type of landscape receptor being assessed. For example, ‘susceptibility’ may carry more weight in the assessment of effects on landscape character areas and designated resources whereas ‘extent’ may carry more weight in the assessment of removal of landscape elements.

## Legislation, Policy and Good Practice

### *National Policy*

15.40 The most relevant sources of national landscape policy guidance relevant to this topic are:

- NN NPS; and
- NPPF.

15.41 The NN NPS includes a section which sets out requirements for the assessment of 'Landscape and Visual Impacts' (pages 75 to 79) for nationally significant road and rail projects. The key requirement is that an LVIA identifies and reports the likely significant landscape and visual effects of a proposed development, however the following are key points which should be considered when preparing an LVIA for a nationally significant road or rail project:

- *"Outside nationally designated areas, there are local landscapes that may be highly valued locally and protected by local designation. Where a local development document in England has policies based on landscape character assessment, these should be given particular consideration. However, local landscape designations should not be used in themselves as reasons to refuse consent, as this may unduly restrict acceptable development (page 76, paragraph 5.156)";*
- *"In taking decisions, the Secretary of State should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by reasonable mitigation (page 76, paragraph 5.157)"; and*
- *"The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development (page 76, paragraph 5.158)."*

15.42 With regards to mitigating likely landscape and visual effects, the NN NPS states the following:

- *"Reducing the scale of a project or making changes to its operation can help to avoid or mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design or changing the operation of a proposed development may result in a significant operational constraint and reduction in function. There may, be exceptional circumstances, where mitigation could have a very significant benefit and warrant a small reduction in scale or function. In these circumstances, the Secretary of State may decide that the benefits of the mitigation to reduce the landscape effects outweigh the marginal loss of scale or function (pages 76-77, paragraph 5.159)."*
- *"Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure, design (including choice of materials), and landscaping*

*schemes, depending on the size and type of proposed project. Materials and designs for infrastructure should always be given careful consideration (page 77, paragraph 5.160).”*

- *“Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site, although if such landscaping was proposed to be consented by the development consent order, it would have to be included within the order limits for that application. For example, filling in gaps in existing tree and hedge lines would mitigate the impact when viewed from a more distant vista (page 77, paragraph 5.161).”*

15.43 The NPPF sets out the Governments planning objectives to contribute to and enhance the natural and local environment by “protecting and enhancing valued landscapes” (Para. 109 Page 25). It also states that in planning decisions, the greatest weight should be given to “conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty.” (Para. 115, Page 26).

***Regional and Local Policy***

15.44 The PDA is located within the administrative boundary of South Northamptonshire Council. A new Local Plan is currently being produced with adoption in 2017, however prior to its adoption, saved policies from the following document control development within South Northamptonshire:

- South Northamptonshire Council (1997) South Northamptonshire Local Plan

15.45 In addition to the saved policies in the 1997 Local Plan, the following document was adopted in 2014 and will be part of the set of documents which constitute the new Local Plan:

- West Northamptonshire Joint Planning Unit (2014) Joint Core Strategy

15.46 This adopted Joint Core Strategy covers the administrative areas of Daventry District, Northampton Borough and South Northamptonshire District and acts as a piece of regional policy guidance.

**Table 15.2: Key landscape related policies within the Joint Core Strategy (West Northamptonshire Joint Planning Unit, 2014)**

| Policy | Key Provisions |
|---|---|
| Policy BN5 - The Historic Environment And Landscape | “Designated and non-designated heritage assets and their settings and landscapes will be conserved and enhanced in recognition of their individual and cumulative significance and contribution to west Northamptonshire’s local distinctiveness and sense of place.<br><br>In environments where valued heritage assets are at risk, the asset and its setting will be appropriately conserved and managed. In order to secure and enhance the significance of the area's heritage assets and their settings and landscapes, development in areas of landscape sensitivity and/ or known historic or heritage significance |

| | |
|---|---|
| | will be required to:<br><br>1. Sustain and enhance the heritage and landscape features which contribute to the character of the area including:<br>a) conservation areas;<br>b) significant historic landscapes including historic parkland, battlefields and ridge and furrow;<br>c) the skyline and landscape settings of towns and villages;<br>d) sites of known or potential heritage or historic significance;<br>e) locally and nationally important buildings, structures and monuments...<br><br>3. Be sympathetic to locally distinctive landscape features, design styles and materials in order to contribute to a sense of place the retention and sensitive re-use of disused or underused heritage assets and structures is encouraged in order to<br>retain and reflect the distinctiveness of the environment, contribute to the sense of place and promote the sustainable and prudent use of natural resources." |

**Table 15.3: Key landscape related policies within the South Northamptonshire Local Plan (South Northamptonshire Council, 1997)**

| Local Planning Policy and Research | Key Provisions |
|---|---|
| Policy EV1: Design | "Proposals for new development will be expected to pay particular attention to the following elements of design:<br>… (iii) the scale, density, layout, height, massing, landscape and materials in relation to the site and its surroundings;<br>(iv) the appearance and treatment" |
| Policy EV7: Special Landscape Areas | "In the special landscape areas planning permission will only be granted for development which will not have a detrimental impact on their character and appearance. Particular attention must be paid to design, materials, siting of buildings and the use of land." |
| Policy EV11: Preservation or Enhancement of Conservation Areas | "Planning permission will not be granted for any development proposals outside a conservation area which have an adverse effect on the setting of the conservation area or on any views into or out of the area." |
| Policy EV21: Hedgerows, Ponds and Other Landscape Features | "Development proposals will be expected to retain wherever possible, or failing that to replace, trees, hedgerows, ponds or other landscape features where they make an important contribution to the character of the area." |

| | |
|---|---|
| Policy EV25: Wildlife Corridors, Rivers and Waterways | "The council will not permit development that would adversely affect the nature conservation, landscape or wildlife value of dismantled railways or waterways and watercourses." |
| Policy EV28: Historic Parks, Gardens and Battlefields | "Planning permission will not be granted for development which would have a seriously adverse effect on the character or setting of an historic parkland, garden or battlefield." |

15.47 Please refer to **Appendix 2** which illustrates the location of policy areas which are of relevance to this chapter.

***Guidance***

15.48 The assessment will be undertaken in accordance with the methods outlined in the following best practice guidance:

- Guidelines for Landscape and Visual Impact Assessment (Third Edition), published by the LI and IEMA (2013);
- Landscape Character Assessment: Guidance for England and Scotland, published by SNH and the Countryside Agency (2002); and
- LI Advice Note 01/2011: Photography and Photomontage in Landscape and Visual Assessment.

## Desk Based Studies

15.49 A desk based assessment has been carried out, as was stated earlier in this chapter, however continued monitoring of desk based resources, such as potential new landscape policies being issued, will be carried out. The desk based study will therefore continue to be updated as and when necessary to ensure that a comprehensive desk based assessment has been carried out.

## Field Surveys

15.50 Further field surveys will be carried out by a Chartered Landscape Architect following the scoping stage. Detailed landscape and visual surveys will be carried out on site ensuring that a comprehensive baseline is established and the potential effects of the Proposed Development are identified. Further field surveys will be carried out following the identification of likely effects to establish appropriate mitigation measures on site.

15.51 In addition to the field surveys carried out by a landscape architect, a full photographic survey will be carried out once a final list of viewpoints has been agreed with consultees.

## Consultation

15.52 No consultation with key consultees has been undertaken to date in relation to the LVIA. However, following the submission of this scoping report, the applicant will consult with key consultees on the approach to the LVIA, including the methodology and approach to mitigation. Key consultees for the LVIA are South Northamptonshire District Council and Natural England.

## Assessing Significance of Effect

### Level and Significance of Landscape Effects

15.53 The level of landscape effect is categorised using a four point scale: high, moderate, low or negligible. The level of effect is assessed by combining all of the considerations and criteria set out above. This is described by GLVIA3 as an 'overall profile' approach to combining judgements and requires that all the judgements against each of the identified criteria (i.e. susceptibility; value; degree of change; extent of change; duration of change; and reversibility of change) are utilised to allow an informed professional assessment of the overall level of landscape effect.

15.54 The level and significance of the likely effects of the proposed development on identified landscape receptors will be assessed using professional judgement. This professional judgement may take into account a number of different considerations including:

- the susceptibility of different landscape receptors to the likely changes that would be associated with the scheme;
- the value or importance that is attached to them; and
- the degree, geographical extent, duration and reversibility of the change to the landscape that is likely to arise.

15.55 Considerations of susceptibility and value may be both considered as the 'sensitivity' of landscape receptors. Considerations of degree, geographical extent, duration and reversibility of landscape change, may be considered as the 'magnitude of landscape change'.

15.56 The level of landscape effect is categorised using a four point scale: major, moderate, minor or negligible. The level of effect is assessed by combining all of the considerations and criteria set out above. This is described by GLVIA3 as an 'overall profile' approach to combining judgements and requires that all the judgements against each of the identified criteria (i.e. susceptibility; value; degree of change; extent of change; duration of change; and reversibility of change) are utilised to allow an informed professional assessment of the overall level of landscape effect.

15.57 The relative weight attributed to each consideration is a matter of professional judgement and will vary depending on the specific landscape receptor being assessed. For example, susceptibility is more relevant to landscape character than to the removal of landscape elements such as tree cover and short term reversible effects on the landscape may still be judged to be significant by the decision makers. Where possible to do so with a reasonable level of professional objectivity the effects of the proposed development on the landscape are identified as likely to be generally considered positive (beneficial), neutral or negative (adverse).

15.58 The significance of landscape effects is categorised as 'significant' or 'not significant'. The judgement on the significance of effect is informed directly by the level of effect that is identified as follows:

- A major level of effect is considered to be significant;

- A moderate level of effect is considered to be significant; and
- A minor or a negligible level of effect is considered to be not significant.

15.59 GLVIA3 states the following with regard to the judgement of significant landscape effects:

*"There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and landscape context and with the type of proposal. At opposite ends of a spectrum it is reasonable to say that:*

- *Major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance;*
- *Reversible negative effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspects that contribute to but are not key characteristics of the character of landscapes of community value are likely to be of the least significance and may, depending on the circumstances, be judged as not significant;*
- *Where assessments of significance place landscape effects between these extremes, judgements must be made about whether or not they are significant, with full explanations of why these conclusions have been reached."*

***Susceptibility of Landscape Receptors to Change***

15.60 The susceptibility of the landscape refers to its ability to accommodate the changes likely to be brought about by the proposed development without undue consequences for the maintenance of the baseline situation. Table 15.4 provides a list of key characteristics and attributes that have been used in this assessment as indicators of higher or lower levels of susceptibility. The table is indicative rather than prescriptive and the susceptibility of the landscape is categorised as High, Medium or Low using professional judgement.

**Table 15.4: Susceptibility of the landscape character to change**

| Key characteristics | Attributes indicating higher susceptibility to change | | Attributes indicating lower susceptibility to change |
|---|---|---|---|
| Scale | Small-scale landform/landcover; fine grained; enclosed; sheltered | <---> | Large-scale landform/land cover; coarse grained |
| Enclosure | Open | <---> | Enclosed |
| Landform | A flat, uniform landscape | <---> | An undulating landscape |
| Landcover and Pattern | Complex, irregular or intimate landscape | <---> | Simple, regular landscape patterns; uncluttered, |

| | | | |
|---|---|---|---|
| | patterns; diverse land cover | | sweeping lines; consistent land cover |
| Engineered / Built Influences | General absence of strongly engineered, built or manmade influences such as: electrical infrastructure, roads, a geometric field pattern or man-made watercourses. Predominance of traditional or historic settlements, buildings and structures | <---> | Engineered forms/land use pattern; frequent presence of man-made elements, brownfield or industrial landscapes; presence of contemporary built structures; electrical infrastructure; man-made watercourses; and commercial forestry |
| Naturalness and Tranquillity | Landscape with predominance of perceived natural features and forms. Sense of peace and isolation; remote and empty; little or no built development | <---> | Non-natural landscape; busy and noisy; human activity and development; prominent movement |

***Value of Landscape Receptors***

15.61 The value of a landscape may reflect communal perception at a local, regional, national or international scale and may be informed by a number of factors including scenic beauty, tranquillity, wildness, cultural associations or other conservation or recreation interests. It is also the case that a landscape with characteristics that suggest relatively low susceptibility to change may be judged to be of high value because of special values attached to it. Although landscape value or importance is usually determined by reference to statutory or local planning policy designations, an absence of such designation does not automatically imply a lack of value as other factors, such as scarcity, may be considered relevant. The value or importance of landscape elements is also considered. The degree of landscape value or importance is therefore a matter for reasoned professional judgement. Where relevant to the assessment, the value or importance of landscape elements, character areas or designated resources is categorised as either:

- High: which may refer to: an international designated landscape (rare cases only) – e.g. World Heritage Site; or a nationally designated site, e.g. National Park, AONB, Registered Historic Park or Garden;

- Medium: which may refer to a locally designated landscape, i.e. it has been identified by local planning authorities with a local plan policy or landscape character assessment as demonstrating a particular value; or

- Low: which may refer to a landscape which is valued at a local scale by local communities but has no documented evidence of value (i.e. in a policy, designation or character assessment).

***Degree of Landscape Change***

15.62 The degree of likely landscape change is assessed as High, Medium or Low by reference to the criteria set out in Table 15.5.

**Table 15.5: Degree of landscape change criteria**

| Degree of Change | Definition |
|---|---|
| High | The proposed development will form a prominent landscape element, or will result in a substantial alteration to key landscape characteristics. |
| Medium | The proposed development will form a conspicuous landscape element, or will result in a partial loss of or alteration to key landscape characteristics. |
| Low | The proposed development will form an apparent, small landscape element, or will result in a minor alteration to key landscape characteristics. |
| Negligible | The proposed development will be a barely perceptible landscape element, or will not change the key landscape characteristics. |

***Geographical Extent of Landscape Change***

15.63 This is based on an informed professional judgement and the extent of the change will vary depending on the nature of the proposal. The geographical extent of a landscape effect is assessed as:

- Extensive – the change may influence an extensive area, possibly including several landscape types and/or character areas;
- Medium – the change may influence the wider landscape type and/or character area within which the proposed development is located; and
- Localised – the change may be within the proposed development site itself and its immediate setting.

***Duration of Landscape Change***

15.64 For the Proposed Development the following categories of duration of landscape effect have been adopted:

- Short term – an effect likely to last up to five years;
- Medium term – an effect likely to last between five and fifteen years; and
- Long term – an effect likely to last longer than fifteen years.

***Reversibility of Landscape Change***

15.65 In terms of the reversibility of landscape change, the following categories have been adopted are generally adopted:

- Reversible – an effect which is entirely reversible, i.e. the landscape can be restored to its original state prior to the development occurring;
- Partially reversible – the landscape can be partially restored to its original state prior to the development occurring; and
- Irreversible – the landscape is considered to be irreversibly altered following the occurrence of the development.

15.66 It should be noted however that Duration of Change and Reversibility of Change are linked considerations and where it is deemed that landscape change due to a proposed development is permanent in duration, it is not necessary to consider the reversibility of that change.

15.67 In the case of the proposed development, the following is considered with regards to Reversibility of Change:

- The consideration of reversibility of change during the construction and operational phases of the Intermediate Electrical Compound, Substation and Unlicensed Works at Bicker Fen is not applicable because these developments are considered to be permanent in duration, reducing the likely prospect of reversing change which has occurred; and
- The consideration of reversibility of change within the construction phase of the Cable Route does not apply as landscape and visual mitigation is embedded within construction, i.e. the landscape will be restored to its original condition as far as is reasonably possible within the construction phase.

**Level and Significance of Visual Effects**

15.68 The significance of the likely visual effects of the Proposed Development on identified receptors will also be assessed using professional judgement. This professional judgement may take into account a range of considerations including:

- the susceptibility of people in different contexts to the likely visual changes that would be associated with the scheme;
- the value or importance that they are considered likely to attach to the existing view; and
- the degree, geographical extent, duration and reversibility of the visual change that is likely to arise.

15.69 As was the case for the landscape assessment approach, considerations of susceptibility and value may considered as comprising the ‘sensitivity’ of visual receptors. Considerations of degree, geographical extent, duration and reversibility of visual change, may be considered as the ‘magnitude of visual change’.

15.70 The significance of visual effects is categorised as ‘significant’ or ‘not significant’. Significance is assessed by combining all of the considerations and criteria set out previously. The relative weight attributed to each consideration is a matter of professional judgement and will vary depending on the specific visual receptor being assessed. For example, the geographical extent of visual change is more relevant to an area or route than to a fixed viewpoint and short term reversible visual effects may still be judged to be significant to decision makers.

15.71 Where possible to do so with a reasonable level of professional objectivity the visual effects of the proposed development are identified as likely to be considered positive (beneficial), neutral or negative (adverse).

### Susceptibility of Visual Receptors to Change

15.72 People’s susceptibility to visual change varies depending on their purpose for being in a particular location (principally whether for residence, recreation, travel or employment). The susceptibility to change of different categories of visual receptor is assessed on a scale of High, Medium or Low and is typically defined based on the categories of viewer set out in Table 15.6.

**Table 15.6: Susceptibility of visual receptor types to change**

| Level of susceptibility | Typical Receptors |
|---|---|
| High | People with a particular interest in the available view or with prolonged viewing opportunities, such as:<br>• Promoted viewpoints (often recognised by the provision of interpretation), promoted scenic drives or tourist routes;<br>• Tourist, visitor and/or heritage destinations providing a specific, important and highly valued view;<br>• Recreational hilltops and peaks;<br>• Residential locations;<br>• Ornamental parks and public open spaces; and<br>• Nationally or locally named trails and cycle routes. |
| Medium | People with a general interest in their surroundings or with transient viewing opportunities, such as:<br>• General and incidental footpaths and rights of way;<br>• Residential distributor and local road network; and<br>• General public open spaces, recreation grounds and play areas. |
| Low | People with a limited or passing interest in their surroundings, such as:<br>• Places of employment;<br>• Major highways (sensitivity may be higher in scenic locations);<br>• Commercial and industrial buildings; |

| | |
|---|---|
| | • Indoor facilities; and<br>• Commuters. |

### Value of Visual Receptors

15.73 An assessment of visual amenity value or importance refers to the judgement of whether any particular value or importance is likely to be attributed by people to their available views. For example, views experienced by travellers on a highway may be considered to be more highly valued due to the scenic context or views experienced by residents of a particular property may be considered to be less valued or important due to a degraded visual setting. The degree of value or importance is therefore a matter for reasoned professional judgement. Where relevant to the assessment, the value or importance of visual amenity is categorised as either: High; Medium; or Low.

### Degree of Visual Change

15.74 The degree of likely visual change is assessed as High, Medium, Low or Negligible by reference to the criteria set out in Table 15.7.

**Table 15.7: Degree of visual change criteria**

| Degree of Change | Definition |
|---|---|
| High | The visual changes associated with the proposed development will form a prominent element within the view, resulting in a prominent change to the quality and character of the view. |
| Medium | The visual changes associated with the proposed development will form a conspicuous element within the view, resulting in a conspicuous change to the quality and character of the view. |
| Low | The visual changes associated with the proposed development will form an apparent small element within the view, without affecting the overall quality and/or character of the view. |
| Negligible | The visual changes associated with the proposed development will result in a barely perceptible change in the view, or will cause 'no change' to the existing view. |

### Geographical Extent of Visual Change

15.75 The geographical extent of a visual effect is assessed as: Extensive; Medium; and Localised. This is based on an informed professional judgement and reflects the extent of the area over which the changes will be visible.

15.76 However, this consideration is not applicable when the assessment refers to a single visual receptor, such as a single residential property. Geographical extent would apply when assessing the visual effects on multiple users of an extent of road or groups of properties within a settlement for example.

### Duration of Visual Change

15.77 For this scheme the following categories of duration of visual effect have been adopted:

- Short term – an effect likely to last up to five years;
- Medium term – an effect likely to last between five and fifteen years; and
- Long term – an effect likely to last longer than fifteen years.

### Reversibility of Visual Change

15.78 In terms of the reversibility of visual change, the following categories have been adopted:

- Reversible – an effect which is entirely reversible, i.e. the view can be restored to that which was experienced prior to the occurrence of the development;
- Partially reversible – the view can be partially restored to that which was experienced prior to the occurrence of the development; and
- Irreversible – the view is considered to be irreversibly altered following the occurrence of the development.

15.79 It should be noted however that Duration of Change and Reversibility of Change are linked considerations and where it is deemed that visual change due to a proposed development is permanent in duration, it is not necessary to consider the reversibility of that change.

15.80 In the case of the proposed development, the following is considered with regards to Reversibility of Change:

- The consideration of reversibility of change during the construction and operational phases of the Intermediate Electrical Compound, Substation and Unlicensed Works at Bicker Fen is not applicable because these developments are considered to be permanent in duration, reducing the likely prospect of reversing change which has occurred; and
- The consideration of reversibility of change within the construction phase of the Cable Route does not apply as landscape and visual mitigation is embedded within construction, i.e. the landscape will be restored to its original condition as far as is reasonably possible within the construction phase.

## Proposed Cumulative Assessment: Intra-relationship of Effects

15.81 An assessment of the intra-relationship of effects on individual receptors with other topic areas will be undertaken. The detail of the intra-relationship of effects will be scoped more accurately once initial assessment of the effects of the Proposed Development have been established, however, based on preliminary consideration of potential effects of the scheme, the likely environmental topics which will have an intra-relationship of effects will be: Ecology; Transport; and Hydrology.

## Proposed Cumulative Assessment: Inter-relationship of Effects

15.82 An assessment of likely significant landscape and visual cumulative effects will be undertaken. A list of schemes relevant to the landscape and visual assessment will be agreed in advance with the host local authority and other relevant statutory consultees.

## Proposed Assessment of Climate Change

15.83 An assessment of climate change will be undertaken and presented in the Environmental Statement. The assessment will include:

- The effects of a changing climate on the proposed development; and
- The effects of the proposed development on the environment.

15.84 The Landscape and Visual Chapter will provide an assessment of the role of landscape and visual mitigation proposals in the development's contribution to climate change resilience and adaptation. The assessment will focus on the inclusion of new planting within the scheme design and its role in contributing to a reduction in climate change effects.

## Proposed Mitigation and Residual Effects

15.85 Mitigation measures will be identified and considered to minimise potentially significant adverse effects on the receiving environment in so far as is practicable and that information on the likely effectiveness of the measures will be set out. Mitigation measures will be developed following the initial assessment of landscape and visual effects and the further development of the detail of the Proposed Development.

15.86 Once mitigation measures have been identified, residual effects of the development post implementation of identified mitigation will be reported as part of the operational assessment of effects. Landscape and visual mitigation is most likely to focus on planting proposals within the site boundary which is intended to integrate the proposed development into the landscape and screen the development from key views.

15.87 In addition to the mitigation proposed which is intended to mitigate identified significant landscape and visual effects of the proposed development, any compensatory landscape and visual measures proposed will be described.

## Proposed Assessments to be Scoped Out

15.88 No stages of the assessment have been scoped out, i.e. the effects during the: construction; operation; and decommissioning stages will be reported.

# 16. Noise and Vibration

## Introduction

16.1 The construction and operation of the Proposed Development has the potential to give rise to both temporary and permanent noise and vibration impacts that may affect sensitive receptors in the area. Consequently, these impacts may generate adverse effects. The EIA is intended to identify and assess these effects and consider how they might be mitigated.

16.2 The purpose of this chapter is to identify the key noise and vibration impacts, describe the study area and potential key receptors, and show how the effects will be assessed within the ES.

## Preliminary Assessment of Baseline Conditions

### Study Area

16.3 The noise and vibration study area is proposed to extend typically 700m beyond the PDA boundary, and include all nearest noise sensitive receptors (NSRs) and amenity areas around the development site. This will include the greater parts of the villages of Milton Malsor to the north and Blisworth to the south.

16.4 The study area for noise and vibration is identified by a red dotted line on the plan enclosed at **Appendix 6**. Within the study area there are 6 preliminary noise sensitive receptors identified, however others will likely be added including residential to the south of the site on Courtenhall Road, West Lodge Farm and Rectory Farm, all of which are to the east of the Northampton Rail Loop.

### Field Surveys

16.5 Some desk based investigation of potential noise sensitive receptors has been carried out through viewing Google Earth. The preliminary evaluation of baseline conditions has involved a field survey and a limited sample of measurements.

16.6 A preliminary baseline noise survey was carried out at potential Noise Monitoring Locations (NMLs) chosen to be representative of the noise environment at nearby Noise Sensitive Receptors (NSRs). The purpose of this sampling is to begin to establish the nature of the existing noise environment. This will also help formalise plans for a more detailed and longer term baseline noise survey to be undertaken after appropriate consultation with South Northamptonshire Council Environmental Protection Team. The NMLs are shown on the plan in **Appendix 6**.

16.7 The preliminary noise survey was carried out during the daytime of 30 March and overnight 1-2 April, 2015. Measurements were short term and made generally in accordance with procedures given in BS 4142:2014 Methods for rating and assessing industrial and commercial sound. Before and after the survey, the sound level meter was field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meter, microphone and field calibrator are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

16.8 A preliminary baseline vibration survey was not undertaken. The potential for vibration impact from the Proposed Development is discussed later in this chapter.

### Consultations

16.9 A longer term, comprehensive baseline noise monitoring survey is planned to be undertaken which will also involve monitoring wind direction and strength. A meeting will be arranged with officers in the Environmental Protection Team at South Northamptonshire Council before the full baseline survey commences. The purpose will be identify and discuss the relevant assessment methodologies to be used in the EIA and also the scope, type and duration of the full baseline noise survey.

## Baseline Conditions (Preliminary)

16.10 A glossary of acoustic terms used is included in **Appendix 7**.

16.11 The results of the preliminary baseline noise survey are included in full in **Appendix 8**. They show Residual Sound Levels LAeq,5min in the range of 48-71dB during the day and 42-61dB at night depending upon the position of measurement. The range of levels result from some NMLs being close to local roads where individual car movements have a major influence on the level recorded.

16.12 The Background Sound Levels LA90,5min, are not influenced by individual car passes but only the near continuous noise. During the day, Background Sound Levels are 44-60dB with positions closer to roads showing higher levels (e.g. Position 3, 6 and 5). At night, Background Sound Levels were similar at all locations with distant road traffic on the A43 and the M1 being contributory. Levels at night dropped to LA90,5min 38-43dB.

16.13 The Residual Sound Level Values recorded are consistent with what might be expected for areas with a mix of NSRs, some close to and others further, from roads and railway lines. The Background Sound Levels in this small data sample, are within a narrow range. The levels are higher than those found in a quiet rural location, reflecting the constant presence, day and night, of noise from distant road and rail traffic.

## Characteristics of Potential Effects

16.14 The main potential effects during the construction phase of the development, and similarly at the decommissioning phase, will be daytime noise impact to NSRs (residential, schools, amenity areas etc). Vibration impact may arise during piling activity although it would be unlikely to be noticeable at distances greater than 100-200m.

16.15 During operation of the Proposed Development, noise sources during the day and night will include fixed plant on the site along with vehicle and cranes. Changes in road traffic flows on public roads may affect receptors located alongside traffic routes and changes in rail traffic flows mainly on the Northampton loop may also have a potential effect.

16.16 During daytime, the effect upon the human population might potentially be disturbance or annoyance whilst at night sleep disturbance is the main issue.

16.17 For the terrestrial ecological assessment, noise generated during construction, especially during piling, may have the potential to effect fauna, particularly birdlife.

## Potential Methods of Assessment

### Overview

16.18 For each of the noise and vibration assessments, different methodologies will apply, and for each of these there is particular guidance on the appropriate methodology to be used and in some cases as to what might constitute a significant effect. Determining whether a particular effect is significant requires the consideration of a number of factors and the exercise of judgement.

16.19 Underlying a number of these assessments, and well established in the consideration of environmental impact, is the need to consider baseline environmental conditions. In the case of noise, this requires carrying out an appropriate baseline noise survey at established NSRs. The assessment process may involve comparison between the noise predictions and this baseline level or may look to the change in noise level from the baseline. In considering a change in noise level, the assessment will take particular account of 'The Guidelines for Environmental Noise Impact Assessment' - IEMA, October 2014 published by the Institute of Environmental Management, but with support from the Institute of Acoustics. This document was first published as a draft in 2007 and has been cited in many EIAs.

### Legislation, Policy and Good Practice

16.20 The relevant legislation, policy and good practice relating to the assessment of potential significant effects includes the following:

- National Networks National Policy Statement (2014);
- National Planning Policy Framework (2012);
- The Noise Policy Statement for England (2010);
- Calculation of Road Traffic Noise (1988);
- Design Manual for Roads and Bridges Part 7 HD213/11 Noise and Vibration (2011);
- Calculation of Rail Noise (1995);
- BS4142:2014 Methods for rating and assessing industrial and commercial sound;
- BS 8233:2014 Guidance on sound insulation and noise reduction for buildings;
- World Health Organisation Guidelines for Community Noise (1999);
- World Health Organisation Europe Night Noise Guidelines (2009);
- BS5228:2009 (Parts 1 and 2) +A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites;

- IEMA Guidelines for Environmental Noise Impact Assessment, (2014);
- Noise Insulation Regulations 1975 (as amended 1988); and
- Noise Insulation (Railway and other Guided Transport Systems) Regulations 1996.

### Construction Noise

16.21 Noise during site clearance, demolition and construction is assessed in accordance with Annex E 'Significance of noise effects' of BS 5228-1:2009 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

16.22 Construction site noise is assessed differently to noise from permanent installations as it is recognised that some degree of noise is an inevitable by-product of required works and that the construction works are a transient activity.

16.23 BS 5228 provides information on construction noise levels from various plant and operations and makes recommendations on procedures and mitigation that can be adopted to reduce the impact of construction noise. Annex E considers the impact of construction or demolition noise to be significant if there is a 5 dB(A) increase in ambient noise (LAeq) and alone it generates more than 65 dB(A) during the daytime, 55 dB(A) during the evening and 45 dB(A) at night. It is proposed to adopt the LAeq daytime value of 65 dB(A) as a criterion for significant effect for construction noise.

16.24 For noise associated with the alteration of existing public roads or the construction of new public roads, the Noise Insulation Regulations 1975 (as amended 1988) contain the power to enable insulation properties as a result of construction noise from highway schemes.

16.25 For noise associated with the alteration of existing public railway lines or the construction of new public railway lines, the Noise Insulation (Railway and Other Guided Transport Systems) Regulations 1996 contain the power to enable noise insulation to properties as a result of construction noise from railway schemes.

### Road Traffic Noise

16.26 Procedures for calculating and assessing road traffic noise impacts are described in the Department of Transport document: Calculation of Road Traffic Noise (CRTN 1988), and the Highways Agency advice note Design Manual for Roads and Bridges (DMRB), Vol 11 Section 3, Part 7 – Noise and Vibration (February 2011).

16.27 The latter document provides a procedure for measuring and predicting traffic noise levels (albeit based on CRTN) and estimating response of people to changes in traffic noise levels outside dwellings, expressed in terms of LA10,(18 hour). The procedure covers situations where existing traffic increases by 25% or more, this value corresponding to a change in calculated noise level of +1dB. 1 dB is the smallest increment of noise increase that is generally regarded as being discernible.

16.28 DRMB classifies the magnitude of noise impact against change in road traffic noise level. This is shown in Table 16.1.

**Table 16.1: Classification of Magnitude of Noise Impacts (from DRMB) Against Change in Traffic Noise Level**

| Noise Change – $L_{A10}$(18 hr) (dB) | Magnitude of Impact |
|---|---|
| 0 | No Change |
| 0.1 – 0.9 | Negligible |
| 1.0 – 2.9 | Minor |
| 3.0 – 4.9 | Moderate |
| Over 5 | Major |

16.29 Determination of significance of impact is based on a subjective view taking into account a number of issues, including the sensitivity of the receptors, the absolute levels of noise, the number and type of receptors affected and whether the change is temporary or permanent.

16.30 The effect of changes in traffic noise will be evaluated on roads where there are residential receptors. Due to the area the Proposed Development covers, there are a large number of locations which need to be considered. General evaluation is made at each major section of road that provides access to and from the site of the Proposed Development.

16.31 Whilst the normal period for assessing road traffic noise is 18 hours, an assessment can also be made for the busiest 1 hour periods. Hourly traffic flow projections using a reference year traffic flows, but subject to assumed growth factors, are used as a baseline. The data provided also includes an evaluation of percentage (%) HGVs.

16.32 There will also be the potential of noise generated by road traffic on new public highways or adopted roads if these are associated with the development. Noise will be predicted using CRTN procedures based upon traffic flow information at the base year and future years. Relevant assessment criterial for this element of the work will be discussed with the South Northamptonshire District Council and if necessary Northamptonshire Country Council. They will include reference to criteria for overall noise levels, the contribution from traffic on the new or altered highways and a distance cut off of 300 m.

### Rail Noise

16.33 Noise associated with railways is predicted in accordance with the Department of Transport technical memorandum 'Calculation of Railway Noise' (CRN). This document published in 1995 provides a standardised approach to noise assessments undertaken in connection with the Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996. The Regulations provide criteria for overall noise levels, the contribution from movements on the new or altered railway and a distance cut off of 300 m.

## Operational Noise

### *General*

16.34 Noise during normal operations of the development is long term and will have the potential to generate significant impact to the surround community during both day and night.

16.35 Initial evaluation of the existing noise environment suggests that it is characterized by road traffic noise from the M1 and A43. Intermittent noise arises from rail movements on the west coast main line and the Northampton loop.

16.36 Whilst the noise generated by the Proposed Development will include some continuous mechanical plant and ventilation components, for most of the time the predominant sources are likely to be on-site vehicle movements including forklifts, tugs and other vehicle types. These will be operating at a range of speeds. There will also be some crane movements on the intermodal platform area when trains are being loaded/unloaded.

### *Change in Noise Level*

16.37 With the nature of the noise associated with the Proposed Development being broadly similar in character to the existing noise environment, the change in noise level resulting from the development will be a factor in determining the potential adverse effect of operating noise. The baseline LAeq, levels before the Proposed Development will be compared to the levels predicted with the development in operation, for daytime, evening and night periods. Tables shown in Chapter 7 of the IEMA guidance will be considered as relevant but further justification will be given within the EIA as to why such criteria are used. In particular reference will be made to relative changes of up to 2.9 dB as being negligible and 3.0 - 4.9 dB being small.

### *Absolute Noise Level*

16.38 A more recent approach developed in the Noise Policy Statement for England adopts an approach put forward by the World Heath Authority. It uses the concept of Lowest Observable Adverse Effects Level (LOAEL) and Significant Observable Adverse Effects Level (SOAEL).

16.39 IEMA Guidance quotes threshold values for adverse effects at residential NSRs. These are shown in Table 16.2.

**Table 16.2: Noise Effect Level for Permanent Residential Buildings from Operational Noise**

| Day | Time (hrs) | LOAEL ($L_{Aeq}$) | SOAEL ($L_{Aeq}$) |
|---|---|---|---|
| Day | 07:00 – 23:00 | 50 | 65 |
| Night | 23:00 – 07:00 | 40 | 55 |

16.40 Where these levels are already exceeded in the baseline evaluation then consideration of other assessment methodologies will be given. Evaluation of preliminary baseline

noise survey results show that these thresholds are already breached at some NSRs, particularly those adjoining main roads.

***BS4142 Assessment***

16.41 In considering noise generated from normal operating activities carried out on the development site, including vehicle movements, reference can be made to BS 4142:2014 Methods for rating and assessing industrial and commercial sound is relevant to longer term normal operating industrial noise.

16.42 The Standard indicates that certain features can increase the significance of effect over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, a character correction should be added to the specific sound level to obtain the rating level. The subjective character corrections are summarized in Table 16.3.

**Table 16.3: Summary of Subjective Corrections to be Applied to Specific Sound Levels in BS4142**

| Tonality | Impulsivity | Other sound characteristics | Intermittency |
|---|---|---|---|
| +2 dB just perceptible | +3 dB just perceptible | Where specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual environment, a penalty of 3 dB can be applied. | Where specific sound has identifiable on off conditions which are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied |
| +4 dB clearly perceptible | +6 dB clearly perceptible | | |
| +6 dB highly perceptible | +9 dB highly perceptible | | |
| The standard indicates that where tonal and impulsive characteristics are present within same reference period these two corrections can both be taken into account. If one feature is dominant then it might be appropriate to apply a single correction. Where both features are likely to affect perception and response, the corrections out normally be added in a linear fashion. | | | |

16.43 It should be noted that noise during normal operating activities will likely be continuous and unlikely to contain any strong impulsivity or tonality. However it may be necessary for a +3dB penalty to apply at some locations for ‘a readily distinctive other characteristic’.

16.44 Once the specific sound level is corrected to the rating level, the representative background sound level is subtracted from the rating level to provide an initial estimate of the impact. The greater the difference the greater the magnitude of the impact. The standard states that:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact.

16.45 BS 4142 considers the situation when background sound levels and rating levels are low by advising that absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. It states that this is especially true at night. However it doesn't quantify what levels it considers to be low. The preliminary baseline noise survey results show background noise levels that are unlikely to be considered low, therefore consideration of absolute levels are likely to be less important.

### Vibration

16.46 Vibration impacts, especially those occurring during construction phases, can be assessed in accordance with Annex B of BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration. These are summarised in Table 16.4.

**Table 16.4: Effects of Vibration (BS5228-2 extract)**

| Effect on people/building | Vibration level Peak Particle Velocity (mms-1) |
|---|---|
| Vibration might be just perceptible in the most sensitive situations and at most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration. | 0.14 |
| Vibration might be just perceptible in residential environments | 0.3 |
| It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents. | 1.0 |
| Vibration is likely to be intolerable for any more than a very brief exposure to this level | 10.0 |
| Guide values to avoid cosmetic damage to buildings – Residential buildings | 15.0 at 4Hz increasing to 20.0 at 15Hz increasing to 50.0 at 40Hz and above |

| | |
|---|---|
| Guide values to avoid cosmetic damage to buildings – Industrial buildings | 50.0 at 4Hz and above |

16.47 It is considered that in relation to the impact on people, a significant vibration effect occurs when vibration exceeds 0.3 mms-1, if this is a permanent level of vibration from normally operating plant. It is considered that, as highlighted in Table 4, during construction and with appropriate warnings to residents, vibration up to a limit of 1.0 mms-1 for temporary activity would be tolerated, and therefore would not constitute a significant effect.

16.48 During operation of the development, vibration is highly unlikely to be an adverse impact. Such vibration that might arise would likely only be associated with the presence of pot holes and poor road conditions located near NSRs, and evaluating, assessing and monitoring this is usually and best dealt with by undertaking a 'visual condition survey'. Undertaking a baseline condition survey prior to development commencing, and rectifying road surface faults is likely to fully deal with road traffic induced ground vibration both during the construction phase and later during operation of the development. Careful siting and choice of any road speed reduction measure should be made as certain traffic calming measures such as road humps and uneven road surface (rumble strips) can generate vibration.

### Consultation

16.49 Initial early consultation will be undertaken with officers specialising in noise within South Northamptonshire District Council. This will be in the form of a meeting at which matters such as detailed noise and vibration assessment methodologies and detailed arrangements for identifying NSRs and completing more detailed baseline noise monitoring, will be agreed.

16.50 Formal consultation will continue through consideration of the scoping response, also in accordance with the SOCC and other consultation requirements required as part of the application. A summary of the issues raised during scoping and consultation will be included along with how these matters have been addressed in the assessment within the EIA.

## Assessing Significance of Effect

16.51 The range of potential noise and vibration impacts, both temporary and permanent, will be considered according to the methodologies already discussed.

16.52 Potential receptors will be classified in terms of their sensitivities, with hospitals, care homes and residential being classified with a very high sensitivity classification.

16.53 The effects of the noise and vibration impacts will also depend upon other factors, including the duration of the impact; its time of day and also whether it contains any distinguishing features (time variations frequency variations, narrow band energy components or impulsivity content). BS4142 assessment methodology seeks to include many of these factors in determining operational noise impact of industrial sites to the local community.

16.54 A systematic approach will be adopted in classifying both impacts and effects consistent with the IEMA Guidelines on noise assessment, but also consistent with categories used elsewhere in the ES covering other environmental impacts.

## Cumulative Impacts and Inter relationships

16.55 The impacts of noise and vibration from other consented developments at NSRs will be considered together with those from the Proposed Development.

16.56 Within the ES the potential for impacts and effects of noise and vibration predicted in the noise and vibration chapter to give rise to Inter-relationships with other environmental impacts on identified receptors for a broader and fuller evaluation of cumulative environmental effects.

16.57 The extent to which there is an inter-relationship between these effects will be evaluated.

16.58 It is not expected that climate change will influence the noise and vibration impacts.

## Potential Mitigation and Residual Effects

16.59 Mitigation of noise and vibration will be developed in an iterative way following initial predictions of noise and vibration and assessment of their effects, and following discussions within the environmental and design teams and consultation with stakeholders at the appropriate stages. Mitigation will primarily be 'by design', which will be 'at source' where possible including the use of layout, bunding and acoustic screening, the benefits of which can all be modelled by computer.

16.60 With optimum noise and vibration mitigation fully developed during the early phases prior to completing the ES, it is not expected that additional mitigation over and above that already identified, will be considered necessary.

## Assessments Proposed to be Scoped Out of ES

16.61 It is proposed not to carry out any further formal assessment of the following noise and vibration impacts.

### Proposed to be scoped out

- Vibration assessment of rail traffic (construction and operational phases).
- Vibration assessment of road traffic (construction and operational phases) subject to plan being development for inspection and remediation of public road condition.
- Vibration baseline monitoring
- The effect of climate change on noise and vibration impacts.

# 17. Highways and Transportation

## Introduction

17.1 This section of the Scoping Report present information on the proposed approach to the identification and assessment of likely significant traffic and transportation effects associated with the Proposed Development

17.2 Transport Planning Associates (TPA) is working on behalf of Ashfield Land on the identification and assessment of transportation impacts arising from the construction and operation of the Proposed Development.

17.3 As set out in Section 4, owing to the nature of the Proposed Development and the way in which SRFIs are developed and operated, the application for the DCO will need to retain some flexibility for design and layout options. Paragraph 1.4 sets out the likely description of development, which anticipates up to 743,200 sq m (8,000,000 sq ft) of storage and distribution buildings with ancillary offices.

17.4 Consultation with the transport stakeholders is already underway. Regular monthly meetings are being held with the key transport stakeholders Highways England (HE) and Northamptonshire County Council (NCC). A number of Briefing Notes addressing technical matters will be agreed with the stakeholders in due course.

17.5 TPA will provide the Transport chapter of the Environmental Statement (ES). TPA will also prepare a detailed Transport Assessment (TA) and Travel Plan (TP) to inform the ES. This will build on the work agreed in the Briefing Notes and

17.6 The TA will include chapters on the following as appropriate:

(i) baseline traffic flows, with reference to traffic surveys and area-wide traffic modelling;

(ii) trip attraction by all modes, with reference to first principles assessment and similar schemes;

(iii) trip assignment, with reference to area-wide modelling and demographic studies;

(iv) accessibility and access strategy, with reference to audits of existing conditions, scheme design and planning with stakeholders;

(v) travel planning, with a comprehensive over-arching Travel Plan document;

(vi) public transport strategy, with reference to agreements with operators;

(vii) traffic impact assessments, with reference to area-wide and detailed modelling;

(viii) highway safety, with reference to existing conditions;

(ix) construction traffic arrangements, with reference to phasing;

(x) phasing of the scheme, with reference to different forecast years.

17.7 HGV traffic impact will be assessed within the TA, and the HGV numbers and assignment will be confirmed by specialists with the Rail Central Team

17.8 The Travel Plan will be prepared with reference to relevant national and local guidance. Given the scale of the proposed development it is envisaged to be comprehensive.

17.9 The Transport Chapter of the ES will be prepared with reference to the IEMA document Guidelines for the Environmental Assessment of Road Traffic and it will draw from the TA and TP work. The ES Chapter will confirm baseline transportation conditions including traffic flows, highway safety and the operation of the local and strategic highway network for motorists and non-motorised vehicle users. It will consider the cumulative impact arising from the development alongside all allocated and committed developments nearby as appropriate, which will be agreed with the highway authority. Where appropriate, mitigation measures to remedy any significant effects will be provided. Assessment of residual effects will be carried out in order to identify and quantify any adverse effects remaining after any mitigation measures identified have been implemented.

17.10 The IEMA guidelines set out two rules as follows:

(i) Rule 1: Include highway links where traffic flows will increase by more than 30% (or where the number of HGVs will increase by more than 30%); and

(ii) Rule 2: Include any other specifically sensitive area where traffic flows have increased by 10% or more.

17.11 Links and junctions will be considered where either the overall traffic flows, or HGV flows, are expected to increase by more than 30% as a result of the proposed development. Links in proximity to sensitive receptors will be considered where traffic flows are expected to increase by more than 10% as a result of the proposed development. Sites which are considered to be sensitive receptors are Conservation Areas, schools, health facilities, community facilities and congested junctions.

17.12 Where the predicted increase in traffic / HGV flow is lower than these thresholds, then the significance of the effects can be considered to be low or not significant and further detailed assessment is not required.

## Preliminary Assessment of Baseline Conditions (2015)

### Study Area

17.13 Consideration will be given to the operation of both the Strategic Road Network (managed and maintained by Highways England) and the local highway network (as managed by the local highway authority, in this case Northamptonshire County Council). An indicative study area is enclosed at **Appendix 9.** The area has been developed in consultation with HE and NCC.

***Strategic Road Network (SRN)***

17.14 Once operational, the proposed development should lead to a net reduction in HGV traffic on the national road network outside of the study area. However, for the purpose of the assessment the focus will be upon those roads in the local area where an increase in traffic flows will occur.

17.15 The exact scope and extent of the assessments is subject to agreement with the HE and NCC. However, at this stage it is anticipated that individual junction capacity assessments would include (although are not limited to) the following junctions and connecting routes:

(i) M1 Junction 15A;

(ii) A5 / A43 roundabout; and

(iii) A43 / Towcester Road priority junction.

17.16 Additional area may be considered subject to discussions with HE and NCC.

***Northamptonshire Highway Network***

17.17 The exact scope and extent of the assessments is subject to agreement with NCC. However, at this stage it is anticipated that assessments would include (although is not limited to) the following junctions and connecting routes:

(i) A5123 / A5076 / Towcester Road roundabout;

(ii) Upton Way / A5076 / A5123 roundabout;

(iii) Towcester Road / Gayton Road / Rectory Lane staggered junction.

17.18 In addition to the junctions above, consideration will also be given to the following junctions:

(i) Tollgate Way / A4500 / A5076 Upton Way / Weedon Road roundabout;

(ii) Hunsbury Hill Avenue / A5076 Danes Camp Way / Hunsbury Hill Road roundabout; and

(iii) Northampton Road / Courteenhall Road / High Street priority junction.

17.19 Additional areas may be considered subject to discussions with NCC and HE.

***Consultations to date***

17.20 Consultation is on-going with highway officers at HE and NCC. Preliminary meetings with HE (then Highways Agency) took place on 14th March 2014 and with NCC on the 5th May 2014. Further meetings to discuss the availability and scope of traffic modelling took place with NCC on the 1st of May and with HE on 8th May 2015. In addition, to date three joint scoping meetings with HE and NCC have been held on 9th October 2015, 10th November 2015, and 1st December 2015. Further meetings to agree the series of technical Briefing Notes and other matters, where practical, have been scheduled on a monthly basis.

## Baseline Conditions

17.21 Baseline conditions on the transport network within the study area have been established to date through the collection of traffic flow data collected via Manual Classified Counts (MCCs), Automatic Traffic Counts (ATCs), and potentially extracted from existing VISSIM Traffic Models, as deemed appropriate. To date, traffic surveys have been undertaken at the following junctions:

### Manual Classified Counts and Queue Length Surveys

(i) M1 Junction 16 (18th June 2015);

(ii) M1 Junction 15A (18th June 2015);

(iii) M1 Junction 15 (22nd October 2015);

(iv) A43 (T) / Towcester Road priority junction (18th June 2015);

(v) A43(T) / A5 (T) roundabout (18th June 2015);

(vi) A45 (T) / A43 grade-separated roundabout (22nd October 2015);

(vii) A45 (T) / A428 grade-separated roundabout (22nd October 2015);

(viii) A45 (T) / A5076 grade-separated roundabout (18th June 2015 and 22nd October 2015);

(ix) A5076 / Towcester Road roundabout (18th June 2015);

(x) Hunsbury Hill Avenue / A5076 roundabout (18th June 2015);

(xi) A5076 / A5123 roundabout (18th June 2015);

(xii) Tollgate Way / A5076 roundabout (18th June 2015);

(xiii) Towcester Road / Gayton Road / Rectory Lane staggered junction (18th June 2015); and

(xiv) Northampton Road / Courteenhall Road / High Street priority junction (18th June 2015).

### Automatic Traffic Counts

17.22 Automatic Traffic Counts have been undertaken at the following locations:

(i) A43 (T) adjacent to site frontage (17th to 23rd June 2015);

(ii) Towcester Road adjacent to site frontage (17th to 23rd June 2015);

(iii) Caswell Road (17th to 23rd June 2015);

(iv) Landimore Road (17th to 23rd June 2015); and

(v) Liliput Road (17th to 23rd June 2015).

### Junction Capacity Modelling Analysis

17.23 Junction capacity analysis will be carried out to establish the baseline operation of the highway network. This will firstly comprise of existing micro simulation modelling for 2009 together with new stand-alone junction capacity testing. It will then include new micro-simulation modelling updated so as to be contemporary, together with stand-alone junction capacity testing as required.

17.24 Link capacity assessment work will also be carried out at key corridors as appropriate.

### Other Baseline considerations

17.25 Other matters that will be considered in this section will include:

(i) Access to local facilities and amenities;

(ii) Access to public transport;

(iii) Walking and cycling conditions; and

(iv) Personal Injury Accident Analysis.

## Characteristics of Potential Effects

17.26 The Proposed Development is anticipated to make a meaningful shift of national freight movements from road to rail thereby reducing trips by virtue of the fact that that rail has the ability to transfer more freight more efficiently.

17.27 In some instances on the wider highway network there will be a net decrease in HGV trips as a result of the Proposed Development.

17.28 As a result of the Proposed Development, there will be additional trips by all modes of travel to and from the site on the local highway network. Where appropriate, mitigation measures will be provided to improve junctions and to encourage sustainable travel alternatives. Mitigation will be considered and provided so that it is commensurate with the phasing of occupation of the development.

17.29 There will be construction activities associated with the build out of the site over a period of time and where appropriate, mitigation measures will be provided.

## Proposed Method of Assessment

### Desk Based Research

17.30 A number of documents and information will be referred to which include but not necessarily limited to the following:

(i) Homes and Communities Agency Employment Densities Guide 2nd Edition (2010);

(ii) Prologis Technical Note: Do Distribution Warehouses Deliver Jobs? (2011);

(iii) TRICS 2015 Database;

(iv) 2011 Census Data;

(v) DIRFT III Transport Assessment (2013);

(vi) DIRFT III Rail Operations Report (2012);

(vii) East Midlands Gateway SRFI Transport Assessment (2014);

(viii) East Midlands Gateway SRFI Framework Travel Plan (2014);

(ix) East Midlands Gateway SRFI Technical Note 4: Trip Rates and Traffic Generation (2012);

(x) Radlett SRFI Transport Assessment (2009);

(xi) Radlett SRFI Travel Plan and Freight Management Plan (2009); and

(xii) Radlett SRFI Environmental Statement Part III, Chapters 2 &3: Social and Economic Impact Assessment (2009).

(xiii) On-going demographic study information is to be provided by the planning consultant.

### Trip Attraction and Distribution

17.31 The forecast trip attraction and assignment of traffic at the proposed development will be agreed with HE and NCC. Once complete, the Briefing Notes will inform the forecasting of the number of vehicle trips associated with the site based on the forecast employee numbers, working patterns and mode share.

17.32 The forecast trip attraction will be agreed with HE and NCC in advance of the submission. It is anticipated that any assessments would be carried out using a realistic and robust scenarios under the principles of the 'Rochdale Envelope', which is used when the details of the whole project are not available at the time of assessment work and where there is a need for flexibility within clearly defined parameters that consider a range of likely possibilities.

17.33 The distribution of employee traffic onto the local and strategic highway network will be determined through the use of strategic modelling provided by NCC, together with information provided by the planning consultant in terms of future staff origin points. The distribution of HGVs will be provided by specialist in the Rail Central Team, referring to the Great Britain Freight Model (GBFM) as appropriate. The distribution will be agreed with HE and NCC in advance of the submission of the Transport Assessment. The distribution of traffic will be used to determine specific junctions on the local highway network where detailed junction capacity assessments are required.

17.34 Consideration will also be given to minimising all trips and avoiding HGV trips on local roads through nearby settlements.

### Traffic Modelling

17.35 Traffic modelling at junctions will be undertaken and the scope of these will be agreed with highway officers at HE and NCC. It is proposed that junction capacity assessments

will be carried out for a base year of 2016 and future years to be established which consider phasing of the development.

17.36 This baseline data would be increased to represent traffic growth and committed developments from the year of survey using nationally produced local traffic growth predictions ("TEMPRO NTM" factors).

## Legislation, Policy and Good Practice

17.37 The accessibility of the site will be assessed with consideration of national and local transport planning policy documents, including:

(i) the National Planning Policy Framework;

(ii) the West Northamptonshire Joint Core Strategy Local Plan;

(iii) Strategic Rail Freight Interchange Policy Guidance;

(iv) Design Manual for Roads and Bridges;

(v) Manual for Streets; and

(vi) Manual for Streets 2 – Wider Application of the Principles.

## Accessibility and Access Strategy

### *Vehicle Access Strategy*

17.38 The access strategy of the site is subject to the developing masterplan and discussions with HE and NCC as appropriate. However, at this stage it is anticipated that the proposed development will be served via two vehicular access arrangements:

(i) A four-arm grade-separated roundabout junction with the A43 to the west of the site (an indicative junction arrangement has already been prepared); and

(ii) A four-arm roundabout junction with Towcester Road (Northampton Road) which runs through the centre of the site in an approximate north-south direction.

17.39 As part of the assessment work, the proposed access points will be designed with reference to local and national highway design guidance in terms of geometry, design speed, internal road hierarchy and pedestrian and cycle routes. Road Safety Audits and designer's responses will also be carried out and agreed with HE and NCC for approval, as appropriate.

### *Walking and Cycling*

17.40 Trips generated by the development by walking and cycling will be assessed. This will be considered as part of the Briefing Notes, which will be agreed with HE and NCC.

17.41 Existing walking and cycling routes, distances to local facilities and services (including isochronal mapping) will be audited.

17.42 A range of measures and initiatives will be implemented as part of the development in order to improve and encourage access by pedestrians and cyclists. These will be confirmed as part of a detailed Framework Travel Plan which will be agreed.

***Public Transport Strategy***

17.43 A comprehensive public transport strategy will be developed in order to maximise the accessibility of the site. This will include plans detailing the availability of and connectivity to existing bus and rail services and facilities.

17.44 It is anticipated that the public transport strategy would include details of any proposed improvements to existing bus services and / or the provision of bespoke new bus services as necessary in order to provide frequent and convenient access for future employees of the site.

***Highway Safety Assessment***

17.45 Analysis of Personal Injury Accident (PIA) data for the most recent five year period available from the Highway Authority will be provided. The extent of the study area to be assessed will be agreed in advance with both HE and NCC. However, at this stage it is anticipated that this would include the highway network in the immediate vicinity of the site accesses as well as specific junctions where there is likely to be a significant impact as a result of the proposals. Mitigation will be proposed as necessary.

17.46 Road Safety Audits will be carried out at locations on the highways where mitigation measures are proposed.

## Assessing Significance of Effect

17.47 The assessment of potential impacts as a result of the scheme will take into account both the construction and operational phases. The significance level attributed to each impact will be assessed based on the magnitude of change due to the proposed development, and the sensitivity of the affected receptor to change.

17.48 There are four categories of impact significance considered, which are Negligible (i.e. nil or close to nil), Minor significance (i.e. not noteworthy or material), Moderate significance (i.e. noteworthy or material) and Major significance (i.e. extremely noteworthy or material).

17.49 The Institute of Environmental Assessments “Guidelines for the Environmental Assessment of Road Traffic” states that there may be significant environmental impact when traffic flows increase by more than 30% or in sensitive areas by at least 10%.

17.50 The definitions of magnitude used within this assessment have been based on these guidelines and are shown in Table 17.1. In each instance ‘daily’ is defined as Annual Average Daily Traffic (AADT).

17.51 Negligible, minor, moderate and major Impact Magnitudes can have either a beneficial or adverse Impact significance. The Impact Magnitudes and Significances which will be used are defined in Table 17.1.

**Table 17.1: Impact Magnitude and Significance**

| Magnitude / Significance | Construction Traffic | Development Traffic | Pedestrian & Cycle Journey Length |
|---|---|---|---|
| Major beneficial | 300 vehicles below daily flow or more than 75 less HGVs daily | 30% fewer daily vehicles | 50% or more reduction in journey length |
| Moderate beneficial | 160-300 vehicles below daily flow or 30-75 less daily HGVs | 15-30% fewer daily vehicles | 15-50% reduction in journey length |
| Minor beneficial | 50-160 vehicles below daily flow or 5-30 less daily HGVs | 5-15% fewer daily vehicles | 5-15% reduction in journey length |
| Negligible beneficial | Up to 50 vehicles below daily flow or up to 5 less daily HGVs | Up to 5% fewer daily vehicles | Up to 5% reduction in journey length |
| Neutral | No change in daily vehicles | No change in daily vehicles | No change |
| Negligible adverse | Up to 50 vehicles above daily flow or up to 5 more daily HGVs | Up to 5% additional daily vehicles | Up to 5% increase in journey length |
| Minor adverse | 50 -160 vehicles above daily flow or 5-30 more daily HGVs | 5-15% additional daily vehicles | 5-15% increase in journey length |
| Moderate adverse | 160-300 vehicles above daily flow or 30-75 more daily HGVs | 15-30% additional daily vehicles | 15-50% increase in journey length |
| Major adverse | Over 300 vehicles above daily flow or more than 75 more daily HGVs | Over 30% additional daily vehicles | Over 50% increase in journey length |

17.52 It is anticipated that the 30% threshold will been used as a benchmark, at which development traffic increases are considered to have a magnitude which is major.

## Likely Significant Effects

17.53 These will be considered for both the construction and operational stages of the Proposed Development.

### *Construction*

17.54 The Proposed Development will be constructed in phases. The key potential impacts of construction traffic to be considered will be:

(i) Unsocial hours disturbance;

(ii) Additional large vehicles on the local highway network;

(iii) Mud on the roads; and

(iv) Dust, noise and air quality nuisance (which will be covered separately elsewhere in the ES)

***Completed Development***

17.55 Once the Proposed Development has been completed the key potential impact to be considered is the magnitude and consequence of changes in traffic flows on the local highway network as a result of the proposed development.

17.56 The significance of the increase in AADT traffic on the majority of links will be assessed and significance of impact will be reported.

### Proposed Cumulative Assessment Effects

17.57 As part of the ES an assessment of likely significant cumulative effects will be undertaken. These will be agreed in advance with the local highway authority and other relevant statutory consultees.

### Proposed Mitigation and Residual Effects

17.58 Where appropriate, mitigation measures will be identified and considered to minimise potentially significant adverse effects so far as is practicable.

### Proposed Assessments to be Scoped Out

17.59 As part of the ongoing scoping discussions with highway officers at HE and NCC, the junctions to be considered will be determined and the junctions that require assessment will be confirmed accordingly. In some instances it is envisaged that rather than a full capacity assessment being required, a percentage impact on traffic flows will be sufficient to demonstrate the impact on some junctions is not severe and no further assessment is required.

### Proposed Mitigation and Residual Effects

17.60 To minimise the residual effect of the proposed development a number of measures will be introduced. These are considered below

### Framework Travel Plan

17.61 A detailed Framework Travel Plan (FTP) will be implemented as part of the Rail Central development. This will set out measures and initiatives to manage travel demand, minimise vehicular trips and encourage sustainable methods of transport.

17.62 The FTP will include Chapters on the following:

(i) site accessibility;

(ii) existing travel patterns;

(iii) roles and responsibilities;

(iv) objectives and targets;

(v) initiatives, measures and marketing; and

(vi) implementation and monitoring, including an action plan.

17.63 Travel Plans for large employment developments are typically aimed at achieving all (or some specific mix of) the following, depending upon opportunities and constraints:

(i) reduced levels of car use (particularly single occupancy);

(ii) a reduction in the need to travel at all;

(iii) improved travel choice, information, facilities and support (e.g. training, information and motivation to travel sustainably);

(iv) reduced car use;

(v) reduced environmental impact of car use (e.g. alternative fuels);

(vi) higher levels of walking and cycling than would otherwise be observed, with associated benefits to health and well-being;

(vii) realistic alternatives to private car use (e.g. car clubs and car sharing); and

(viii) better quality and increased use of public transport, improved / new bus routes and bespoke employee shuttle buses.

17.64 A key emphasis of the Travel Plan will be linking the development with the surrounding area to minimise the need to travel by car.

17.65 The list of initiatives and measures contained within the Travel Plans will be provided to maximise the opportunity to influence future travel patterns. A Travel Plan budget will be derived and agreed for each element.

17.66 A significant part of the responsibility of delivering the Travel Plans involves the establishment of a Travel Plan Coordinator (TPC) who will be responsible for the management of each of the plans to ensure their success through regular dialogue with the local highway authority, promotion of the Travel Plan through appropriate marketing and the suggestion and implementation of enhancements to the Travel Plan as and when necessary.

17.67 It is anticipated that the FTP would be an overarching document for the entire Rail Central development, with input from each individual occupier through a steering group. It is also anticipated that each occupier would be required to sign up to the Travel Plan as part of the respective leasing agreements.

### Construction Traffic Management Plan

17.68 It is envisaged that a Construction Traffic Management Plan will be required to control numbers, times and routing of deliveries. It is envisaged that this would be dealt with by way of a planning condition.

### Junction Improvement Works

17.69 In some instances junction improvements may be required. These are as yet to be identified, but will be agreed in due course with the highway authorities.

# 18. Socio Economic

## Introduction

18.1 An assessment will be undertaken to determine the likely significant socio-economic effects as a result of the Proposed Development. This will include identification and assessment of likely direct and indirect effects in respect of employment, expenditure and investment effects. The assessment will include consideration of the likely socio-economic effects associated with both the construction and operational (post completion) phases of the Proposed Development.

## Preliminary Assessment of Baseline Conditions

### Study Area

18.2 The assessment will be structured around a defined study area. The impacts of the Proposed Development will be assessed at various spatial scales, which in combination will reflect the study area in its entirety.

18.3 Turley Economics are currently undertaking analysis to define the extent of the study area through an informed understanding of the relevant economic market geography, containment within the local labour force, commuting patterns and drive times, and the consideration of the proximity of the Proposed Development Area (PDA) to local labour markets. Account will also be taken of the extent to which it may be appropriate to consider the potential for effects in a regional context.

### Field Surveys

18.4 The assessment will involve consideration of published secondary data, and therefore no field surveys will be undertaken.

### Consultations

18.5 Consultations will be undertaken as required with relevant authorities, representative bodies and organisations in a local and regional context, as appropriate.

## Baseline Conditions (Preliminary)

18.6 The baseline socio-economic conditions of the study area will be established through collation and analysis of the most up-to-date available secondary data that is nationally recognised, including:

- ONS UK Business: Activity, Size and Location (Ref 18.1);
- ONS Business Register and Employment Survey (Ref 18.2);
- ONS Annual Survey of Hours and Earnings, via Nomis (Ref 18.3);
- ONS Mid-year Population Estimates (Ref 18.4);
- ONS Annual Population Survey, via Nomis (Ref 18.5);

- 2011 Census data (Ref 18.6);
- 2001 Census data (Ref 18.7);
- ONS Jobseekers Allowance by Occupation, via Nomis (Ref 18.8); and
- DCLG Indices of Multiple Deprivation (IMD) (Ref 18.9).

18.7 The baseline will examine the extent to which key indicators have changed over time, with the analysis structured to respond to the study area, which is yet to be identified as highlighted above. The baseline will focus on the following indicators:

- Business Base;
- Number of Jobs;
- Earnings;
- Population;
- Labour force;
- Industry of employment and occupations;
- Qualifications and Skills;
- Latent labour force; and
- Deprivation.

18.8 Research that has been undertaken on the local labour force to date indicates the following:

- South Northamptonshire is covered by Northamptonshire Local Economic Partnership (LEP) and South East Midlands LEP. Approximately 270,000 people work in the Northamptonshire LEP area in 2011 and the area maintains a strong containment of labour, with 83.3% of jobs in the LEP area taken by residents (Ref 18.6). Approximately 663,500 people work in the South East Midlands LEP area while 81.3% of jobs in the LEP area were taken by residents in 2011. This suggests that both of the LEP areas are exporters of labour.
- Based on the scale of employment estimated to be generated by the proposed development, it is likely that Rail Central will need to draw on a wider labour force than is currently available in South Northamptonshire. People in higher income occupations – including managers, directors and those in professional or technical occupations – tend to be more likely to travel further to their place of work in Northamptonshire. This suggests that the creation of new jobs in these occupations would be likely to draw upon a wider labour catchment area, in contrast with sales, service, administrative or elementary occupations, where people are generally less likely to commute long distances and are more likely to be drawn from the local area.

- Analysis of JSA claimants (Ref 18.8) demonstrates that there is a sizeable pool of latent labour available in Northamptonshire that could potentially be available to take up the additional employment opportunities arising from the construction and operational phase of the proposed development.

## Characteristics of Potential Effects

18.9 The following effects may arise from the scope and nature of the Proposed Development:

- **Employment effects** – change in employment opportunities in the area;
- **Productivity effects** – change in productivity, as measured by Gross Value Added (GVA), as a result of employment opportunities during the construction and operational lifetime of the Proposed Development;
- **Indirect economic/expenditure effects** – indirect employment creation and effects on local spending associated with new employment opportunities;
- **Business rate revenue** – associated with creation of new rateable business floorspace and revenues associated with this floorspace;
- **Population** – employment opportunities may attract people to live and work in the local impact area;
- **Economic activity** – take-up of employment opportunities may enhance economic activity rates locally;
- **Unemployment rate** – take-up of employment opportunities may change unemployment rates;
- **Skills** – potential to change the skills profile through targeted skills and training provision; and
- **Deprivation effects** – employment, skills and training opportunities associated with the Proposed Development could change patterns of multiple deprivation.

## Potential Method of Assessment

18.10 There is no overarching guidance that sets out the preferred methodology for the preparation of assessments of the likely socio-economic effects of nationally significant infrastructure development proposals. Several established methodological guides have been published to cover key elements of the assessment. These will be drawn upon as appropriate within the assessment, with the HCA/offPAT Employment Densities Guide (Ref 18.10) and HCA Additionality Guide (Ref 18.11) of particular relevance.

### Overview

18.11 The proposed methodology consists of an assessment of socio-economic effects during both the construction and operational phases of the Proposed Development.

***Construction Phase***

18.12 The process for the modelling of effects derived from the Proposed Development during the construction phase is set out below.

***Employment effects***

18.13 In order to calculate the net full-time equivalent (FTE) employment generated through construction of the Proposed Development, the following methodology will be applied:

- In order to calculate the **number of jobs** generated through construction of the Proposed Development, total construction costs are identified and divided by the average turnover per employee in the construction sector in the East Midlands, drawn from the Business Population Estimates (BPE) 2014 (Ref 18.12), which calculates the number of employees generated directly by the implementation of the construction programme if it were to be completed in a single year. This is then divided by the length of the construction period to identify gross full-time equivalent (FTE) jobs. Considerations of allowances for leakage and displacement are made in line with recognised guidance (Ref 18.11) in order to calculate net FTE jobs generated by the development, and a multiplier is applied to allow for employment indirectly generated from the development during the construction phase, such as supply chain linkages or the value of contracts to local firms.

- In order to calculate the **uplift in GVA productivity** generated through construction of the Proposed Development, the average GVA per FTE worker is calculated using Experian local market forecasts (Ref 18.13). This is applied to the net FTE construction jobs estimated to be generated by the Proposed Development.

## Operational Phase

18.14 The process for the modelling of socio-economic effects over the long-term operational phase – upon completion of the Proposed Development – is set out below.

- In order to calculate the **number of jobs** generated through the operational phase, the maximum floorspace parameters for each use are identified to confirm the net additional floorspace, to which employment densities are applied following national guidance (Ref 18.10) to calculate the number of direct gross FTE jobs generated by the Proposed Development. Considerations of appropriate allowances for leakage and displacement are made in line with national guidance (Ref 18.11) in order to calculate a net figure of FTE job creation. A multiplier is also applied to allow for employment generated through indirect and induced effects to be factored in to the assessment.

- In order to calculate the **uplift in GVA productivity** generated through the operational phase, the average GVA per employee is drawn from Experian local market forecasts (Ref 18.13), with this average applied to the operational phase jobs generated by the development.

- In order to calculate the **uplift in non-domestic rates** (known as business rates) through the operational phase of the Proposed Development, the net additional floorspace is disaggregated by use. The Valuation Office Agency (VOA) business

rates valuation tool (Ref 18.14) is utilised to run comparable analysis of similar units and uses in the local area. The derived indicative rates are subsequently applied to estimated rateable floorspace elements within the Proposed Development, with a national multiplier applied to derive an estimated total business rate payable per annum.

- In order to consider the impact on **deprivation** the latest claimant count statistics (Ref 18.8) is utilised to establish the level of latent demand for employment within the labour force of the defined impact areas. This is cross referenced directly to the employment generating uses within the Proposed Development and the estimated level of direct employment generation. Consideration is also given to the level of economic activity and unemployment within the defined impact areas and the implications of the Proposed Development drawing upon data from the Annual Population Survey (APS) published by the ONS (Ref 18.5).

18.15 Economic impact estimates will be presented as net figures with any existing uses on the existing application site being considered and assessed utilising the same approach as set out above.

## Legislation, Policy and Good Practice

18.16 The assessment of socio-economic effects associated with the Proposed Development will include a review of established methodological guides, which have been published to cover key elements of the assessment. The main national legislation, policy and good practice documents relevant to the assessment are summarised below.

### *National Network National Policy Statement*

18.17 The National Network National Policy Statement (NN NPS), published in December 2014 (Ref 18.15), recognises the significant importance that the national rail network plays in in supporting economic growth and sustaining existing economic activity and productivity. Paragraphs 2.1 and 2.2 of the NN NPS sets out the need to further develop national networks:

*"Well-connected and high-performing networks with sufficient capacity are vital to meet the country's long-term needs and support a prosperous economy.*

*There is a critical need to improve the national networks to address road congestion and crowding on the railways to provide safe, expeditious and resilient networks that better support social and economic activity; and to provide a transport network that is capable of stimulating and supporting economic growth. Improvements may also be required to address the impact of the national networks on quality of life and environmental factors."* (Para 2.1 – 2.2, Ref 18.15)

18.18 The particular role of SRFIs is set out at paragraphs 2.46 – 2.58, including:

18.19 *"A network of SRFIs is a key element in aiding the transfer of freight from road to rail, supporting sustainable distribution and rail freight growth and meeting the changing needs of the logistics industry, especially the ports and retail sector. SRFIs also play an important role in reducing trip mileage of freight movements on the national and local road networks. The siting of many existing rail freight interchanges in traditional urban locations means that there is no opportunity to expand, that they lack warehousing and*

*they are not conveniently located for the modern logistics and supply chain industry."* (Para 2.47, Ref 18.15)

18.20 *"The Government has concluded that there is a compelling need for an expanded network of SRFIs. It is important that SRFIs are located near the business markets they will serve – major urban centres, or groups of centres – and are linked to key supply chain routes. Given the locational requirements and the need for effective connections for both rail and road, the number of locations suitable for SRFIs will be limited, which will restrict the scope for developers to identify viable alternative sites".* (Para 2.56, Ref 18.15)

*18.21* Advice on land-use aspects of SRFI is provided in NN NPS paragraphs 4.83 – 4.87

*18.22 "SFRIs can provide many benefits for the local economy. For example because many of the on-site functions of major distribution operations are relatively labour intensive, this can create many new job opportunities. The existence of an available and economic local workforce will therefore be an important consideration for the applicant".*(Para 4.87, Ref 18.15)

***National Planning Policy Framework***

18.23 The National Planning Policy Framework (NPPF), published in March 2012 (Ref 18.16), sets out the Government's statutory planning policies for England. The NPPF is built around a policy commitment to sustainable development, with the planning system expected to play both an economic and social role. Details of these roles are provided in paragraph 7 of the NPPF:

*"an economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure"*

*"a social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being"* (Para 7, Ref 18.16)

18.24 At the heart of the NPPF is a 'presumption in favour of sustainable development', which requires local authorities in the development of their Local Plans to adopt a positive approach in order to seek opportunities to meet the development needs of an area. Further clarification is provided through the core planning principles set out at paragraph 17 of the NPPF, which – importantly – includes the following requirement for planning to:

*"proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Every effort should be made objectively to identify and then meet the housing, business and other development needs of an area, and respond positively to wider opportunities for growth"* (Ref 18.16)

18.25 The NPPF is supplemented by the web-based Planning Practice Guidance (PPG) (Ref 18.17), which provides further guidance on Environmental Impact Assessment – as governed by the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 – in order to assess whether a development would have a significant effect on the environment. Statements should primarily focus on main or significant environmental effects, with impacts of little or no significance addressed only briefly to show that they have been considered (Ref 18.17).

***Additionality Guide***

18.26 The Homes and Communities Agency (HCA) Additionality Guide (Ref 18.11), published in January 2014, informs the relevant national framework for assessment of the likely socio-economic effects of the Proposed Development. The document provides guidance to practitioners on the standard methodology and issues associated with assessing the additional effects of an intervention or development, such as the Proposed Development.

18.27 Utilising the approach set out within the document ensures conformity to nationally accepted standards for assessing potential socio-economic effects, and is entirely appropriate for the purposes of assessing planning applications for proposed development schemes.

***Employment Densities Guide***

18.28 The Employment Densities Guide (2nd edition) was published in 2010 by offPAT and HCA (Ref 18.10), and is designed to assist in the estimation of employment generated by development.

18.29 The document provides guidance to practitioners on the standard methodology and issues associated with assessing the level of direct employment per square metre of an intervention or development. Utilising the approach set out within the document ensures conformity to nationally accepted standards for assessing potential socio-economic effects, and is entirely appropriate for the purposes of assessing planning applications for proposed development schemes.

18.30 The main sub-regional and local socio-economic policy and guidance documents that are relevant to the assessment are summarised below. Any relevant documents that are published following the submission of this scoping report will also be considered.

- Northamptonshire LEP Strategic Economic Plan (Ref 18.18);
- South East Midlands LEP Strategic Economic Plan (Ref 18.19);
- West Northamptonshire Joint Core Strategy Local Plan (Part 1) (Ref 18.20); and
- South Northamptonshire Economic Development Strategy (Ref 18.21).

## Assessing Significance of Effect

18.31 This section describes the framework for assessment of socio-economic effects, particularly in identifying the magnitude of effect, the sensitivity of receptor and the significance of effect.

### Magnitude of Effect

18.32 The following table defines the different magnitudes of effect that may arise during the construction and operation of the Proposed Development.

**Table 18.1: Defining Magnitude of Effect**

| Level of Magnitude | Definition of Magnitude |
|---|---|
| **High** | Effect will dominate over baseline conditions, or will be highly likely to affect large numbers of people and/or businesses over the long term. Considered to be a very important consideration, and likely to be material in the decision-making process. |
| **Moderate** | Effect can be demonstrated to change baseline conditions, and is likely to affect a moderate number of people and/or businesses over a medium duration. Effect may be important, but is not likely to be a key decision-making factor unless the cumulative effects of such factors lead to an increase in the overall effect on a particular socio-economic resource or receptor. |
| **Low** | Effect will result in a perceptible difference from baseline conditions, and is likely to affect to a small number of people and/or businesses over a short duration. Effect may be raised as a local factor, but is unlikely to be critical in decision-making process. |
| **Negligible** | Effect does not result in variation beyond baseline conditions, and is unlikely to measurably affect people and/or businesses. |

18.33 In the absence of published policy or guidance, the definitions have drawn upon previous experience and professional judgement.

### Sensitivity of Receptor

18.34 The following table provides a framework for the definition of different levels of sensitivity.

**Table 18.2: Defining Sensitivity of Receptor**

| Sensitivity | Definition |
|---|---|
| **Very high** | Receptor of international importance, with little or no ability to absorb, adapt to or recover from change. |
| **High** | Receptor of national importance, with little ability to absorb, adapt to or recover from change. |
| **Moderate** | Receptor of regional or local importance, with medium ability to absorb, adapt to or recover from change. |
| **Low** | Receptor of local importance, with some ability to absorb, adapt to or recover from change. |
| **Negligible** | Receptor of local importance, with ability to absorb, adapt to or recover from change. |

18.35 In the absence of published policy or guidance, the definitions drawn upon previous experience and professional judgement.

### Duration of Effect

18.36 The duration of effects will be taken into consideration when determining the overall significance of the effects. The following timescales will be used:

- Short term: 0 to 5 years including the construction period and on completion;
- Medium term: 5 to 15 years including establishment of replacement and proposed mitigation planting; and
- Long term: 15 years onwards for the life of the Proposed Development.

### Significance of Effect

18.37 The following table provides the framework by which the overall significance of socio-economic effects are to be assessed. In the absence of published policy or guidance, the definitions have drawn upon experience and professional judgement.

**Table 18.3: Matrix for Assessing Significance of Effect**

| Assessing Significance of Effects | | | | | |
|---|---|---|---|---|---|
| Magnitude of Effect | Sensitivity of Receptors | | | | |
| | Very high | High | Moderate | Low | Negligible |
| **High** | Major | Major | Moderate | Moderate | Minor |
| **Medium** | Major | Moderate | Moderate | Minor | None |
| **Low** | Moderate | Moderate | Minor | None | None |
| **Negligible** | Minor | Minor | None | None | None |

18.38 Economic impacts are based on quantitative analysis and can therefore be compared to previous performance in relevant economic indicators.

- The significance of the impacts during the construction phase is determined based on the assumed levels of change that are expected to occur during the construction period based on past trends. The impacts of the proposed development are benchmarked against this trend going forward.
- The significance of the impacts during the operational phase is determined based on the percentage change from latest evidence compared with annual change over the past 10 years, where such data is available.

(a) If the proposed development alone generates 75% or more of the expected change over the construction period based on historic change, the impact is major;

(b) If the proposed development alone generates between 50% - 74% of the expected change over the construction period based on historic change, the impact is moderate;

(c) If the proposed development alone generates between 25% - 49% of the expected change over the construction period based on historic change, the impact is minor; and

(d) If the proposed development alone generates less than 25% of the expected change over the construction period based on historic change, the impact is negligible.

18.39 The level of significance determined through this process is then sense checked using professional judgement and modified where necessary.

18.40 For the purposes of this assessment, any effect that is moderate or above is considered to be significant in EIA terms with regard to its socio-economic effects.

## Cumulative Impacts

### Proposed Cumulative Assessment: Intra-relationship of Effects

18.41 An assessment of the intra-relationship of socio-economic effects with other topic areas that give rise to predicted effects on the same receptor will be undertaken.

### Proposed Cumulative Assessment: Inter-relationship of Effects

18.42 The socio-economic assessment will include an assessment of the likely significant effects arising from cumulative effects from the Proposed Development in combination with other developments. A full list of relevant committed schemes will be agreed in advance with the host local authority and other relevant statutory consultees.

## Potential Mitigation and Residual Effects

18.43 Where significant adverse socio-economic effects are identified, mitigation measures will be identified to avoid or minimise harm in so far as is practicable. The residual effects of the development following mitigation measures will also be confirmed.

## Assessments Proposed to be Scoped Out of EIA

18.44 No potential socio-economic effects have been scoped out, on the basis that there is not yet sufficient information to be able to do so. In light of the potential socio-economic effects of the Proposed Development, it is considered appropriate to **scope this issue into the ES**.

## References

18.1 ONS (2014) ‘UK Business: Activity, Size and Location’

18.2 ONS via Nomis (2014) ‘Business Register and Employment Survey’

18.3 ONS via Nomis (2015) ‘Annual Survey of Hours and Earnings’

18.4 ONS via Nomis (2014) ‘Mid-year Population Estimates’

18.5 ONS via Nomis (2015) ‘Annual Population Survey’

18.6 ONS (2011) ‘Census’

18.7 ONS (2001) ‘Census’

18.8 ONS via Nomis (2015) ‘Jobseekers Allowance by Occupation’

18.9 DCLG (2015) ‘Indices of Multiple Deprivation (IMD)’

18.10 HCA/offPAT (2010) ‘Employment Densities Guide (2nd edition)’

18.11 HCA (2014) ‘Additionality Guide (4th edition)’

18.12 Department for Business, Innovation and Skills (2015) ‘Business Population Estimates’

18.13 Experian (2014) ‘Local Market Forecasts Quarterly’

18.14 http://voa.gov.uk

18.15 Department for Transport (2014) ‘National Policy Statement for National Networks’

18.16 DCLG (2012) ‘National Planning Policy Framework’

18.17 http://planningguidance.planningportal.gov.uk

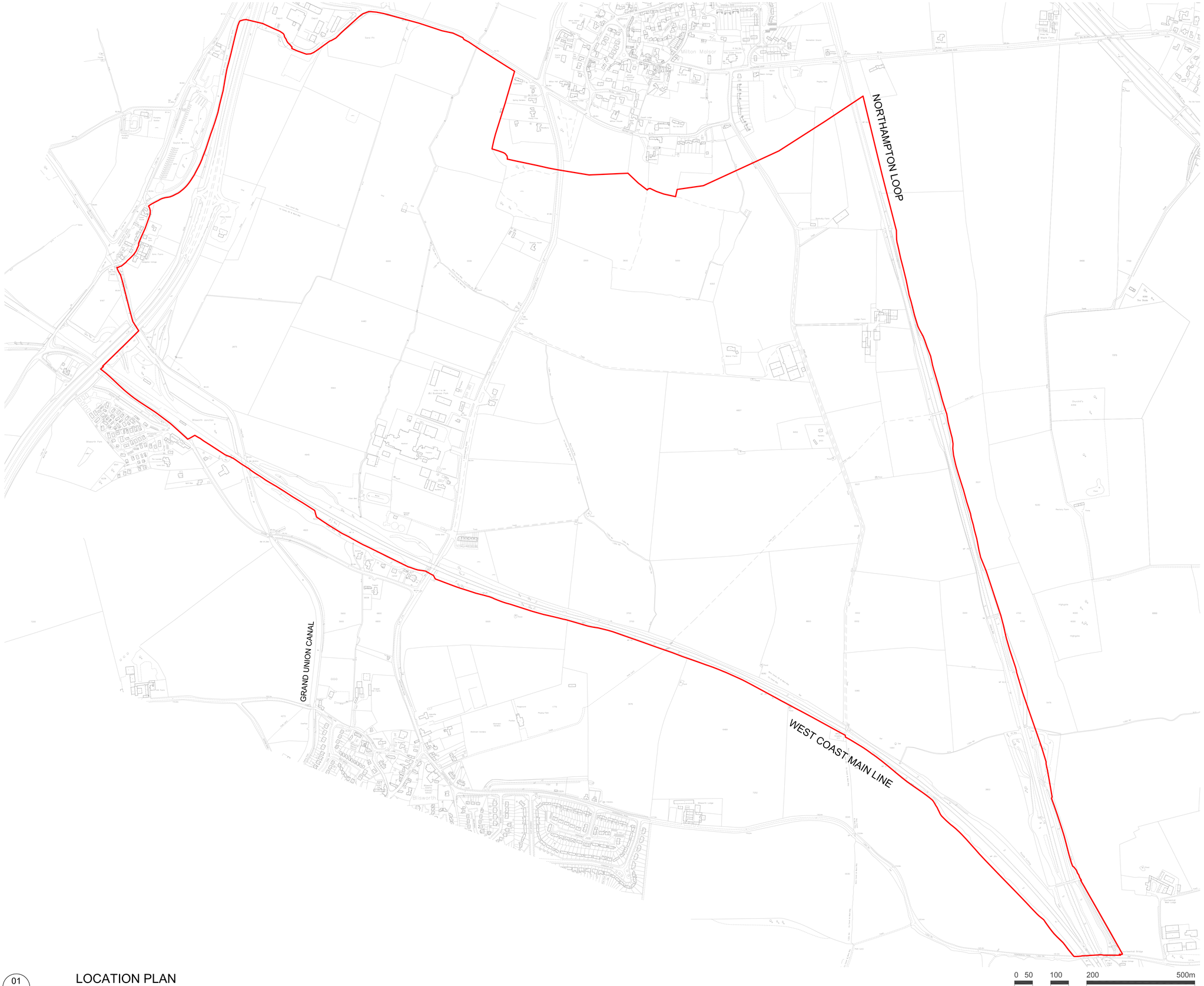
18.18 Northamptonshire Local Enterprise Partnership (2014) ‘Strategic Economic Plan’

18.19 South East Midlands Local Enterprise Partnership (2014) ‘Strategic Economic Plan’

18.20 West Northamptonshire Joint Strategic Planning Committee (2014) ‘West Northamptonshire Joint Core Strategy Local Plan (Part 1)’

18.21 South Northamptonshire Council (2012) ‘South Northamptonshire Economic Development Strategy’

# Appendix 1:  Location Plan




## NOTES:

SUBJECT TO STATUTORY CONSENTS

SUBJECT TO SURVEY

BASED ON OS MAP REPRODUCED BY PERMISSION OF CONTROLLER OF HM STATIONARY OFFICE (c) CROWN COPYRIGHT



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N

LEGEND

**POTENTIAL DEVELOPMENT AREA.**
BASED ON:
DRAWING IN ACCORDANCE WITH GIS SHAPEFILE SUBMITTED TO PINS.
DATED: 05-12-15.

| REV | DATE | NOTE | DRAW | CHCK |
|---|---|---|---|---|
| | | | | |

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ASHFIELD LAND

TITLE
RAIL CENTRAL

DRAWING
APPENDIX 1 - LOCATION PLAN
INDICATING THE POTENTIAL DEVELOPMENT AREA

CLIENT
ASHFIELD LAND

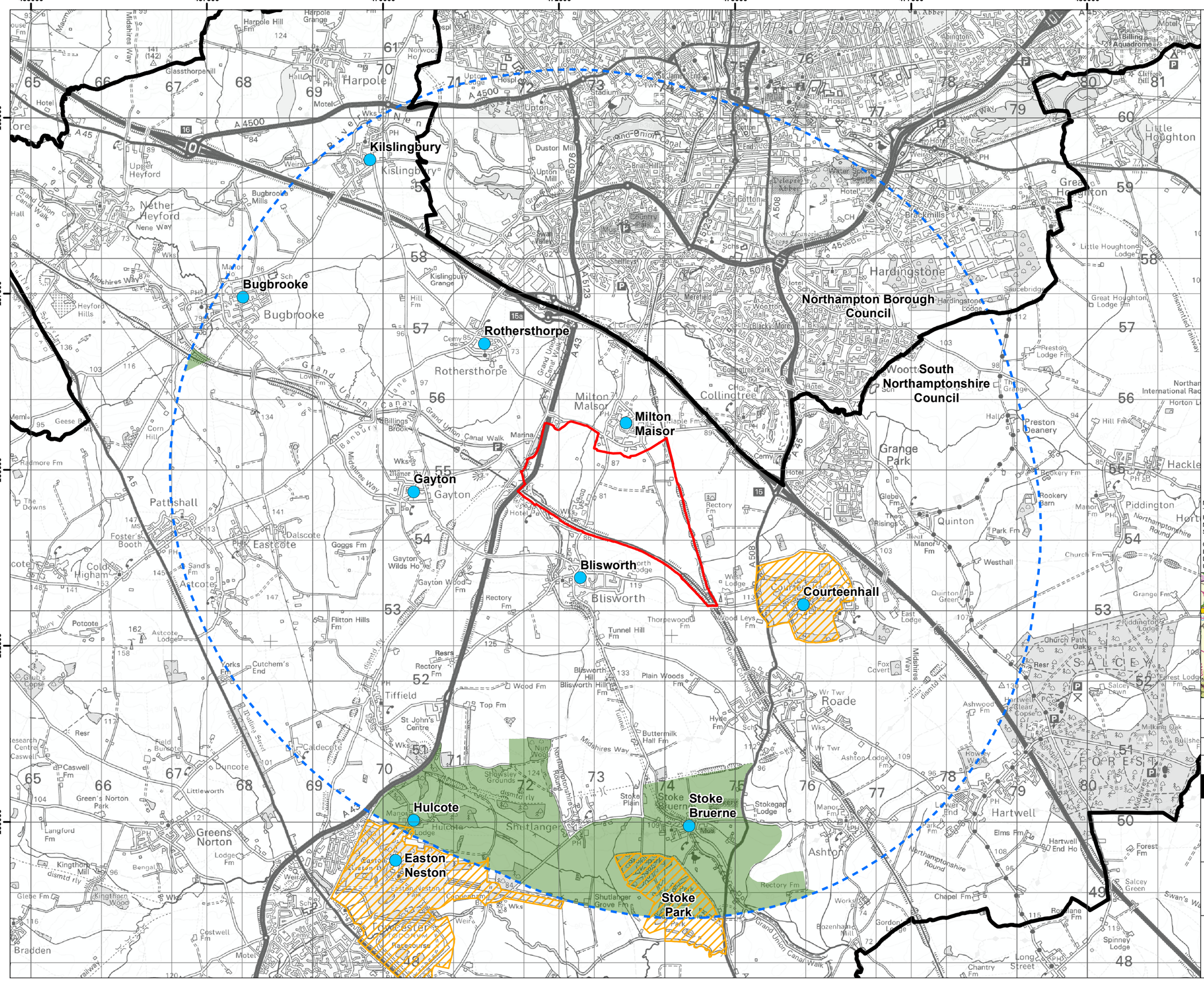
| DATE | SCALE | DRAWN |
|---|---|---|
| DEC 2015 | 1:5000@A1 | PF |
| | STATUS: FEASIBILITY | CHECKED: MS |

DRAWING NUMBER
30708-FE-38

01
38

LOCATION PLAN

# Appendix 2: Landscape Policy and Designations




| Rev | Date | Description | Drn | Chk | App |
|---|---|---|---|---|---|
| 00 | 09/12/2015 | First Draft | DR | JM | CF |

Armtrack

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TITLE:
Appendix 2:
Landscape Policy and Designations

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# Appendix 3: National Landscape Character

465000 467500 470000 472500 475000 477500 480000

260000 257500 255000 252500 250000

## Legend:

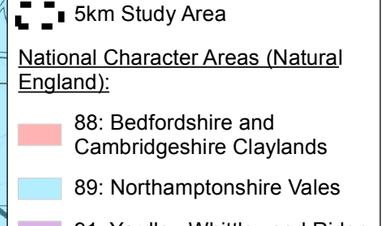
- Site Boundary
- 5km Study Area

National Character Areas (Natural England):

- 88: Bedfordshire and Cambridgeshire Claylands
- 89: Northamptonshire Vales
- 91: Yardley-Whittlewood Ridge
- 95: Northamptonshire Uplands

Notes:-
This map contains data from the following sources-
Natural England (29-04-2015)

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter




| Rev | Date | Description | Drn | Chk | App |
|---|---|---|---|---|---|
| 00 | 09/12/2015 | First Draft | DR | JM | CF |

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RSK

TITLE:
Appendix 3:
National Landscape Character

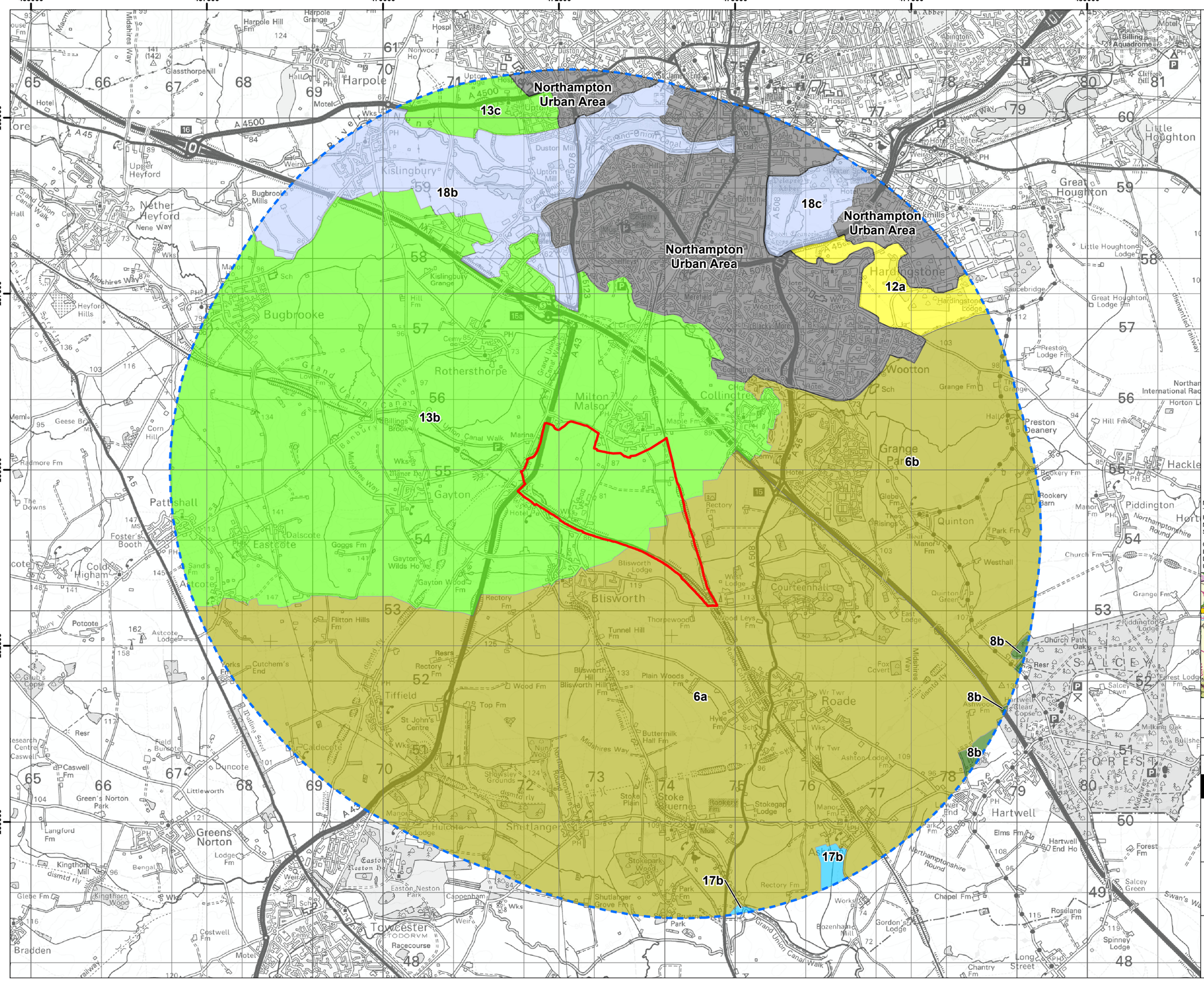
0 1 2
Kilometres
SCALE: 1:50,000 @ A3

N W E S

REV 00

Document Path: P:\30000 EPD Landscape\P32316 - Armtrack\01 Graphics\01 - GIS\Appendix 3 - National Landscape Character.mxd

# Appendix 4: Regional Local Landscape Character




Notes:-
This map contains data from the following sources-
Historic England (29-04-2015)
Natural England (29-04-2015)
South Hamptonshire Council

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter


| Rev | Date | Description | Drn | Chk | App |
|---|---|---|---|---|---|
| 00 | 09/12/2015 | First Draft | DR | JM | CF |

**Armtrack**

RSK

TITLE:
Appendix 4:
Regional/Local Landscape Character

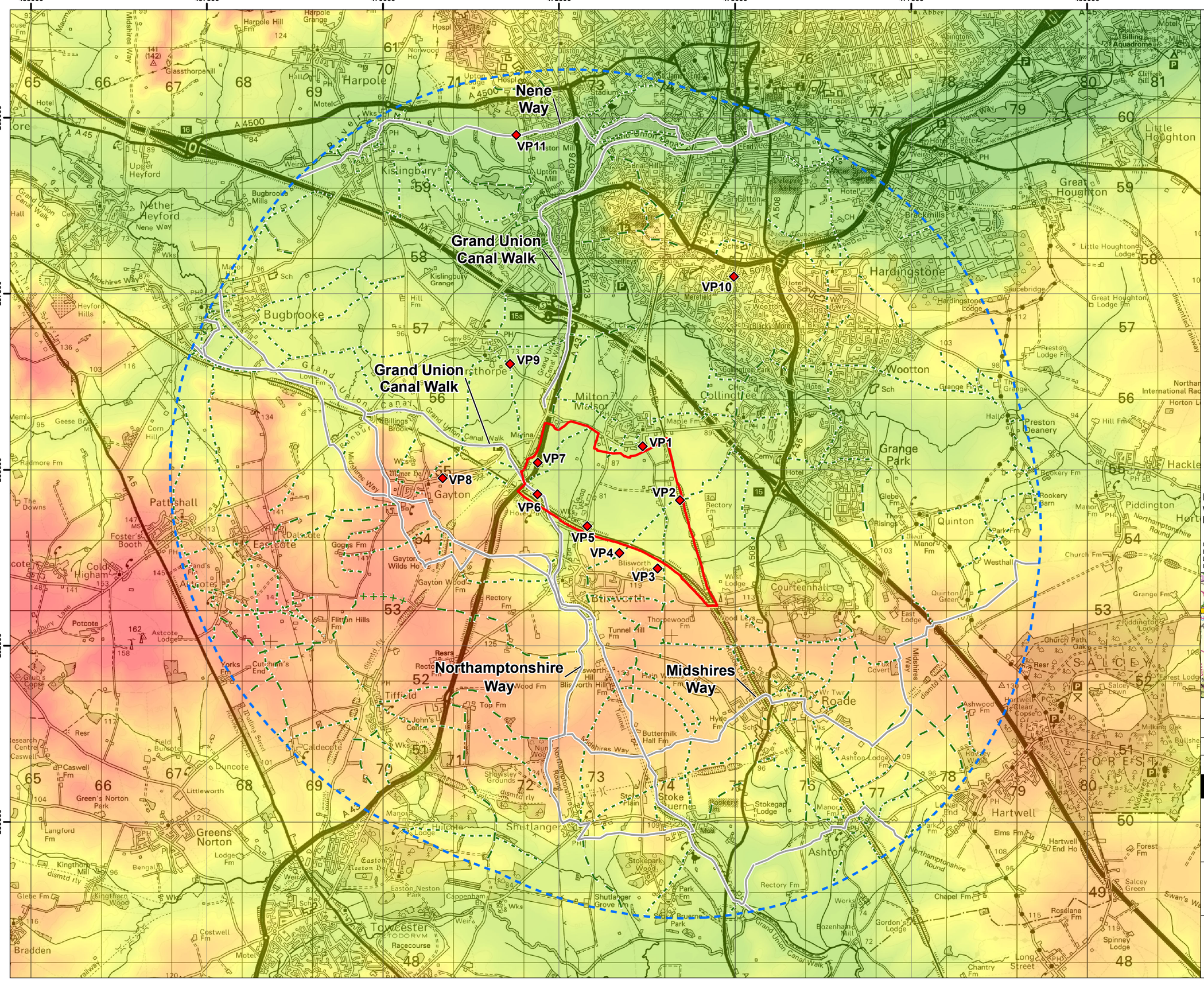
0 1 2
Kilometres
SCALE: 1:50,000 @ A3

N W E S

REV 00

Document Path: P:\30000 EPD Landscape\P32316 - Armtrack\01 Graphics\01 - GIS\Appendix 4 - Regional Local Landscape Character.mxd

# Appendix 5:  Visual Context




## Legend:

- Site Boundary
- 5km Study Area
- Viewpoint Locations
- National Trails/Long Distance Paths

Height (m):

- High : 162
- Low : 50

Public Right of Way:

- Bridleway
- Byway
- Footpaths

N.B. Long distance paths and public right of way are indicative only and are not exact locations.

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter


| Rev | Date | Description | Drn | Chk | App |
|---|---|---|---|---|---|
| 00 | 09/12/2015 | First Draft | DR | JM | CF |

**Armtrack**

RSK

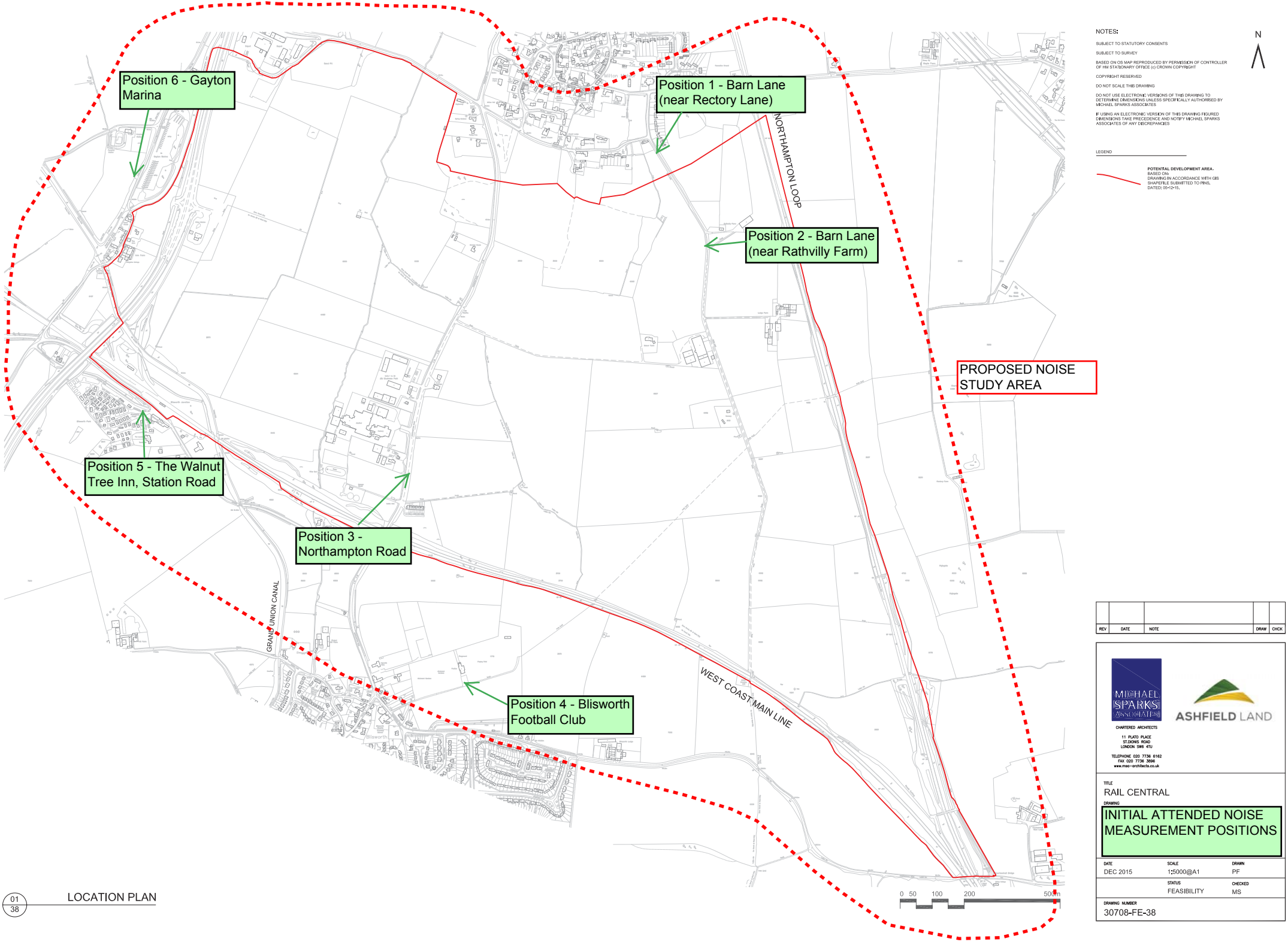
TITLE:
Appendix 5:
Visual Context

0 1 2
Kilometres
SCALE: 1:50,000 @ A3

REV 00

Document Path: P:\30000 EPD Landscape\P32316 - Armtrack\01 Graphics\01 - GIS\Appendix 5 - Visual Context.mxd

# Appendix 6: Noise Measurement Locations




NOTES:

SUBJECT TO STATUTORY CONSENTS

SUBJECT TO SURVEY

BASED ON OS MAP REPRODUCED BY PERMISSION OF CONTROLLER OF HM STATIONARY OFFICE (c) CROWN COPYRIGHT

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N

LEGEND

POTENTIAL DEVELOPMENT AREA.
BASED ON:
DRAWING IN ACCORDANCE WITH GIS SHAPEFILE SUBMITTED TO PINS.
DATED: 06-12-15.

| REV | DATE | NOTE | DRAW | CHCK |
|---|---|---|---|---|

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ASHFIELD LAND

TITLE
RAIL CENTRAL

DRAWING
INITIAL ATTENDED NOISE MEASUREMENT POSITIONS

| DATE | SCALE | DRAWN |
|---|---|---|
| DEC 2015 | 1:5000@A1 | PF |
| | STATUS | CHECKED |
| | FEASIBILITY | MS |

DRAWING NUMBER
30708-FE-38

01
38

LOCATION PLAN

# Appendix 7: Glossary of Acoustic Terms

## Glossary of acoustic terms

### Ambient Sound
Totally encompassing sound in a given situation at a given time usually composed of sound form many sources, near and far.

### Specific Sound Source
The sound source under investigation or for assessment.

### Specific Sound Level Level. $L_{Aeq,T}$
The Equivalent continuous A-Weighted Sound Level at an assessment position produced by a Specific Sound source over a given referred time interval, $T_r$

### Rating Level $L_{Ar,T}$
The Specific Sound level plus any adjustment for the characteristic features of the noise (e.g. tones or impulsivity)

### Residual Sound
The ambient sound remaining at given position in a given situation when the specific sound source is suppressed to a degree such that it does not contribute to the ambient noise.

### Background Sound Level, $L_{A90,T}$
The A-Weighted sound pressure level of the residual sound at the assessment position that is exceeded for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.

# Appendix 8: Preliminary Baseline Noise Survey

# ENVIRONMENTAL NOISE RECORD SHEET



**Location:** Position 1 – Barn Lane (near Rectory Lane)
**Date:** 30/03/15; 01-02/04/15
**Calibration Times:** 15:40, 18:20; 23:05, 01:20

**Project:** Project Armtrack
**Instrumentation:** B&K2260/6
**Plant Operating Condition:** Background noise survey

| Date | Time | | Weather | | | Noise Level dB(A) | | | | | | Comments (Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | $L_{10}$ | $L_{50}$ | $L_{90}$ | $L_{MAX}$ | $L_{MIN}$ | $L_{Aeq}$ | |
| 30/03/15 | 15:43 | 5 | 3-5 | S | 100 | 56 | 50 | 48 | 86 | 46 | 62 | Plane, traffic, birds, trees, clatter from towed trolley in lane |
| 30/03/15 | 17:13 | 5 | 3-5 | SW | 100 | 54 | 51 | 50 | 70 | 48 | 53 | Traffic, birds, plane, train, trees |
| 01/04/15 | 23:07 | 5 | 2-3 | SW | 100 | 49 | 44 | 41 | 55 | 39 | 46 | Traffic, trains, birds, light rain |
| 02/04/15 | 00:13 | 5 | 2-5 | WSW | 100 | 47 | 43 | 41 | 53 | 40 | 44 | Traffic, trees, wind |

| Date | Time | dB(A) | Octave Band Pressure Level | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 31 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| | | | | | | | | | | | | |

# ENVIRONMENTAL NOISE RECORD SHEET

| | | | |
|---|---|---|---|
| **Location:** | Position 2 – Barn Lane (near Rathvilly Farm) | **Project:** | Project Armtrack |
| **Date:** | 30/03/15; 01-02/04/15 | **Instrumentation:** | B&K2260/6 |
| **Calibration Times:** | 15:40, 18:20; 23:05, 01:20 | **Plant Operating Condition:** | Background noise survey |

| Date | Time | | Weather | | | Noise Level dB(A) | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | $L_{10}$ | $L_{50}$ | $L_{90}$ | $L_{MAX}$ | $L_{MIN}$ | $L_{Aeq}$ | (Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise). |
| 30/03/15 | 15:56 | 5 | 3-5 | S | 100 | 51 | 45 | 44 | 62 | 42 | 48 | Traffic, birds, sheep, planes, train, trees |
| 30/03/15 | 17:23 | 5 | 3-5 | SW | 100 | 58 | 52 | 49 | 70 | 46 | 55 | Sheep, train, rain, traffic |
| 01/04/15 | 23:17 | 5 | 2-3 | SSE | 100 | 47 | 40 | 38 | 61 | 37 | 45 | Traffic, sheep, light rain, train, screech |
| 02/04/15 | 00:23 | 5 | 3-5 | WSW | 100 | 55 | 46 | 43 | 59 | 42 | 51 | Traffic, train, wind, trees |

| Date | Time | dB(A) | Octave Band Pressure Level | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 31 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| | | | | | | | | | | | | |

# ENVIRONMENTAL NOISE RECORD SHEET



**Location:** Position 3 – Northampton Road
**Date:** 30/03/15; 01-02/04/15
**Calibration Times:** 15:40, 18:20; 23:05, 01:20

**Project:** Project Armtrack
**Instrumentation:** B&K2260/6
**Plant Operating Condition:** Background noise survey

| Date | Time | | Weather | | | Noise Level dB(A) | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | $L_{10}$ | $L_{50}$ | $L_{90}$ | $L_{MAX}$ | $L_{MIN}$ | $L_{Aeq}$ | (Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise). |
| 30/03/15 | 16:13 | 5 | 3-5 | S | 100 | 71 | 63 | 56 | 78 | 51 | 67 | Traffic, train, birds, trees |
| 30/03/15 | 17:37 | 5 | 3-5 | SW | 100 | 75 | 68 | 58 | 79 | 49 | 71 | Traffic, trains, rain |
| 01/04/15 | 23:29 | 5 | 1-3 | S | 100 | 55 | 41 | 39 | 78 | 37 | 59 | Traffic, train, light rain |
| 02/04/15 | 00:35 | 5 | 3-5 | S | 100 | 59 | 43 | 40 | 81 | 38 | 60 | Traffic, train, wind, trees |

| Date | Time | dB(A) | Octave Band Pressure Level | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 31 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| | | | | | | | | | | | | |

# ENVIRONMENTAL NOISE RECORD SHEET



| | | | |
|---|---|---|---|
| **Location:** | Position 4 – Blisworth Football Club | **Project:** | Project Armtrack |
| **Date:** | 30/03/15; 01-02/04/15 | **Instrumentation:** | B&K2260/6 |
| **Calibration Times:** | 15:40, 18:20; 23:05, 01:20 | **Plant Operating Condition:** | Background noise survey |

| Date | Time | | Weather | | | Noise Level dB(A) | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | $L_{10}$ | $L_{50}$ | $L_{90}$ | $L_{MAX}$ | $L_{MIN}$ | $L_{Aeq}$ | (Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise). |
| 30/03/15 | 16:25 | 5 | 5-8 | S | 100 | 50 | 48 | 46 | 58 | 45 | 49 | Traffic, wind, train, trees, birds |
| 30/03/15 | 17:47 | 5 | 3-5 | SW | 100 | 57 | 53 | 50 | 71 | 47 | 55 | Traffic, trains, rain |
| 01/04/15 | 23:39 | 5 | 3-5 | S | 100 | 44 | 41 | 39 | 56 | 37 | 42 | Traffic, train, light rain, wind |
| 02/04/15 | 00:44 | 5 | 5-8 | WSW | 100 | 50 | 43 | 40 | 58 | 38 | 46 | Traffic, wind (gusty), trees |

| Date | Time | dB(A) | Octave Band Pressure Level | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 31 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| | | | | | | | | | | | | |

# ENVIRONMENTAL NOISE RECORD SHEET



**Location:** Position 5 – The Walnut Tree Inn, Station Road
**Project:** Project Armtrack
**Date:** 30/03/15; 01-02/04/15
**Instrumentation:** B&K2260/6
**Calibration Times:** 15:40, 18:20; 23:05, 01:20
**Plant Operating Condition:** Background noise survey

| Date | Time | | Weather | | | Noise Level dB(A) | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | $L_{10}$ | $L_{50}$ | $L_{90}$ | $L_{MAX}$ | $L_{MIN}$ | $L_{Aeq}$ | (Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise). |
| 30/03/15 | 16:37 | 5 | 3-5 | SW | 100 | 63 | 55 | 53 | 77 | 51 | 63 | Trains, planes, traffic |
| 30/03/15 | 18:00 | 5 | 3-5 | SW | 100 | 60 | 56 | 53 | 81 | 51 | 64 | Traffic, train, rain |
| 01/04/15 | 23:50 | 5 | 2-3 | SW | 100 | 67 | 46 | 41 | 73 | 39 | 61 | Traffic, trains |
| 02/04/15 | 00:58 | 5 | 5-10 | WSW | 100 | 51 | 44 | 40 | 64 | 39 | 48 | Traffic, wind, trees |

| Date | Time | dB(A) | Octave Band Pressure Level | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 31 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| | | | | | | | | | | | | |

# ENVIRONMENTAL NOISE RECORD SHEET



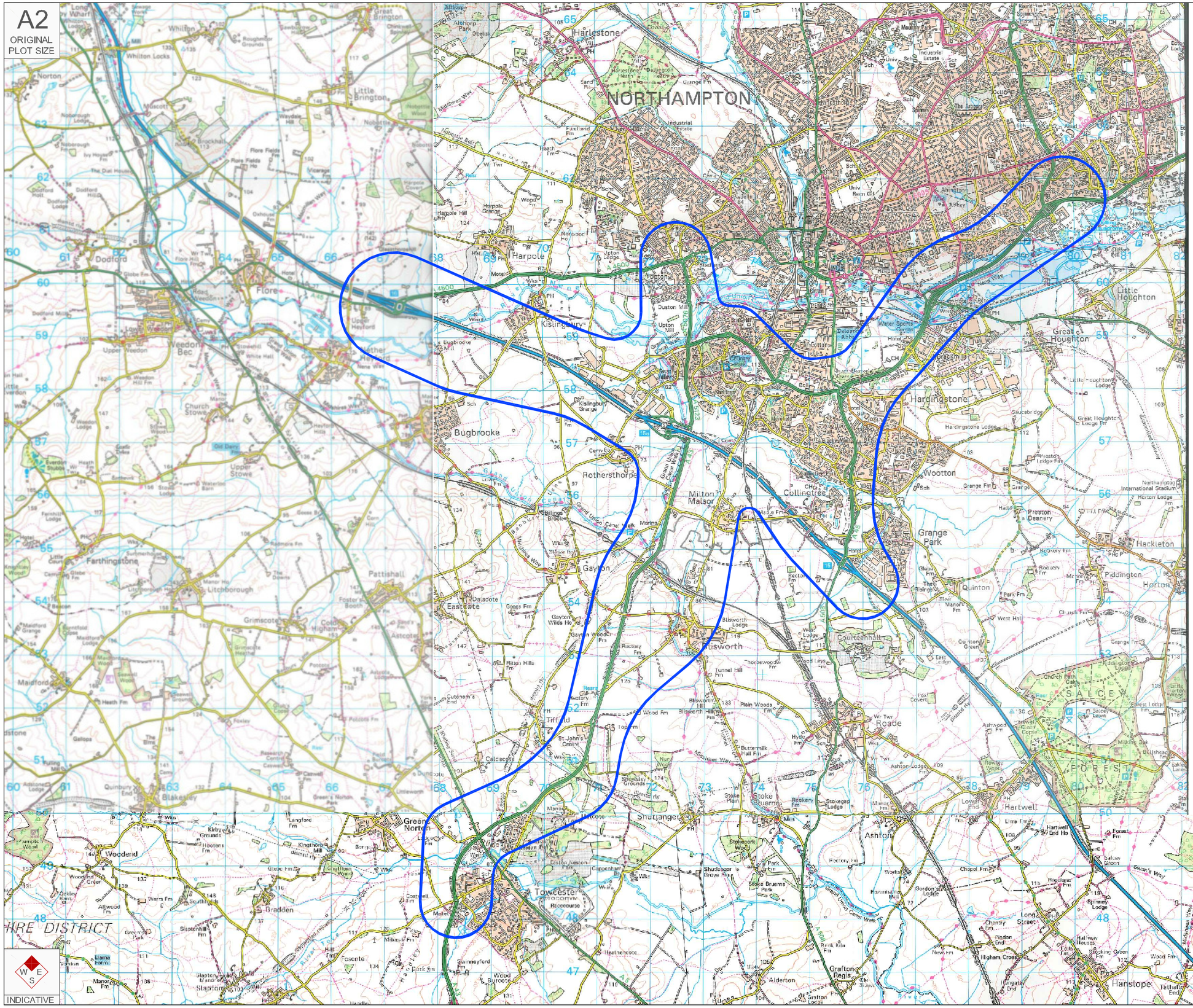
**Location:** Position 6 – Gayton Marina
**Date:** 30/03/15; 01-02/04/15
**Calibration Times:** 15:40, 18:20; 23:05, 01:20
**Project:** Project Armtrack
**Instrumentation:** B&K2260/6
**Plant Operating Condition:** Background noise survey

| Date | Time | | Weather | | | Noise Level dB(A) | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | $L_{10}$ | $L_{50}$ | $L_{90}$ | $L_{MAX}$ | $L_{MIN}$ | $L_{Aeq}$ | (Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise). |
| 30/03/15 | 16:50 | 5 | 3-5 | SW | 100 | 64 | 61 | 58 | 72 | 55 | 62 | Traffic, train, plane |
| 30/03/15 | 18:10 | 5 | 3-5 | SW | 100 | 65 | 63 | 60 | 69 | 55 | 63 | Traffic, train, birds, rain |
| 02/04/15 | 00:00 | 5 | 1-3 | SSW | 100 | 51 | 46 | 43 | 57 | 41 | 48 | Traffic, trains |
| 02/04/15 | 01:08 | 5 | 5-10 | WSW | 100 | 54 | 49 | 43 | 61 | 40 | 51 | Traffic, wind, trees |

| Date | Time | dB(A) | Octave Band Pressure Level | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 31 | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| | | | | | | | | | | | | |

# Appendix 9: Highways Indicative Study Area

A2
ORIGINAL
PLOT SIZE




INDICATIVE

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KEY

Potential Area Of Assessment

| No. | Date | Details | Drawn By | Checked By | Approved By |
|---|---|---|---|---|---|
| - | - | - | - | - | - |


Bristol
Cambridge
Cardiff
London
Oxford
Welwyn Garden City

tpa
Transport Planning Associates

25 King Street
Bristol
BS1 4PB
0117 925 9400

www.tpa.uk.com


CLIENT:
ASHFIELD LAND

PROJECT:
RAIL CENTRAL,
MILTON MALSOR

TITLE:
Potential Area Of Assessment

STATUS:
INFORMATION

| SCALE: | DATE: | DRAWN: | CHECKED: | APPROVED: |
|---|---|---|---|---|
| NTS | 26.11.15 | AJS | JNT | CMR |

| JOB NO: | DRAWING NO: | REVISION: |
|---|---|---|
| 1211-80 | Appendix 9 | |


Rail Central
Northamptonshire