

Langtree PP & Panattoni

Six 56 Warrington

Addendum to Environmental Statement Part I

Revision B-C ~~26th March 2019~~ 04 October 2020



This Environmental Statement is prepared in association with:



Revision Record

Revision Reference	Date of Revision	Nature of Revision	Author	Checked By
B	26 th March 2019	Legal review	Gavin Winter	DR
<u>C</u>	4 th October 2020	ES Addendum	Gavin Winter	DR

This document now constitutes part of an Addendum to the Environmental Statement originally submitted to Warrington Borough Council (WBC) in April 2019 to accompany the outline planning application for a 'for warehouse development (Use Class B8 with ancillary B1 (a) offices) and associated infrastructure at the Application Site referred to as Six 56 Warrington.

Since the submission of the planning application, consultation responses have been received from key consultees and further discussions have taken place with the Council and their key consultees (namely WBC Highway Officers, Highways England (HE) and their consultants Atkins, WBC Environmental Protection Officers, Historic England and WBC Conservation Officer and Ramboll landscape designers acting on behalf of WBC).

Further clarification and information has been provided in line with requests by HE and WBC Highway's Officer relating to the design of the mitigation and the Warrington Multi Modal Transport Model WMMTM traffic model.

WBC Environmental Protection expressed concerns with exposure to high noise levels that may be experienced at existing properties on Cartridge Lane and sensitive receptors within the site comprising Bradley Hall Cottages and Bradley View to potentially unacceptably high noise levels, even with mitigation in place, based on the worst case estimates of the proposals as illustrated on the submitted masterplan and parameters plans.

Landscape Consultants Ramboll's acting on behalf of the Council have also recommended further supplementary information, including an assessment of potential effects on the visual amenity of properties in the vicinity, in order to provide greater transparency to the LVIA and its findings and to aid WBC in its determination of the application.

Consequently, the illustrative masterplan and parameters plans have evolved to address comments raised by these key consultees to reduce the noise impacts on sensitive receptors within the site through the realignment of estate roads and other amendments including provision of bunding and details of the highway access into the Site with minor changes to the location of the first roundabout into the site from the east to reflect the alignment of the estate road into the site.

Further assessments have also been undertaken in respect of noise and vibration and landscape and visual impacts and cultural heritage. This Addendum therefore includes additional and updated information to address the comments raised by key consultees.

The table below confirms the amendments to the proposals, and the resulting amendments to technical papers and their figures and appendices, as well as any other matters addressed within this ES Addendum:

Amendment	Reason for Amendment	Resultant Technical Paper Addendum	Resultant Amendments to the Technical Paper Figures and Appendices
Outline Planning Application Description of Development	The outline planning application description of development now includes the removal of any change of use of Bradley Farmhouse to B1 (a) office use. This has now been removed from the description of development and any change of use of this building will be dealt with separately at a later date following the grant of any outline permission, once prospective uses of this building have been fixed. To mitigate any impact on any residential amenity associated with noise emanating as a result of the proposed Six 56 employment development, the applicant will agree to cease use of this building for residential purposes on commencement of development. A commitment to cease this use can be controlled through a S106 Agreement.	Traffic and Transportation	Appendix 2.1 Updated Transport Assessment Appendix 2.2 Updated Travel Plan
		ES Part I Report	=
		ES Non-Technical Summary	=
Updates to Illustrative	The illustrative masterplan and parameters plans have evolved to address comments raised by these	Flood Risk & Drainage	Appendix 3.2 – Flood Risk Assessment and Drainage Strategy which includes revised drainage strategy plans.

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
<u>Masterplan and Parameter Plans</u>	<u>key consultees to reduce the noise impacts on sensitive receptors within the site, including re-alignment and location of landscape bunds around Bradley Hall Cottages and consequential changes to surface water drainage features and the number and function of replacement ponds in response to GMEU concerns. Realignment of estate roads and other minor amendments including details of the highway access into the Site with minor changes to the location of the first roundabout into the site from the east to reflect the alignment of the estate road into the site and proposed parking</u>	<u>Transportation & Traffic</u>	<u>Appendix 2.1 Updated Transport Assessment which includes revised highways detail associated with access into the site.</u>
		<u>Ecology & Nature Conservation</u>	<u>Appendix 5.8 – Response to Ecology Consultation Comments (10682/R02a)</u>
		<u>Landscape and Visual Impact</u>	<u>Appendix 4.3 - Landscape Photomontages which show changes to landscaping detail on key viewpoints</u>
		<u>Noise & Vibration</u>	<u>Table 7.2: Summary of Consultations and Discussions which references discussions with WBC Environmental Protection Officer regarding changes to the illustrative masterplan</u> <u>Appendix 7.3 – Acoustic Barrier Mitigation</u>
		<u>Cultural Heritage & Archaeology</u>	<u>Table 9.1: Summary of Consultations and Discussions which references discussions with Historic England regarding amendments to the illustrative masterplan</u>

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
	<p><u>ans service yard closet to Bradley View</u></p>	<p><u>ES Part I Report</u></p>	<p><u>Figure 4.4 Development Cells Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.5 Disposition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.6 Height Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.7 Green Infrastructure Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.8 Access and Circulation Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.9 Drainage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.10 Acoustic Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.11 Heritage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.12 Demolition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 3 – Means of Access Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 4 – Illustrative Masterplan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 5 – Proposed Parameter Plans (Updated to include changes to the proposals)</u></p> <p><u>Appendix 7 – Topographical Survey Plan and Cut and Fill Finished Levels Contour Plan (Updated to include changes to the proposals)</u></p>
	<p><u>Amendments have been made to the mitigation package of works to</u></p>	<p><u>Traffic and Transportation</u></p>	<p><u>Appendix 2.1 Updated Transport Assessment</u></p> <p><u>Appendix 2.2 Updated Travel Plan</u></p>
		<p><u>ES Non-Technical Summary</u></p>	<p><u>Updates to illustrations and plans including illustrative masterplan and parameters plans and photomontages</u></p>

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
<p><u>Detailed design of the mitigation for the M6 Junction 20 and the adjacent Grappenhall Lane/A50 roundabout and clarification and updates to the M6 Junction 20 Base Model</u></p>	<p><u>junction 20 of the M6, including rationalisation of lane markings; works to carriageway widths on the Grappenhall Lane/A50 roundabout and updates to the M6 Junction 20 Base Model to reflect discussions with HE and WBC Highways</u></p>	<p><u>ES Part I Report</u></p>	<p><u>Figure 4.4 Development Cells Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.5 Disposition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.6 Height Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.7 Green Infrastructure Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.8 Access and Circulation Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.9 Drainage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.10 Acoustic Parameters Plan (Updated to include changes to the proposals and Site Sections showing height of bunds for approval)</u></p> <p><u>Figure 4.11 Heritage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.12 Demolition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 3 – Means of Access Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 4 – Illustrative Masterplan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 5 – Proposed Parameter Plans (Updated to include changes to the proposals)</u></p>
		<p><u>ES Non-Technical Summary</u></p>	<p><u>Updates to illustrations and plans including illustrative masterplan and parameters plans which refer to highway mitigation amendments</u></p>
		<p><u>Traffic and Transportation</u></p>	<p><u>Appendix 2.1 Updated Transport Assessment</u></p> <p><u>Appendix 2.2 Updated Travel Plan</u></p>
<p><u>Pedestrian and Cycle Routes and Public Transport</u></p>	<p><u>Updates to relevant sections of the Part I and Part sections of the Addendum to reflect agreements to providing commuted sums towards continuing shared</u></p>	<p><u>ES Part I Report</u></p>	<p><u>Figure 4.8 Access and Circulation Parameters Plan (Updated to include changes to the proposals)</u></p>

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
	<u>cycleway/footway beyond the Application boundary and safeguarding a section of the Applicants land, adjacent to Grappenhall Lane to facilitate any future road widening and improvements required on Grappenhall Lane. Agreement of a commuted sum of £600,000 towards improved bus services via a S106 financial obligation.</u>	<u>ES Non-Technical Summary</u>	<u>Updates to illustrations and plans including illustrative masterplan and parameters plans which refer to highway mitigation amendments</u>
<u>Landscape and Visual Impact (LVIA) amendments</u>	<u>Amendments have been made to the LVIA following discussions with Ramboll Consultants, advising the Council on landscape matters. Changes include an additional baseline character and visual amenity analysis, consideration of the residual effects of lighting on landscape and visual effects and a Residential Visual Amenity Study (RVAS).</u>	<u>Landscape and Visual Impact</u>	<u>Appendix 4.3 Landscape Photomontages Residential Visual Amenity Study (RVAS)</u>
		<u>ES Part I Report</u>	<u>Appendix 16 – Lighting Assessment (Updated to include changes to the proposals and the residual effects of lighting on landscape and visual effects</u>
<u>Socio-economic Impacts</u>	<u>Consideration has now been given to the socio-economic impact of automation on the logistic sector following discussions with WBC Officers</u>	<u>Socio-Economic</u>	<u>Table 6.1: Socio-economic policy context Table 6.2: Sources of socio-economic data and guidance</u>
		<u>ES Part I Report</u>	=
		<u>Non-Technical Summary</u>	=

Amendment	Reason for Amendment	Resultant Technical Paper Addendum	Resultant Amendments to the Technical Paper Figures and Appendices
<u>Alternative Sites Assessment (ASA)</u>	<u>Reference to additional information and evidence to assess a wider area of search for alternative sites beyond Warrington's boundaries and further assessment of the Fiddlers Ferry site which will be reported in the separate Replacement Planning Statement.</u>	<u>ES Part I Report</u>	=
<u>Cumulative Development</u>	<u>Updates have been provided in respect of the current planning position associated with the Eddie Stobart planning application and appeal at Barleycastle Lane, Warrington and clarification in respect of the cumulative development / number of dwellings proposed in the Garden Suburb site allocation to be delivered in the emerging Plan Period</u>	<u>Flood Risk & Drainage</u>	<u>Table 3.9 Cumulative Development</u>
		<u>Traffic and Transportation</u>	<u>Table 10.1 - Cumulative Development</u>
		<u>Ecology & Nature Conservation</u>	<u>Table 5.13: Cumulative Development</u>
		<u>Landscape and Visual Impact</u>	<u>Table 4.17: Cumulative Development</u>
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		<u>Cultural Heritage & Archaeology</u>	<u>Table 9.12: Cumulative Development</u>
		<u>ES Part I Report</u>	<u>Table 9.1 Cumulative Developments (Updated)</u>
<u>Non-Technical Summary</u>	=		

Table 0.1: Details within ES Addendum

The amendments to the scheme are identified through the Project Description (Section 2 and are detailed in the Design Evolution (Section 4.31) of this ES Part I Addendum Report.

In order to ensure the Addendum is understandable and to avoid extensive cross referencing, changes have been integrated within the original text of the ES and its technical papers to form a single Addendum to the ES. Wherever changes or additions have been made to the text of the original technical paper, the text has been underlined and anything that is no longer relevant

or valid has been struck through but retained within the text. A log is also included within the ES Part I Report Addendum (**Appendix 19**) and the appendices of each technical paper so that the text removed (i.e. the text struck through within the paper) is identified and a reason for its removal provided. This Addendum should however be read in conjunction with the original ES (April 2019) as not all the technical papers have been subject to change.

The technical papers and their appendices that have been subject to amendment as part of the ES Addendum are as follows:

- Traffic and Transportation
- Water Quality and Drainage
- Landscape and Visual Impact
- Ecology and Nature Conservation
- Socio Economic
- Noise and Vibration
- Cultural Heritage

The technical papers that have not been subject to change as part of the ES Addendum are as follows:

- Ground Conditions and Contamination;
- Air Quality
- Utilities
- Energy
- Waste
- Agricultural Land & Soils

This Addendum should however be read in conjunction with the original ES submitted to WBC in April 2019 as the other technical papers (Ground Conditions and Contamination; Air Quality, Utilities, Energy, Waste and Agricultural Land and Soils) have not been amended or subject to change and as such are not included within this Addendum, but still remain valid and still form part of the ES for the planning application. See **Appendix 18** of the ES Part I Addendum which provides Consultants confirmation that there are no changes to the significance of impacts in the Ground Conditions and Contamination; Air Quality, Utilities, Energy, Waste and

Agricultural Land and Soils Technical Papers arising from the updated project description presented in this ES Addendum.

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Appendix 3 – Means of Access Plan (Updated to include changes to the proposals)
Appendix 4 – Illustrative Masterplan(s) (Including Superseded and Updated Version to include changes to the proposals)
Appendix 5 – Proposed Parameter Plans (Updated to include changes to the proposals- Site Sections to show noise mitigation)
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I. Introduction

- I.1. This Environmental Statement (ES) Addendum has been prepared on behalf of Langtree PP & Panattoni to accompany the outline planning application for warehouse development (Use Class B8 with ancillary BI (a) offices) and associated infrastructure at the Application Site referred to as Six 56 Warrington.
- I.2. The ES and its Addendum is prepared under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (referred to as the Amended 2017 Regulations hereafter) except for those parts of the 2017 Regulations amended by the temporary Town and Country (Development Management Procedure, Listed Buildings and Environmental Impact Assessment) (England) (Coronavirus) (Amendment) Regulations 2020 (referred to as the Amended 2020 Regulations hereafter), which commenced on 16 May 2017. The Amended 2020 Regulations commenced on 14 May 2020 and make amendments to the 2017 EIA Regulations to allow an alternative approach to consultation during the current coronavirus pandemic. It should be noted that these Amended Regulations are temporary and will cease to have effect on 31 December 2020 at which point those parts of the 2017 EIA Regulations that were amended by the 2020 Regulations will come back into force. The Scoping Opinion was received from Warrington Council on 6th April 2018.
- I.3. This ES is made up of three parts, the ES Part 1 Report, the ES Part 2 and the Non-Technical Summary.
- I.4. ~~This~~ The original Part I Report and this Part I Report Addendum for the ES sets out the project description, the need for development and the alternatives considered. It includes an overview of the environmental impacts of the proposals with a summary of the mitigation measures proposed. It contains the methodology for assessing the significance of the environmental effects. It also includes an assessment of the interaction of effects and a summary of the cumulative impacts assessed as part of each of the technical areas. The Part I Report and its Addendum should be read in conjunction with the ES Part 2, which contains each of the Technical Papers and their Addendums. A separately bound Non-Technical Summary Addendum is also included as part of this ES, and summarises the ES in non-technical language.
- I.5. A series of plans and illustrations are included within the text and appendices to help the reader understand the background to the proposals and the scheme. It also provides an understanding as to how the development fits within the planning framework. Part I is important in

establishing the context for the development allowing readers to understand the objectives of the proposed development. It sets out the framework for how significant impacts have been assessed.

Summary of Planning Application

- 1.6. The Application Site is 98.09 hectares (242.39 acres) and is located on Land at Junction 20 of the M6 Motorway and Junction 9 of the M56, to the southeast of Warrington (approximately 6 km (3.5 miles) from the town centre) in the North West of England as shown in the plan in **Appendix 2**. The site is predominantly within the authority area of Warrington with small section in the southeastern part of the site located within the Cheshire East administrative boundary. The National and Regional context is shown on the plan in **Appendix 1**.
- 1.7. The planning application is ~~to be~~ submitted as an outline application and the Proposed Development is detailed below.

The outline application (all matters reserved except for means of access) comprises the construction of up to 287,909m² (3,099,025ft²) (gross internal) of employment floorspace (Use Class B8 and B1(a) offices) ~~including change of use of Bradley Hall Farmhouse to B1 (a) office use (335m² (3,600ft²))~~, demolition of existing agricultural outbuildings and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation, alteration of existing access road into site including works to the M6 J20 dumbbell roundabouts and realignment of the existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.

- 1.8. All matters, except for the Means of Access are reserved for consideration at a later date. The updated Means of Access is shown on the plan at **Appendix 3**.

Summary of Proposals

1.9. Langtree PP and Panattoni is proposing to develop the site for warehouse development (Use Class B8 with ancillary BI (a) offices) and associated infrastructure.

1.10. The planning application ~~will~~ comprises the following:

- Up to 287,909m² (3,099,025ft²) (gross internal) of employment floorspace (Use Class B8 with ancillary BI (a) offices)
- ~~Change of use Bradley Hall Farmhouse, to BI (a) office use ((335m²) (3600ft²))~~
- Alteration to the existing access into the site with two new roundabouts into the site from the B5356 Grappenhall Lane
- Works to the M6 J20 dumbbell roundabouts and realignment of the existing A50 roundabout
- Associated car parking and service areas
- Internal vehicle circulation roads
- Pedestrian and cycle circulation routes, including footpaths alongside roads and diversion of Public Rights of Way (route no.'s 23 and 28) which bisect the site
- Earthworks to create development platforms and bunds
- Drainage features, including attenuation areas and SuDs
- Landscaping including noise mitigation features
- Ecological works including wetland ponds
- Electrical Substation and pumping station

1.11. The following table summarises the development areas:

Development Type	Number of Units	Total Area (hectares) (Approximate)
Employment uses – B8 (up to 287,909m ² (3,099,025ft ²) (including ancillary BI (a) offices, car parking and service yards) and change of use of the existing Bradley Hall Farm house ((335m²) (3600ft²)) to BI (a) office use.	7 to 13 new buildings across the site (Zones A – D)	62.9 ha 64.74ha

Road Infrastructure	-	5.96 ha 6.25ha
Structural Landscaping / Buffers / Bunds	-	26.43 ha 23.87ha
Attenuation Areas / SUDs / Swales	-	2.7 ha 3.13ha
Proposed Substation	-	0.1 ha
Total	7 to 13	98.09ha

Table 1.1: Development Areas

- 1.12. The plans included in **Appendices 1, 2, 3, 4 and 5** confirm the Site location (National, Regional, Local Context), Site boundary, Means of Access (updated to include changes to the proposals), Parameter Plans for the proposals (updated to include changes to the proposals) and Illustrative Masterplan (updated to include changes to the proposals) respectively.
- 1.13. The Parameter Plans are a series of plans detailing the parameters for the proposals including Development Cells, Disposition (including uses), Green Infrastructure, Access and Circulation, Noise, Drainage, Building Heights and finished floor levels and heritage (including buffers to heritage asset) (all updated to include changes to the proposals). The updated Illustrative Masterplan shows how the site could be developed, taking account of the updated Site Parameters. The updated Illustrative Masterplan and updated Parameter Plans for the Application Site are shown in **Appendix 4 and 5** respectively.

Environmental Impact Regulations, Screening and Scoping

- 1.14. The proposals do not fall within Schedule 1 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as “the 2017 EIA Regulations”) where an Environmental Statement (ES) is mandatory. However, the proposals do fall within Schedule 2 paragraph 10 b of the EIA Regulations as an “Urban Development Project” in excess of one hectare of urban development which is not a dwelling house development / includes more than 150 dwellings / the overall area is in excess of five hectares.
- 1.15. Nevertheless, an Environmental Impact Assessment is not needed for every Schedule 2 project. The 2017 EIA Regulations (as amended by the temporary 2020 Regulations) and the PPG (Planning Practice Guidance) are clear that an Environmental Impact Assessment (EIA) is

required for Schedule 2 projects only if they are likely to give rise to “significant effects on the environment by virtue of factors such as its nature, size or location”.

1.16. It has been agreed with Warrington Council that this development and its cumulative effects have the potential for significant effects on the environment and as such is considered to be EIA Development requiring an ES to be prepared as part of the EIA process.

1.17. In accordance with Part 4, Regulation 13, a Scoping Report was submitted to Warrington Council on 27 February 2018 (**Appendix 12**). This considered the range of environmental issues against which the proposals should be assessed as part of the Environmental Impact Assessment process. A Scoping Opinion was issued by Warrington Council on 6 April (**Appendix 13**).

1.18. The Scoping response from Warrington Borough Council (WBC) included responses from the following consultees:

- Greater Manchester Ecology Unit
- Warrington Council Asset & Flood Section LLFA (Lead Local Flood Authority)
- Environment Agency
- Highways England
- Cheshire Archaeology Planning Advisory Service (Total Environment), Cheshire Shared Services
- Warrington Council Public Health Team
- Warrington Council Environment & Public Protection (Contaminated Land, Noise, Air Quality)
- National Grid
- Environment Agency
- Natural England
- United Utilities
- Warrington Planning Policy
- Warrington Highways Development Management
- Warrington Council Lighting
- Warrington Council Trees and Woodland Section

1.19. The main points of the Scoping Opinion are summarised below:

- The LPA consider that bearing in mind the proposed heights of the development proposed (and therefore the wide ranging visual impact), an assessment of the impact on the setting of the below heritage assets should be included within any subsequent EIA.
 - DCH1638 Yew Tree Farmhouse Grade II Listed Building | 139340
 - DCH1659 Beehive Farmhouse Grade II Listed Building | 139361

- DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I 139362
- DCH1934 Booths Farm Farmhouse Grade II Listed Building I 329740
- DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building
- DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm
- DCH13677 Tan House Farm, Barleycastle Lane, Appleton
- Barleycastle Farmhouse, Barleycastle Lane - DCH1329741
- Tanyard Farm building, Barleycastle Lane - DCH1139363
- WBC consider that the cumulative impacts should be undertaken as a sub-Warrington basis, (rather than at the wider town level) given the broad levels of inequalities evident locally. Such an assessment should take into consideration the positive/negatives in terms of the socio-economic impacts for different areas/population groups and evidence should also be provided on how the proposed development would impact local residents that are in greatest need.
- WBC' Highways Section consider that the information contained within the Traffic & Transportation section of the Scoping Report is acceptable, subject to the assessment of the existing junctions (set out in the Scoping Report) being undertaken/re-assessed utilizing the information contained within Warrington Multi Modal Transport Model.
- Highways England (HE) consider that, given the wider proposals for a Garden Suburb in the Warrington Borough Council's Local Plan Preferred Development, the cumulative impacts of wider proposed development are not defined, and the necessary infrastructure improvements have not been determined. HE have concerns that, in the absence of a cumulative assessment of potential growth in the south-east Warrington area, the development's contribution to future network needs and infrastructure requirements cannot be determined at this stage. A cumulative assessment should therefore be included as part of any subsequent EIA in order to address such concerns.
- Further detail should be provided in the Transport Assessment in respect of how sustainable access to the site is proposed, with proposals for staff to access the site by non-car modes.
- The ES Scoping Report sought to scope out the assessment of arable/improved grassland and tall ruderal habitats, however in the light of advice contained in the NPPF and the government's recent 25 Year Environment Plan, that development should embed a net environmental gain, the LPA consider that these habitats should be included in any such calculations. Consequently, such matters should be scoped in to the final EIA.
- In relation to air pollution, the impacts on natural receptors (such as existing habitats/designated sites should also be assessed, as well as the impact on human health.
- The site boundary includes a large length of Bradley Brook and therefore WBC expect a riparian mammal survey to be carried out and included within the EIA to ensure that development does not impact these protected species.
- It is noted that Bradley Brook is culverted to the east of the site. Therefore the EIA should include measures to ensure no further culverting of this watercourse as this involves the destruction of river and bankside habitat and the interruption of a wildlife corridor, acting as a barrier to movement.
- The EIA submission should include details of the management of the demolition of buildings in respect of noise, vibration and dust controls required

- The EIA submission should include consideration of the existing dwellings located in the middle of the site, should they remain. Noise, odour and dust assessments are required for the demolition, construction and operational stages.
- Careful consideration is required regarding routes for vehicles and vehicle movements in respect to dwellings and assessment of any impacts from traffic noise and vibration for the demolition, construction and operational stages.
- In respect of Cultural Heritage and Archaeology, evaluation works, (in the form of a geophysical survey or non-intrusive techniques should be undertaken and submitted as part of any EIA.
- An assessment of the impact of the loss of high quality agricultural land should be scoped into the final EIA for the site.
- A full lighting assessment will be required for lighting both on and off site.
- The Scoping Opinion confirms that WBC have received a number of representations from local residents / parish councils / Councillors as part of the scoping opinion request and it will be very important to gauge their views/take into account their concerns before submitting any formal planning application/EIA.
- The Scoping Report also confirms that a local Ward Councillor has requested that the EIA will need to demonstrate that, in policy terms, the proposed development is not premature in the light of the status of the Local Plan and the current status of the land as green belt.

1.20. In summary, through the Scoping Opinion, Warrington Council confirmed that the information submitted was adequate for the Local Authority to agree the expected scope of the ES as set out in the Scoping Request. The points raised in paragraph 1.19, along with the comments raised by each of the consultees are addressed in more detail in each of the Technical Papers included within Part Two of this ES Addendum. The consultant team has continued to liaise with these and other key consultees during the evolution of the proposals and through the process of environmental assessment and where relevant, have continued to discuss and agree the scope of the ES.

Consultation Responses

1.21. A number of the consultees ~~have~~ approached the consultation in respect of the scope of the Environmental Statement as if it were a consultation upon a pre-planning application submission. What flows from that is that certain of the consultees have raised matters that are appropriate to be considered as material planning considerations but are out of the scope of any consideration of the environmental effects of the proposal.

1.22. A number of responses to the Scoping Report have been received from local residents / parish councils / Councillors, therefore the Council have requested that the Applicant engages with these stakeholders to take into consideration their concerns. Details of the consultation

undertaken in respect of the Application proposals with the community are described later in this section.

- I.23. The Scoping Report confirms that a local Ward Councillor has requested that the EIA will need to demonstrate that, in policy terms, the proposed development is not premature in the light of the status of the Local Plan and the current status of the land as Green Belt. This will be addressed within the supporting Planning Statement that will accompany the planning application and is not a matter which is an environmental effect of the scheme, which will be considered within the Environmental Statement.

Alternatives

- I.24. In relation to alternative sites, the 2017 EIA Regulations (as amended by the temporary 2020 Regulations) provides advice in paragraph 2 of Schedule 4 as follows:

“A description of the reasonable alternatives (for example in terms of development, design, technology, location, size and scale) studied by the Developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

- I.25. The 2017 Regulations (as amended by the temporary 2020 Regulations) do not as such require a full consideration of alternatives, but only an indication of what has been considered. This is what this ES does (see Section 4). There ~~is a~~ are documents setting out an analysis of alternative sites which ~~is~~ are cross-referenced within the Environmental Statement and included within Appendix 10, but there will not be a full Environmental Impact Assessment of alternative sites because that is not a requirement of the 2017 Regulations (as amended by the temporary 2020 Regulations).

Interaction of Effects and Cumulative Impact

- I.26. The European Commission identifies cumulative impacts as *‘impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project.’*
- I.27. In respect of the assessment of the interaction of effects, Regulation 4 (2) of the 2017 EIA Regulations (as amended by the temporary 2020 Regulations) requires a description and

assessment in an appropriate manner, of the direct and indirect significant effects of the proposed development on the interaction of the factors assessed within the ES (i.e. population and human health; biodiversity; land, soil, water and climate; and material assets, cultural heritage and the landscape).

- I.28. The Scoping Report identified a series of sites/projects that were to be considered as part of the Cumulative Assessment, in line with Schedule 4 of the EIA Regulations (2017) (as amended by the temporary 2020 Regulations). These sites / projects are referenced in Section 9 of this Environmental Statement Part One Addendum Report.
- I.29. Excluded from our cumulative assessment within the Scoping Report were sites that are not existing development or do not have planning permission, such as allocated development sites or emerging allocations. This was due to the uncertainty of these coming forward for development in the future, and/or the unknown nature and scale of the development, which therefore renders them to be 'not reasonably foreseeable' in terms of the environmental assessment. In respect of emerging allocations, Warrington Borough Council is currently undertaking a Local Plan review and there was public consultation on a Preferred Development Option (PDO) Document under regulation 18 of the Local Plan regulations in July 2017. That consultation was the subject of very extensive representations and objections.
- I.30. The Council's Scoping Opinion subsequently confirmed that Highways England consider that, given the wider proposals for a Garden Suburb in the consultation version of Warrington Borough Council's Local Plan Preferred Development, the cumulative impacts of wider proposed development are not defined, and the necessary infrastructure improvements have not been determined. Highways England have concerns that, in the absence of a cumulative assessment of potential growth in the south-east Warrington area, which would deliver around 7000 new homes (as referenced in the Council's PDO Document) and 117 ha of new employment development over a 20 year period, the development's contribution to future network needs and infrastructure requirements cannot be determined at this stage.
- I.31. Warrington Council's Scoping Opinion (6 April 2018) subsequently confirmed the need to consider the Warrington Garden Suburb as part of the cumulative assessment in respect of 'Traffic and Transport' as a result of Highway England comments. A cumulative assessment should therefore be included as part of any subsequent EIA in order to address such concerns.

- I.32. It was the Applicants opinion, and the opinion of the Applicants legal advisors, Gateley Plc, that consideration of this emerging allocation within the cumulative assessment is an exercise which was neither required, nor appropriate, as part of the environmental assessment for this project.
- I.33. The requirement to assess, even on a cumulative basis, is specifically limited by the overarching test of reasonableness and the availability of current knowledge. There is very little current knowledge about the overall effects of the wider Garden Suburb proposal due to the very early stage of its preparation. The proposal referenced in the Council's Local Plan Preferred Development ~~is~~ was at a broad masterplanning level with indicative quantities of development which has not been fully tested, therefore there are limitations in respect of environmental assessment.
- I.34. Despite these reservations, the Applicant ~~has~~ reached an agreed position with the Council to undertake a cumulative assessment of the Garden Suburb, based on assessment of only the quantum of development and phases of the Garden Suburb expected to be delivered in parallel with the phasing and delivery of the Six 56 Application proposals, as referenced in the Project Description (Section 2) of this ES Part One Addendum Report. The quantum of development and uses assessed are detailed in Section 9 of this ES Part One Addendum Report. Correspondence with the Council confirming this approach is included in Appendix 17 of this ES Part One Addendum Report.
- I.35. This email correspondence confirms the following assumptions have been made as part of this cumulative assessment.
- Due to the limited information available in respect of the Garden Suburb, the Six 56 Warrington Cumulative Assessment will be a non-spatial assessment.
 - Due to the delivery timeframe for the Six 56 Warrington Application proposals, the cumulative assessment will be based only on the phases of the Garden Suburb development expected to be delivered in parallel with the Six 56 proposals.
 - Traffic and Transportation, Noise and Vibration and Air Quality cumulative assessments will be undertaken using the information available from Warrington Council's Highway modelling work produced for the emerging Local Plan and will therefore be based on the assumptions made within this model in terms of timing of delivery and distribution of traffic on the network.
 - Agricultural Land and Socio Economic cumulative assessments will be based on only the phases of the Garden Suburb development expected to be delivered in parallel with the Six 56 proposals.

- There is not sufficient information available in terms of spatial delivery for cumulative assessments to be undertaken in respect of the other technical areas, which include Geology and Ground Conditions; Flood Risk and Drainage; Landscape and Visual Impact; Ecology and Nature Conservation; Cultural Heritage and Archaeology; Utilities; Waste; and Energy. As such it is not possible to undertake a cumulative assessment in respect of these technical areas.

1.36. It should be noted that since the original ES was prepared and submitted the Council have published their Proposed Submission Version Local Plan (March 2019), which states that the Garden Suburb will deliver around 7,400 homes, with around only 5,100 of these homes to be delivered within the Plan Period, up to 2037. This Plan has not yet progressed to publication version. The Council announced in October 2020 that they have temporarily paused work on their Local Plan to assess the impact of Covid-19, the Government's proposed planning reforms and national guidance on calculating housing need. They expect to review the implications of these matters and expect to progress their Local Plan to Submission stage in Summer 2021. On this basis the cumulative assessment undertaken as part of the original ES provides a robust assessment and there is no reason or evidential basis on which to change the approach to the cumulative assessment.

Consultation

1.37. The Application Proposals have been subject to significant consultation with both public and statutory undertakers. The consultant team have been liaising with Warrington Council and surrounding authorities in formulating the proposals. The consultant team has been facilitated by a specialist communications company, Newgate, who have produced a Statement of Community Involvement which supports this Application.

1.38. This section identifies the consultation undertaken.

Consultation with Local Authority and Stakeholders

1.39. Engagement has been undertaken with Warrington Council. This has included a number of meetings and close liaison with the Planning Team as part of a DTM (Development Team Management) process. The meetings have considered the principles for development as well as highlighting concerns and agreeing approaches to collating supporting information.

- 1.40. Consultation has also been undertaken with a range of statutory and non-statutory bodies including the neighbouring local authority (Cheshire East Council).
- 1.41. The Applicant have also met with the Leader and Deputy Leader and Chief Executive of the Council and a range of stakeholders including the Cheshire and Warrington LEP, Warrington and Co. and the Construction Industry Training Board (CITB) to discuss the proposals in advance of the submission of this planning application.
- 1.42. Following the submission of the planning application in April 2019, feedback has been received from WBC and responses have been received from key consultees. The comments that have been addressed through the revisions to the proposals and as such addressed through this ES Addendum are summarised in the table below:

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
<u>Outline Planning Application Description of Development</u>	<u>The outline planning application description of development now includes the removal of any change of use of Bradley Farmhouse to BI (a) office use. Any change of use of this building will be dealt with separately following the grant of any outline permission, once prospective uses of this building have been fixed. To mitigate any impact on any residential amenity associated with noise emanating as a result of the proposed Six 56 employment development, the applicant will agree to cease use of this building for residential purposes. This can be agreed through a S106 Agreement.</u>	<u>Traffic and Transportation</u>	<u>Appendix 2.1 Updated Transport Assessment Appendix 2.2 Updated Travel Plan</u>
		<u>ES Part I Report</u>	=
		<u>ES Non-Technical Summary</u>	=
<u>Updates to Illustrative Masterplan and Parameter Plans</u>	<u>The illustrative masterplan and parameters plans have evolved to address comments raised by</u>	<u>Flood Risk & Drainage</u>	<u>Appendix 3.2 – Flood Risk Assessment and Drainage Strategy which includes revised drainage strategy plans.</u>

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
	<p>these key consultees and reduce the noise impacts on sensitive receptors within the site, including re-alignment and location of landscape bunds around Bradley Hall Cottages and consequential changes to surface water drainage features and the number and function of replacement ponds in response to GMEU concerns. Realignment of estate roads and other minor amendments including details of the highway access into the Site with minor changes to the location of the first roundabout into the site from the east to reflect the alignment of the estate road into the site and</p>	<p><u>Transportation & Traffic</u></p>	<p><u>Appendix 2.1 Updated Transport Assessment which includes revised highways detail associated with access into the site.</u></p>
		<p><u>Ecology & Nature Conservation</u></p>	<p><u>Appendix 5.8 – Response to Ecology Consultation Comments (10682/R02a)</u></p>
		<p><u>Landscape and Visual Impact</u></p>	<p><u>Appendix 4.3 - Landscape Photomontages which show changes to landscaping detail on key viewpoints</u></p>
		<p><u>Noise & Vibration</u></p>	<p><u>Table 7.2: Summary of Consultations and Discussions which references discussions with WBC Environmental Protection Officer regarding changes to the illustrative masterplan</u> <u>Appendix 7.3 – Acoustic Barrier Mitigation</u></p>
		<p><u>Cultural Heritage & Archaeology</u></p>	<p><u>Table 9.1: Summary of Consultations and Discussions which references discussions with Historic England regarding amendments to the illustrative masterplan</u></p>

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
	location of service and parking areas closest to <u>Bradley View</u>	ES Part I Report	<p><u>Figure 4.4 Development Cells Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.5 Disposition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.6 Height Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.7 Green Infrastructure Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.8 Access and Circulation Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.9 Drainage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.10 Acoustic Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.11 Heritage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.12 Demolition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 3 – Means of Access Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 4 – Illustrative Masterplan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 5 – Proposed Parameter Plans (Updated to include changes to the proposals)</u></p> <p><u>Appendix 7 – Topographical Survey Plan and Cut and Fill Finished Levels Contour Plan (Updated to include changes to the proposals)</u></p>
		ES Non-Technical Summary	<u>Updates to illustrations and plans including illustrative masterplan and parameters plans and photomontages</u>
Detailed design of the mitigation for the	Amendments have been made to the mitigation package of	Traffic and Transportation	<p><u>Appendix 2.1 Updated Transport Assessment</u></p> <p><u>Appendix 2.2 Updated Travel Plan</u></p>

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
<p><u>M6 Junction 20 and the adjacent Grappenhall Lane/A50 roundabout and clarification and updates to the M6 Junction 20 Base Model</u></p>	<p><u>works to junction 20 of the M6, including rationalisation of lane markings; works to carriageway widths on the Grappenhall Lane/A50 roundabout and updates to the M6 Junction 20 Base Model to reflect discussions with HE and WBC Highways</u></p>	<p><u>ES Part I Report</u></p>	<p><u>Figure 4.4 Development Cells Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.5 Disposition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.6 Height Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.7 Green Infrastructure Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.8 Access and Circulation Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.9 Drainage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.10 Acoustic Parameters Plan (Updated to include changes to the proposals and Site Sections showing height of bunds for approval)</u></p> <p><u>Figure 4.11 Heritage Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Figure 4.12 Demolition Parameters Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 3 – Means of Access Plan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 4 – Illustrative Masterplan (Updated to include changes to the proposals)</u></p> <p><u>Appendix 5 – Proposed Parameter Plans (Updated to include changes to the proposals)</u></p>
<p><u>Pedestrian and Cycle Routes and Public Transport</u></p>	<p><u>Updates to relevant sections of the Part I and Part sections of the Addendum to reflect agreements to providing commuted sums towards</u></p>	<p><u>Traffic and Transportation</u></p> <p><u>ES Part I Report</u></p>	<p><u>Appendix 2.1 Updated Transport Assessment</u></p> <p><u>Appendix 2.2 Updated Travel Plan</u></p> <p><u>Figure 4.8 Access and Circulation Parameters Plan (Updated to include changes to the proposals)</u></p>
		<p><u>ES Non-Technical Summary</u></p>	<p><u>Updates to illustrations and plans including illustrative masterplan and parameters plans which refer to highway mitigation amendments</u></p>

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
	continuing shared cycleway/footway beyond the Application boundary and safeguarding a section of the Applicants land, adjacent to Grappenhall Lane to facilitate any future road widening and improvements required on Grappenhall Lane. Agreement on a commuted sum of £600,000 towards improved bus services via a S106 financial obligation.	ES Non-Technical Summary	Updates to illustrations and plans including illustrative masterplan and parameters plans which refer to highway mitigation amendments
Landscape and Visual Impact (LVIA) amendments	Amendments have been made to the LVIA following discussions with Ramboll Consultants, advising the Council on landscape matters. Changes include an additional baseline character and visual amenity analysis, consideration of the residual effects of lighting on landscape and visual effects and a Residential Visual Amenity Study (RVAS).	Landscape and Visual Impact	Appendix 4.3 Landscape Photomontages Residential Visual Amenity Study (RVAS)
		ES Part I Report	Appendix I6 – Lighting Assessment (Updated to include changes to the proposals and the residual effects of lighting on landscape and visual effects)
Socio-economic Impacts	Consideration has now been given to the socio-economic impact of automation on the logistic sector following discussions with WBC Officers	Socio-Economic	Table 6.3: Socio-economic policy context Table 6.4: Sources of socio-economic data and guidance
		ES Part I Report	=
		Non-Technical Summary	=

<u>Amendment</u>	<u>Reason for Amendment</u>	<u>Resultant Technical Paper Addendum</u>	<u>Resultant Amendments to the Technical Paper Figures and Appendices</u>
<u>Alternative Sites Assessment (ASA)</u>	<u>Referenece to additional information and evidence to assess a wider area of search for alternative sites beyond Warrington's boundaries and further assessment of the Fiddlers Ferry site which will be reported in the separate Replacement Planning Statement.</u>	<u>ES Part I Report</u>	=
<u>Cumulative Development</u>	<u>Updates have been provided in respect of the current planning position associated with the Eddie Stobart planning application and appeal at Barleycastle lane, Warrington and clarification in respect of the cumulative development / number of dwellings proposed in the Garden Suburb site allocation to be delivered in the emerging Plan Period</u>	<u>Flood Risk & Drainage</u>	<u>Table 3.9 Cumulative Development</u>
		<u>Traffic and Transportation</u>	<u>Table 10.1 - Cumulative Development</u>
		<u>Ecology & Nature Conservation</u>	<u>Table 5.13: Cumulative Development</u>
		<u>Landscape and Visual Impact</u>	<u>Table 4.17: Cumulative Development</u>
		<u>Socio-economic</u>	<u>Table 6.27 Cumulative Development</u>
		<u>Noise & Vibration</u>	<u>Table 7.2: Summary of Consultations and Discussions</u>
		<u>Cultural Heritage & Archaeology</u>	<u>Table 9.12: Cumulative Development</u>
		<u>ES Part I Report</u>	<u>Table 9.1 Cumulative Developments (Updated)</u>
<u>Non-Technical Summary</u>	=		

Table 1.1a: Consultation – Summary of post application submission consultation responses/comments addressed in this addendum

Consultation with the Community

- 1.43. This section identifies the community consultation undertaken. A more detailed summary of the Community Engagement undertaken is provided within the Statement of Community Involvement (SCI) included with this planning submission.

- I.44. The first workshop events were held over two days at Grappenhall Community Centre in October 2018. The two workshops were attended by around 180 people. The workshops were extremely helpful in highlighting the issues that are most important to local people. The Applicant have also worked with Warrington Borough Council officers and other consultees to ensure that the solutions developed for the site work for the whole of Warrington and the surrounding area.
- I.45. Following the consultation events in October 2018, further technical and design work was undertaken to consider those key matters and evolve the scheme. This included addressing the highways impacts, landscaping, maximum building heights (the specific design details of the buildings is not being applied for, but the scheme is guided by parameters, which set a maximum building height). Further detailed traffic modelling and design work has been undertaken to address and mitigate off site highway capacity concerns.
- I.46. A meeting was also held with three local ward Councillors on the 4th March 2019 to present and discuss the proposals in advance of the March consultation events and submission of the planning application.
- I.47. The second events were held on Thursday 7th March, 2-7pm at Grappenhall Community Centre and Friday 8th March, 12-5.30pm at the Customer Information Point, Golden Square Shopping Centre, Warrington. Further information regarding the proposals and the technical information supporting the proposals was displayed, providing the opportunity for members of the community discuss any issues and provide feedback, which would be considered by the Applicants consultant team and where appropriate inform any changes to the proposals prior to submission of the planning application.
- I.48. Many people recognised the additional highways, environmental and technical mitigation that has been brought forward since the October 2018 consultation.
- I.49. A record of all the comments and issues raised during the consultation events is included within the SCI submitted with the Application.
- I.50. In summary, the consultation strategy adopted has given an opportunity for the development team to explain and present information to the community concerning the proposals and allowed the needs of Langtree PP and Panattoni, Warrington Borough Council and the local

community to be considered in a balanced manner. The feedback from the community has been valuable and has directly influenced the scheme evolution as identified above.

Approach to Environmental Statement

- I.51. All proposals for projects that are subject to the European Environmental Impact Assessment (EIA) Directive 2014/52/EU must be accompanied by an Environmental Assessment (ES). The legislation has been transposed into UK law through the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended by the temporary 2020 Regulations) which are the EIA Regulations for England only (referred to hereafter as ‘the Amended 2020 EIA Regulations’).
- I.52. The ES has been undertaken to allow a robust and transparent assessment of the proposals. It has been prepared in the context of the EIA Amended Regulations and accompanying legislation. The aim is to enable an objective assessment of the environmental impacts of the development.
- I.53. The consultant team has followed the approach outlined in Schedule 4 of the 2017 EIA Regulations (as amended by the temporary 2020 Regulations) for the assessment:
- Description of development
 - Description of the reasonable alternatives studied
 - Description of the relevant aspects of the current state of the environment and likely evolution without the development
 - Description of the aspects of the environment likely to be significantly affected by the development
 - Description of the likely significant effects of the development on the environment
 - Description of the forecasting methods or evidence, including details of any difficulties in compiling the required information
 - Description of mitigation measures and any monitoring
 - Where relevant a description of the expected adverse effects of the development on the environment from the vulnerability of development or risks of major accidents and/or disasters
 - A non-technical summary
- I.54. The ES is presented in two Parts. This Part I and Addendum (this report) as described above, provides the background and the summary analysis of environmental effects relating to the

project and the Part 2 Addendum contains the technical reports and the assessment of significant impacts. A separately bound non-technical summary Addendum is also provided.

Environmental Statement Part I

- I.55. Part I of the ES and this Addendum sets out the updated project description, the need for development and alternatives considered. It includes an overview of the environmental impacts of the proposals with a summary of the mitigation measures proposed and any monitoring that will be necessary. It contains the methodology for assessing significant environmental impacts as set out and agreed with WBC during the Scoping stage. The Part I and this Addendum will also include an assessment of the interaction of effects and a summary of the cumulative impacts assessed as part of each of the technical areas.
- I.56. This Part contains a series of plans and illustrations to help the reader understand the background to the proposals and the scheme. It also provides an understanding as to how the development fits within the planning framework. Part I is important in establishing the context for the development allowing readers to understand the objectives of Langtree PP & Panattoni. It also sets out the framework for how significant impacts have been assessed.
- I.57. A Glossary and Abbreviations list is included at **Appendix I4**.

Environmental Statement Part 2

- I.58. The second Part to the ES sets out the individual technical reports. Using the methodology outlined in Part I, these reports have been compiled over many months and will describe the environmental impacts of the development. The 2017 EIA Regulations (as amended by the temporary 2020 Regulations) state these reports only need focus on the significant impacts, however they will also briefly assess the issues which are not considered significant and have been 'Scoped Out'. Importantly, this part of the ES will outline the mitigation measures required to offset the environmental impacts. The technical chapters included within Part 2 are:
- Geology and Ground Conditions
 - Traffic and Transportation (and the Addendum to this Paper)
 - Flood Risk and Drainage (and the Addendum to this Paper)
 - Landscape and Visual Impact (and the Addendum to this Paper)

- Ecology and Nature Conservation (and the Addendum to this Paper)
- Socio Economic (and the Addendum to this Paper)
- Noise and Vibration (and the Addendum to this Paper)
- Air Quality and Dust
- Cultural Heritage and Archaeology (and the Addendum to this Paper)
- Utilities
- Energy
- Waste
- Agricultural Land & Soils

Non-Technical Summary

- 1.59. A separately bounded Non-Technical Summary and Addendum of the ES is provided. This document is provided so that the public can understand the ES and its main findings.
- 1.60. As required by the 2017 EIA Regulations (as amended by the temporary 2020 Regulations), it includes a description of development, an outline of the main alternatives studied, a description of the aspects of the environment likely to be significantly affected by the development and the likely significance of the effects, and the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

Consultant Team

- 1.61. The applicants have taken professional advice from a competent development team and supplementary information has been prepared in support of this ES by the following consultants:
- Environmental Assessment Co-ordination - Spawforths
 - Planning - Spawforths
 - Masterplanning – Stephen George & Partners
 - Geology and Ground Conditions – Cundall
 - Traffic and Transportation – Curtins Consulting
 - Flood Risk and Drainage – Cundall
 - Landscape and Visual Impact – Layer Landscape Architects
 - Ecology and Nature Conservation – Tyler Grange LLP

- Socio Economic – Amion Consulting
- Noise and Vibration - Cundall
- Air Quality and Dust – RPS Group
- Cultural Heritage and Archaeology – BWB Consulting
- Utilities – Ridge & Partners LLP
- Energy – Ridge & Partners LLP
- Waste – RPS Group
- Agricultural Land & Soils – Patrick Stephenson Arable Advisor

I.62. A statement confirming the relevant experience and qualifications of the development team is provided at **Appendix 15** in line with the 2017 EIA Regulations (Part 5, Regulation 18(5b)) (as amended by the temporary 2020 Regulations).

2. Project Description

2.1. This section identifies the site's location and context and describes the Proposed Development.

Site Location and Context

- 2.1. The Site is located in the North West of England, predominantly within the local authority area of Warrington.
- 2.2. The Site is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester (approximately 22km (13 miles) and 31km (19 miles) respectively). It is also located approximately 16km (10 miles) from Manchester Airport.
- 2.3. The M56 Motorway and M6 Motorway interchange (Junction 20 and 20A of the M6 and Junction 9 of the M56 Motorways) is located adjacent to the south east of the Site, with the M56 Motorway running east-west to the south of the Site, providing links to Cheshire and Greater Manchester; and the M6 Motorway running north-south to the east of the Site, provide links to Lancashire, Staffordshire and Greater Manchester, as well as the M62 Motorway at Junction 22A of the M6 Motorway to the north, which provides links east-west to Liverpool, Greater Manchester and Yorkshire.
- 2.4. The Site is shown on the national and regional context plans below and on a larger scale on the plans within **Appendix I**.



Figure 4.1: National Context Plans



Figure 4.2: Regional Context Plan

- 2.5. The Site relates to an area of land of approximately 98.09 hectares (242.39 acres) in extent and is irregular in shape.
- 2.6. The Site is bound by the B5356 Grappenhall Lane and the A50 Cliff Lane to the north and motorway slip road to the east. Appleton Thorn Trading Estate, Barleycastle Trading Estate and Stretton Green Distribution Park are located to the west and Bradley Brook runs east-west to the southern boundary. The Site is predominantly farm land (arable and pastoral for cattle), with a series of hedges and trees to field boundaries. Bradley Hall Farm consists of a farm house and a series of farm buildings as well as a further residential property. There are a number of other neighbouring residential properties that are adjacent to, but outside the Application Site, including the Bradley Hall Cottages, which are all retained. The farm buildings adjacent to the Bradley Hall Farmhouse will be demolished as part of the proposals (as shown on the Demolition Parameter Plan in **Appendix 5**). Bradley Hall moated site is a Scheduled Ancient Monument (SAM) located within the Site boundary, to the eastern part of the site, adjacent to the farm buildings. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house, which is to be retained. The moated island is partly occupied by the farm house associated with Bradley Hall Farm, which is excluded from the Scheduling, ~~but which will be retained and converted to B1a office use as part of the Proposed Development.~~ Bradley Hall Farm and its curtilage buildings will be retained as part of the Proposed Development, however the Applicant will agree to terminate the use of the buildings for residential purposes on the commencement of any development associated with the grant of outline planning permission to avoid any impacts on residential amenity, given the proximity of this building to proposed employment uses. This can be controlled through a S106 Agreement. The future re-use and conversion of this building will be subject of a separate change of use application. Any subsequent application will give further consideration to the impact any change of use will have on the setting of this heritage asset and the SAM.
- 2.7. Beyond the northern boundary of the Site (within the triangle of land outside of the Application Site to the south of Cliff Lane) is a residential property and associated outbuildings, which is accessed from the A50 Cliff Lane via the same access as Bradley Hall Farm. There are Grade II* and Grade II Listed Buildings located beyond the south of the Site and to the north of Barleycastle Lane (Tanyard Farm Building and Barleycastle Farm House). There are other listed buildings within the wider area (see Cultural Heritage section).

- 2.8. There are some wooded areas and wooded outcrops within the Site, including Bradley Gorse and Wrights Covert within the south east of the Site. A series of field boundaries consisting of hedgerows and trees and a number of ponds (ten in total) and ditches are located across the Site.
- 2.9. The character of the area is generally rural, with farms and agricultural land beyond the boundaries of the Site, predominantly to the north and south. However this is interrupted with the Strategic Highway Network and further industrial/logistic uses, most notably those beyond the Site boundary to the south, south west and east.
- 2.10. The Site in its local context is shown on the plan below and in **Appendix 2**.

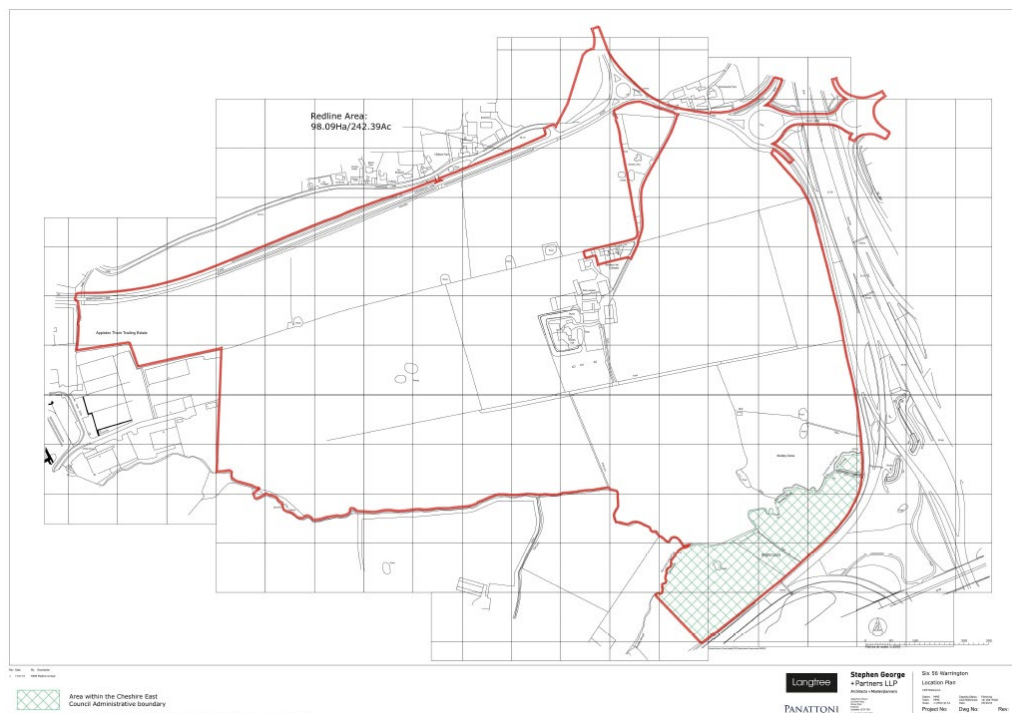


Figure 4.3: Application Site Boundary

- 2.11. Vehicular access to the Site is currently via Bradley Hall Farm from the A50 Cliff Lane, which has direct access to Junction 20 of the M6 Motorway, as well as Junction 9 of the M56 Motorway. There are also four field access points available from the Site's 1.15km long frontage to the B5356 Grappenhall Lane.

- 2.12. There are three designated Public Rights of Way across the Site, all of which are Footpaths. Footpath No 28 runs between the residential properties adjacent to Bradley Hall Farm in the east and Appleton Thorn Trading Estate in the west, however no actual connection is available on foot into the trading estate at its western end. Also, Footpath No's 31 and 23 run north-south across the site along the route of the main site access between Howshoots Farm to the north-east and Barleycastle Lane to the south of the Site.
- 2.13. The Site's topography is generally level, although it has two distinct areas of topography that are separated by a ridgeline running east to west. The northern plateau is a relatively flat area and the southern plateau becomes more undulating, with occasional ponds and depressions.
- 2.14. The Site is currently designated as Green Belt within the adopted Local Plan Core Strategy (July 2014) and Saved Proposals Map. The Site however forms part of a wider area identified for future growth in the form of the Garden Suburb within the emerging new Local Plan (Preferred Options Consultation (July 2017) and Submission Version of the Local Plan (March 2019)). The Site is identified for employment development which can be delivered independently of the Garden Suburb.
- 2.15. Consideration of various planning designations and considerations is summarised in the table below:

Planning Designations / Considerations	Site Address / Proximity to the Site
Conservation Areas	The Site is not in or adjacent to a Conservation Area
Listed Buildings	Grade II Listed Barleycastle Farmhouse and Grade II* Tanyard Farm Farmbuilding are located approximately 650m to the south of the Site.
Locally Listed Buildings	Bradley Hall and Barn are locally listed buildings located at the centre of the Site
Scheduled Ancient Monuments (SAMs)	Bradley Hall Moated Site is Scheduled Ancient Monument located at the centre of the Site (list entry number 1011924).
Tree Preservation Orders	There are no Tree Preservation Orders on the Site
AONB or Landscape Designation	None

Planning Designations / Considerations	Site Address / Proximity to the Site
SSIs/SSSIs	None
Ecological Designations	There are no statutory ecological designations on or neighbouring the Site. Rixton Clay Pits Special Area of Conservation (SAC) is the nearest, located 5.5km northeast
Flood Risk Zone	The Site is located within Flood Risk Zone I (Low Risk of Flooding)
Air Quality Management Area (AQMA)	AQMA No. 1 is partly located within the Site, with a 50 m continuous strip running along both sides of the M6, M62 and M56 Motorway corridors
Rights of Way (including PROW, bridleways etc.)	PROW Appleton 3L, Appleton 28, and Appleton 3 run through the Site from the north, west, and south respectively, meeting at the north-east corner of Bradley Hall Farm toward the centre of the Site.

Table 1.2: Planning Designations Table

Development Description

The Development

2.16. The application will be an outline planning application as described below:

The outline application (all matters reserved except for means of access) comprises the construction of up to 287,909m² (3,099,025ft²) (gross internal) of employment floorspace (Use Class B8 and B1(a) offices) including ~~change of use of Bradley Hall Farmhouse to B1 (a) office use (335m² (3,600ft²)), demolition of existing agricultural outbuildings~~ and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation, alteration of existing access road into site including works to the M6 J20 dumbbell roundabouts and realignment of the existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.

- 2.17. All matters, except for the Means of Access are reserved for consideration at a later date. The updated Means of Access is shown on the plan at **Appendix 3**.
- 2.18. Warrington Borough Council's Preferred Development Option Regulation 18 Consultation (July 2017) and Submission Version of the Local Plan (March 2019) identifies the Site for redevelopment for Employment Use. The evidence based prepared to inform the Preferred Development Option Regulation 18 Consultation Document, includes The South Warrington Urban Extension Framework Plan Document (SWUEFP) (June 2017) and Warrington Garden Suburb Development Framework Document (March 2019) produced on behalf of Warrington Borough Council which also classifies the Site for redevelopment for Employment Use.
- 2.19. The Council also consulted ~~are seeking to consult~~ on the next stage of their Local Plan, the Proposed Submission Version Local Plan ~~from~~ in April 2019, for a period of 8 weeks. This Submission Version of the Local Plan was presented to Full Council Board on the 25th March 2019, seeking approval to commence public consultation. Details of the Submission Version Local Plan are provided in Section 5 Plans and Policies in this ES Part One Report.

Parameters

- 2.20. During the evolution of the proposals, a number of parameters have been fixed, and form the basis of the environmental assessments. These parameters have subsequently evolved following submission of the Application, in response to issues raised from key statutory consultees.
- 2.21. The Illustrative Masterplan (updated to include changes to the proposals) shows how the site could be developed, taking account of the updated Site Parameters. See **Appendix 4** for updated Illustrative Masterplan alongside the previous version of this Illustrative Masterplan.
- 2.22. The parameters that inform the proposals for the Site have been generated from the key drivers identified within the SWUEFP and Garden Suburb Development Framework (March 2019). From this starting point, the arrangement of the Site has been heavily influenced by the presence of the Scheduled Ancient Monument on Site, the neighbouring land uses, including the sensitive residential receptors, the strong transport links and facilities that establish a series of hard boundary conditions, site topography and geological features, and substantial landscape features including Bradley Gorse and Bradley Brook to the immediate South East of the Development Site.

2.23. The scheme's evolution ~~will be~~ was influenced by a sequence of development plateaus relating to their immediate and wider context arranged around access routes through the Site. The scope of development of each of the plateaus is directly related to that of its immediate neighbours and the associated boundaries of that plateau. Environmental testing has also influenced the scheme evolution.

2.24. These parameters are grouped into a series of themes and are identified across the suite of Parameter Plans (updated to include changes to the proposals), included at **Appendix 5**. These themes are as follows:

- Development Cells – Developable areas across the site and associated site areas.
- Disposition – Land use and disposition of uses across the site, number of units, building heights, finished floor levels, floor space and car parking provision.
- Green Infrastructure – strategic landscaping, open green corridor, ecological mitigation, buffers and bunds, retained vegetation
- Access and Circulation – points of access into the Site, improvements to A50 junction and M6 J20 dumbbell roundabouts including existing, proposed and diverted footpaths and cycleways and areas safeguarded for potential highway improvements.
- Drainage – including details proposed drainage strategy
- Noise – including areas identified for noise mitigation
- Building Heights – zonal areas identifying maximum building heights across the site
- Heritage – buffers to Heritage Asset
- Demolition – buildings proposed for demolition

2.25. Updates to the Parameters Plan include minor realignment of one of the access points into the Site from the east to reflect the alignment of the estate road into the site and the estate road which traverses the green corridor, minor amendments to the location of the surface water drainage features and amendments the location of landscape bunds and attenuation barriers to address comments raised by key consultees and reduce the noise impacts on sensitive receptors within and adjacent to the site.

2.26. Each of these are discussed in more detail below:

Development Cells

2.27. The Proposed Development is to provide a maximum developable area of 62.9 ~~64.74~~ hectares (~~159.97~~ ~~155.42~~ acres) This will be provided across 4 development cells, located west to east across the site, as follows:

- Zone A – 2.33 hectares (5.76 acres)
- Zone B – ~~32.84~~ ~~32.51~~ hectares (~~81.14~~ ~~80.33~~ acres)
- Zone C – ~~5.06~~ ~~5.47~~ hectares (~~12.51~~ ~~13.51~~ acres)
- Zone D – ~~22.67~~ ~~24.43~~ hectares (~~56.02~~ ~~60.37~~ acres)

2.28. These are shown on the updated plan below, also included at **Appendix 5**:

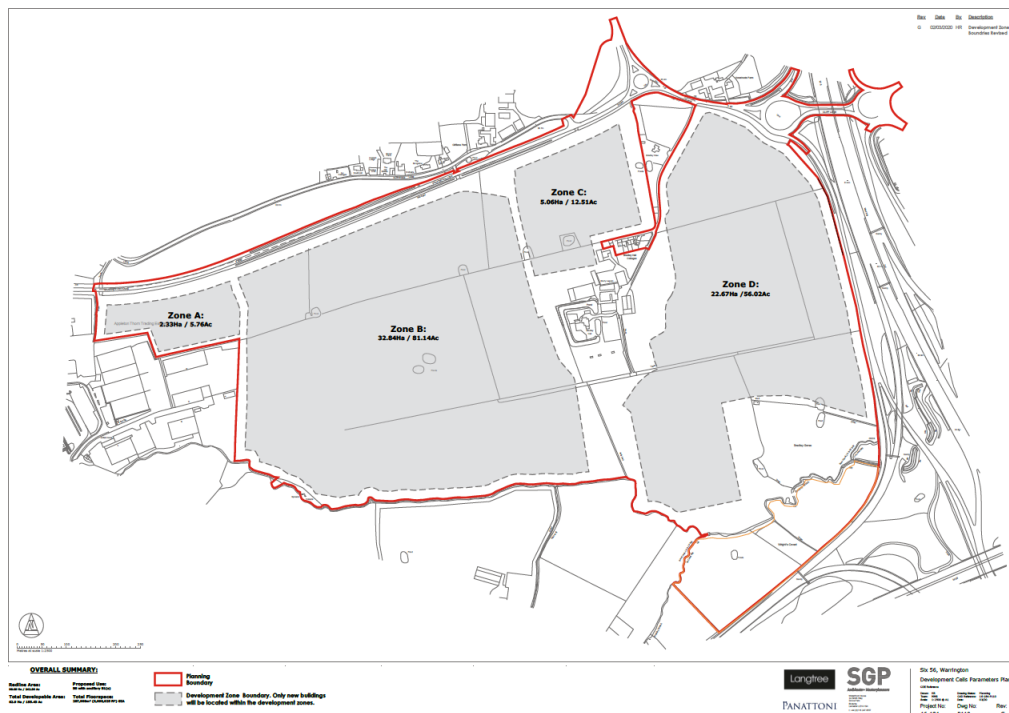


Figure 4.4: Development Cells Parameters Plan (updated to include changes to the proposals)

Disposition

- 2.29. The Proposed Development will provide up to 287,909m² (3,099,025ft²) of floor space across the site. This will be accommodated within 7 to 13 new buildings across the site, covering B8 uses with ancillary B1(a) office use and a change of use of the existing Bradley Hall Farm house and cessation of its use for residential purposes ((335m²) 3600ft²)) to B1 (a) office use. Only new buildings are proposed within these development cells.

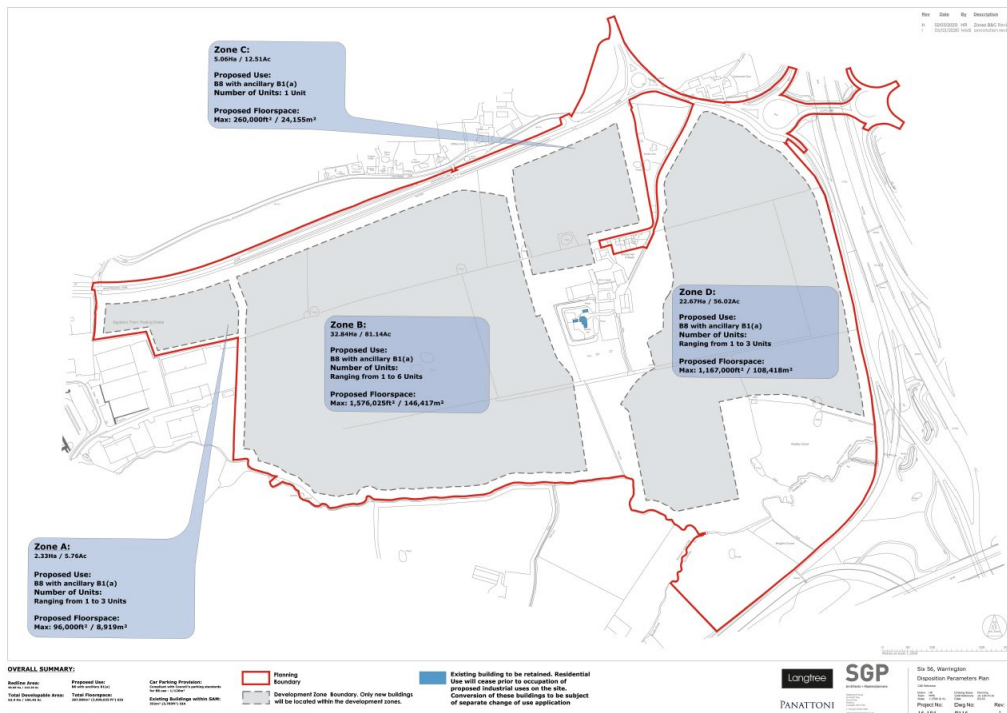


Figure 4.5: Disposition Parameters Plan (updated to include changes to the proposals)

- 2.30. Finished Floor Levels (FFL) will fluctuate across the site to reflect the cut and fill exercise that will create the development platforms, illustrated on the finished levels contour plan with a FFL in Zone C (60.25 AOD) and D (D2: 55.50 AOD and D1: 57.56.50 AOD) to the east of the site, compared to Zone A (83.50 65.50 AOD) and B (B1: 63.50-65.50 AOD, B2: 55.50 to 60.50 61.50 AOD) to the centre and east of the site.

Heights

- 2.31. Across the Site, built form will range from 12.5m to 40m to haunch and 16m to 43.5m to ridge. The upper range of building heights will be located to the east and south of the site and the

lower range to the north and west of the site. Zone A will have a maximum of 16m (to ridge) above FFL. In Zone C and the northern part of Zone B there will be a maximum of 18.5m (to ridge) above FFL. In the southern part of Zone B there will be buildings ranging from a maximum of 43.5m to 24.5m (to ridge) above FFL and in Zone D a maximum of 24.5m (to ridge) above FFL.

2.32. These are maximum unit heights but the final unit heights could be lower and will ultimately be determined by end user requirements that are driven by commercial demand.

2.33. This is also on the plan included at **Appendix 5**:

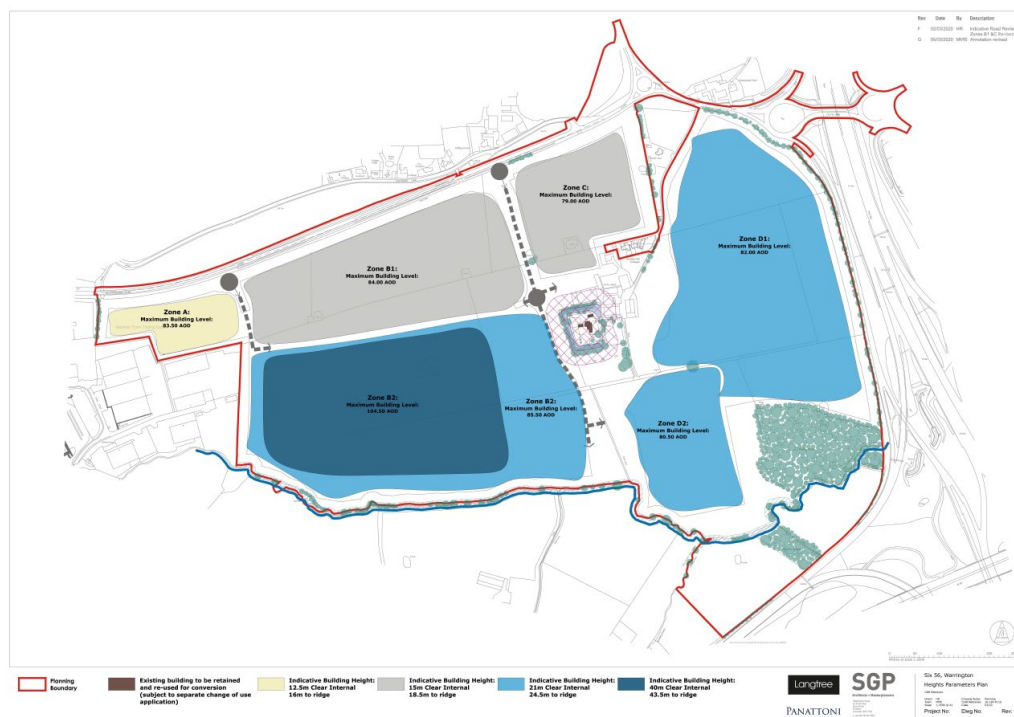


Figure 4.6: Height Parameters Plan (updated to include changes to the proposals)

Green Infrastructure

2.34. Strategic landscaping will be provided around the boundary of the Site. This will also enable the retention of existing trees and vegetation to the outer Site boundaries. Bradley Gorse and Wrights Covert to the southeastern extent of the Site are to be retained, as are the trees within and around the Bradley Hall moated site to the centre of the Application Site.

- 2.35. The two access corridors into the Site from the B5356 Grappenhall Lane will sit within the proposed strategic landscaping areas.
- 2.36. A Green Corridor will be provided from north to south within the Site to retain an open corridor around the Bradley Hall moated site and through the Site. Any proposed estates roads through this Green Corridor will be constructed and built into the level of the site to minimise any impact of views through this corridor and impacts on the setting of the SAM.
- 2.37. A 15m standoff from built development will be retained to Bradley Brook, which runs east to west along the southern boundary of the Site. No new buildings are proposed within these areas of green infrastructure identified on the updated Parameters Plan. Bradley Hall Farm House and curtilage buildings, located within the SAM will all be retained. The Applicant will agree through the grant of any outline planning permission to cease use of these buildings for residential purposes on the commencement of any proposed development on the site, to remove any impact on residential amenity. A commitment to cease the use of Bradley Hall Farm House for residential purposes can be agreed under a S106 Agreement. Future change of use applications will be required to determine future uses of these buildings and ensure uses are complementary to the setting of these locally listed buildings and the setting of the SAM.
- 2.38. An area of ecological mitigation is to be provided to the south of Bradley Brook, around Wrights Covert. The ecological mitigation area can accommodate a total of seven replacement ponds, based on the principle of 2:1 replacement of GCN breeding ponds, and 1:1 replacement of other ponds to enhance aquatic breeding habitat for Great Crested Newts (GCN).
- 2.39. To raise the provision of new wetland habitat towards a 2:1 replacement of all ponds, two of the proposed attenuation basins, adjacent to Plot 1 and Plot 2 on the updated Illustrative Masterplan (Appendix 4) and Updated Drainage Parameters Plan (Figure 4.9) can be designed so that they will permanently hold water. Where possible, ponds selected for this treatment will be those closely linked to the proposed Green Infrastructure and Bradley Brook watercourse corridor and will be landscaped to maximise benefits for wildlife. Other attenuation features included across the scheme which are likely to be dry most of the time will be appropriately landscaped to provide a contribution towards additional terrestrial habitat for GCN and other wildlife using the site.
- 2.40. Habitat within the ecological mitigation area will include rough grassland for foraging with hedgerows and scattered scrub for cover and hibernation. It is likely that the existing grassland

habitat can mostly be enhanced through an appropriate management regime of periodic cutting, rather than habitat creation. New hedgerow and scattered scrub (throughout the site) will include native species and those which provide flowers or fruit resources through the year will also provide benefit for other wildlife.

2.41. This is also shown on the plan included at **Appendix 5**:

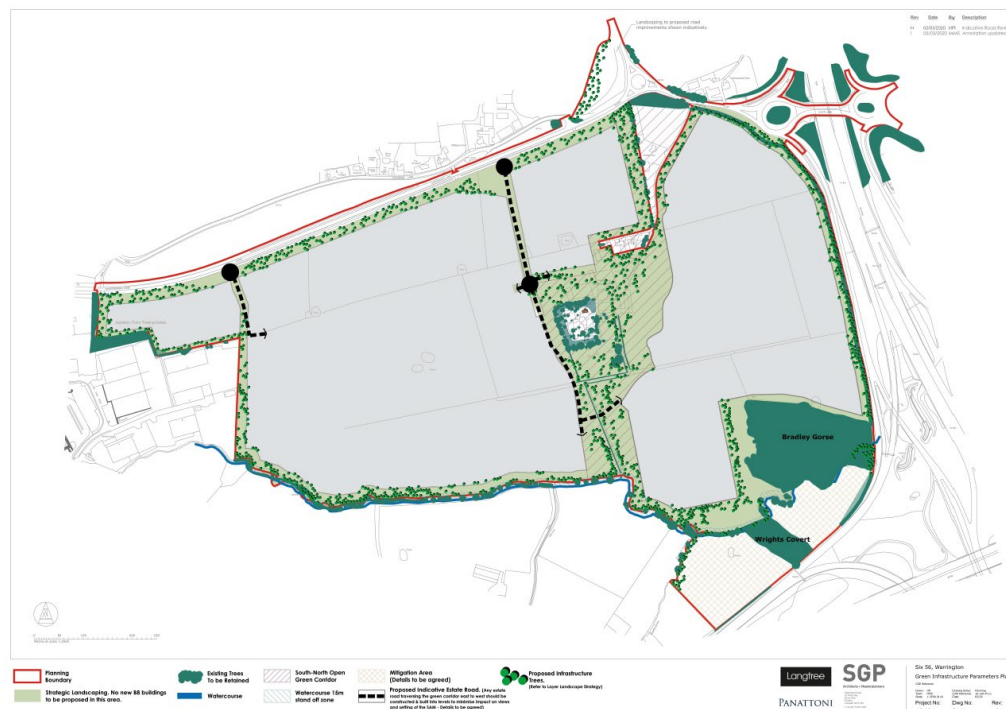


Figure 4.7: Green Infrastructure Parameters Plan (updated to include changes to the proposals)

Access and Circulation

2.42. Two points of access are to be taken from the B5356 Grappenhall Lane to the north of the Site via two new roundabouts. Minor changes have been made to the realignment of the first access point as you approach from the Cliff Lane roundabout, as illustrated on the updated Access and Circulation Parameters Plan. This is to reflect the alignment of the estate road into the site which has moved c. 45.5m to the east and which will alleviate noise impacts on residential properties.

2.43. An extensive package of mitigation works is proposed at the A50/Cliff Lane roundabout and M6 J20. The package includes:

- Relocation of the A50 Cliff Lane roundabout to the west of its existing location to enhance the storage capacity of the link between the roundabout and the motorway;
- Full signalisation of a new realigned A50 Cliff Lane roundabout with widening of all approach arms and reduction of the exit arm onto the A50 to one lane;
- Widening of the A50 link between the A50 Cliff Lane roundabout to provide two lanes for much of the links length;
- Partial signalisation of the two M6 J20 dumbbell roundabouts;
- Widening of the M6 Northbound off-slip;
- Widening of the circulatory carriageway on the two M6 J20 dumbbell roundabouts and rationalisation of the lane markings / directional arrows, implementation of a yellow box and installation of queue detectors; and
- Incorporating MOVA delay management (or equivalent technology) and appropriate queue detection; and
- Widening on the eastern approach to the dumbbell roundabouts.

2.44. A footway and cycleway is proposed along the length of the Site's northern boundary and frontage with the B5356 Grappenhall Lane. This should be a 3.5m shared cycleway/footway 1.2km in length along this road corridor. Following comments raised by WBC Highways in their consultee response the Applicant has agreed to commit to providing a commuted sum to the Council towards continuing this shared cycleway/footway beyond the Application boundary extending the footway to the Grappenhall Lane / Broad Lane roundabout to provide better pedestrian permeability and connections. This would be implemented by the Council. This would necessitate an additional 175m of footpath on existing highway land to the south of Grappenhall Lane to continue the pedestrian/cycle infrastructure to the Broad Lane roundabout. The presence of street furniture and vegetation in this area and the width of the adopted verge may require a reduction of the 3.5m width to achieve this. It is understood that WBC would also like to see a new pedestrian/cycle crossing facility at the Broad Lane

roundabout. This would further enhance connectivity with Broad Lane in the north and/or the southern section of Grappenhall Lane where the Stobart scheme will implement a series of pedestrian and cycle enhancements if it is brought forward. To tie into the Stobart infrastructure a new pedestrian/cycle link would also be required on the western side of the highway between the Broad Lane roundabout and Barleycastle Lane. This would be a distance of circa 220m. The Applicant is able to commit towards providing a commuted sum towards these improvements. The delivery of circa 1.5km of new pedestrian and cycle infrastructure and upgrades to the existing PROW network, would offer significant benefits over the existing situation. This infrastructure will enhance connectivity between the site and existing/proposed residential areas to the west and connectivity to Broad Lane. The enhanced PROW connections through the site and existing infrastructure at J20 does also provide a continuous link of connectivity to the M6 Junction 20 and beyond in the east and connectivity to the A50 Knutsford Road. Commuted sums towards these improvements will be agreed through a S106 Legal Agreement.

- 2.45. The Applicant has also agreed with WBC to safeguard a section of land, which will be landscaped (but not built upon) within the Application boundary extending from Grappenhall Lane to facilitate any future road widening and improvements required on Grappenhall Lane. This will ensure the protection of a 25m corridor along Grappenhall Lane can be achieved utilizing the existing adopted highway and a small part of the Applicant's land.
- 2.46. Footpath 31 follows the line of the current farm access into the Site from the A50 Cliff Lane and continues past the Bradley Hall moated site and to the south of the Site as Footpath 23. It is proposed to retain Footpath 31 in its general extent, and may require a minor variation to the alignment to provide a safe crossing point across an internal estate road.
- 2.47. Footpath 28 runs east-west across the site from Footpath 23 and 31, to the north of the Bradley Hall Cottages, across the fields, before terminating at the field boundary to the western extent of the Site. Footpath 28 will be diverted as part of the Proposed Development. Its diverted route will run along the northern boundary of the site, parallel with the B5356 Grappenhall Lane at the point of the proposed eastern access point. It will then re-enter the site alongside an internal estate road and rejoin Footpath 23.
- 2.48. Circulation within the Site is to be detailed at the Reserved Matters stage.
- 2.49. This is also shown on the plan included at **Appendix 5**:

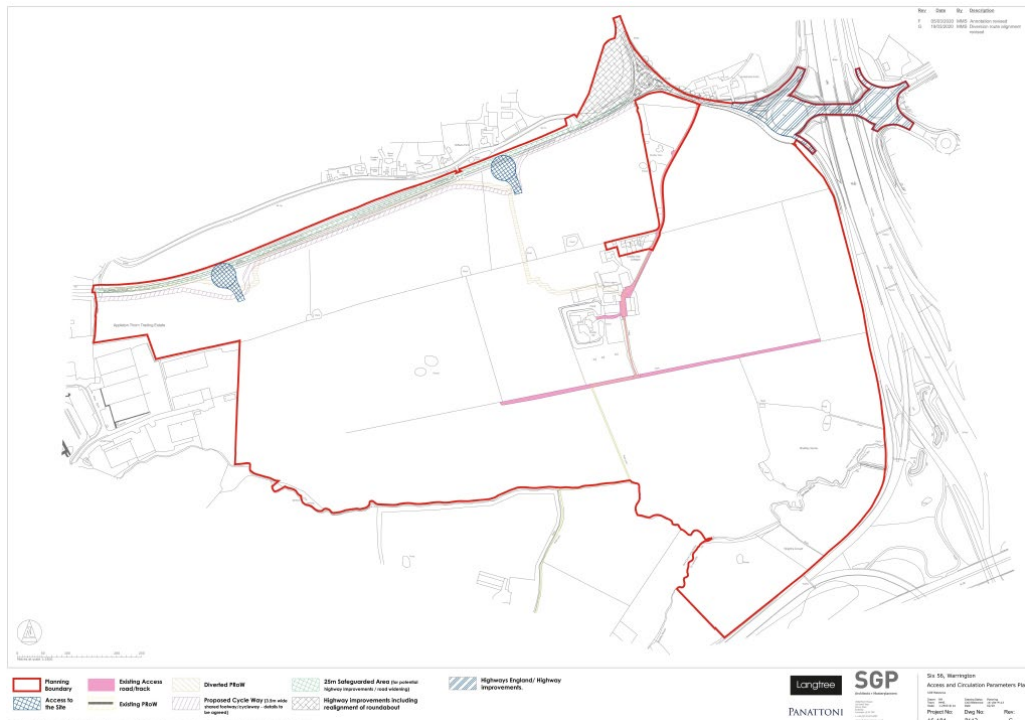


Figure 4.8: Access and Circulation Parameters Plan (updated to include changes to the proposals)

Drainage

- 2.50. Ultimately, each development plot will have its own surface water drainage strategy as well as attenuation of the associated and immediate public realm. A strategy is being developed for plot level and site wide drainage.
- 2.51. Sustainable drainage systems will be used along with greenfield runoff rates for surface water drainage. The areas illustrated on the Parameters Plans are those areas safeguarded for surface water drainage.
- 2.52. Minor changes have been made to the location of these attenuation basins and swales which have been revised to reflect the updated earthworks model.
- 2.53. A number of these basins can be used as permanent ponds and can also provide habitat for a variety of wildlife (rather than specific GCN breeding habitat). Any attenuation areas that are likely to be dry most of the time, can still contribute to terrestrial habitat for wildlife.

- 2.54. Foul water will be pumped to meet United Utilities sewers from a new pumping station within the site.
- 2.55. This is also shown on the plan below included at **Appendix 5**:

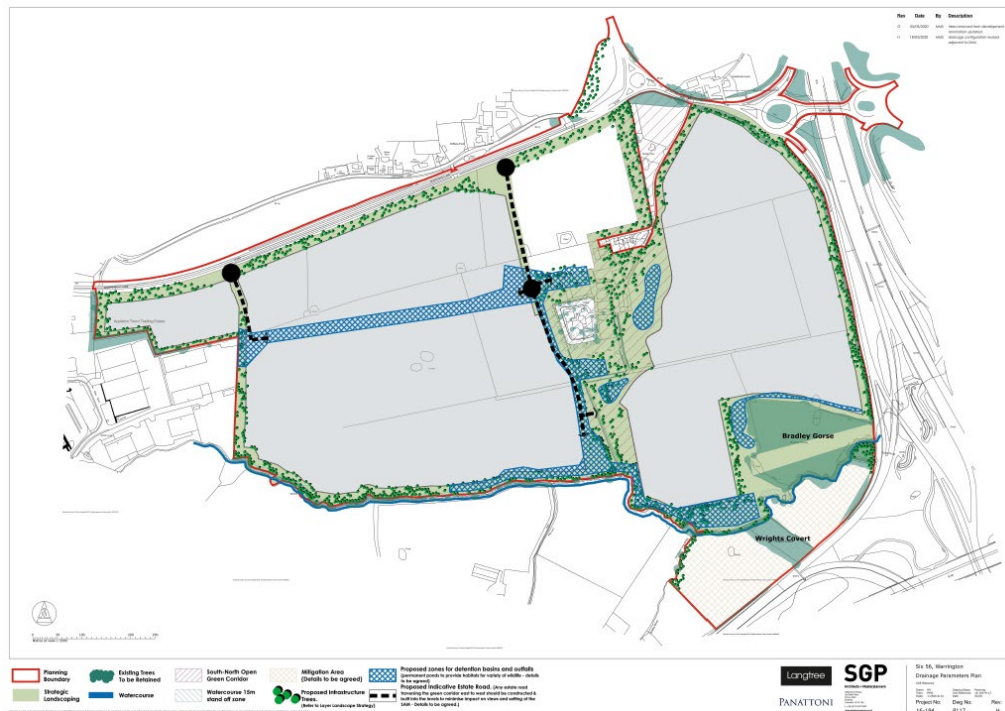


Figure 4.9: Drainage Parameters Plan (updated to include changes to the proposals)

Acoustics

- 2.56. The updated Acoustics Parameter Plan identifies areas closest to boundaries with residential properties and where external service plant or other noise generating equipment should not be placed, unless it can be demonstrated that appropriate mitigation can be put in place to avoid significant adverse effects on the noise receptors. It details that in these areas, delivery/loading bays should be orientated away from the Site boundaries and the neighbouring residential properties.
- 2.57. The updated Acoustics Parameter Plan will ensure appropriate noise mitigation is in place to attenuate noise levels that will be experienced during the operational phase of the development at existing properties on Cartridge Lane and sensitive receptors within the site comprising

Bradley Hall Cottages and Bradley View. The realignment of the proposed roundabout access into the site shown on the updated Access and Circulation Parameters Plan (Figure 4.8), including the proposed location of bunds illustrated on the updated Acoustics Parameter Plan will reduce noise levels from road traffic and proposed service yards and docking bays to an acceptable level. The removal and realignment of any proposed estate road on the site carrying operational traffic away from Bradley Hall Cottages will also reduce noise levels adjacent to the Cottages to an acceptable noise level. The reconfiguration of landscape bunds will also retain a sense of openness around the Cottages and green corridor. This also results in revisions to the number and location of bunds adjacent to Bradley Hall illustrated on the updated Acoustic Parameter Plan and proposed Site Sections.

2.58. ~~It also details the location of bunds to attenuate noise egress from the site during the operational phase.~~ Additional acoustic barrier screening has also been carefully considered at roadside and bund locations adjacent to Bradley Hall Cottages, ~~which~~. The bunds will have maximum 1:3 gradient slopes to a maximum height of approximately 5m, facing the Cottages with 2.5-3m 2-3m high acoustic fencing on parts of the bunds separating around Bradley Hall Cottages and Zone B-C and D. The side of the bund facing the proposed employment units will be more vertical, formed from Gabion walls or similar. The gabion wall will be within 1m of the car park edge and will continue around the perimeter of the car park to accommodate the bund. These bunds shown on the Updated Acoustic Parameters Plan and Site Sections will be created during the site enabling phase of construction works.

2.59. This is shown below and on the plan included at **Appendix 5:**

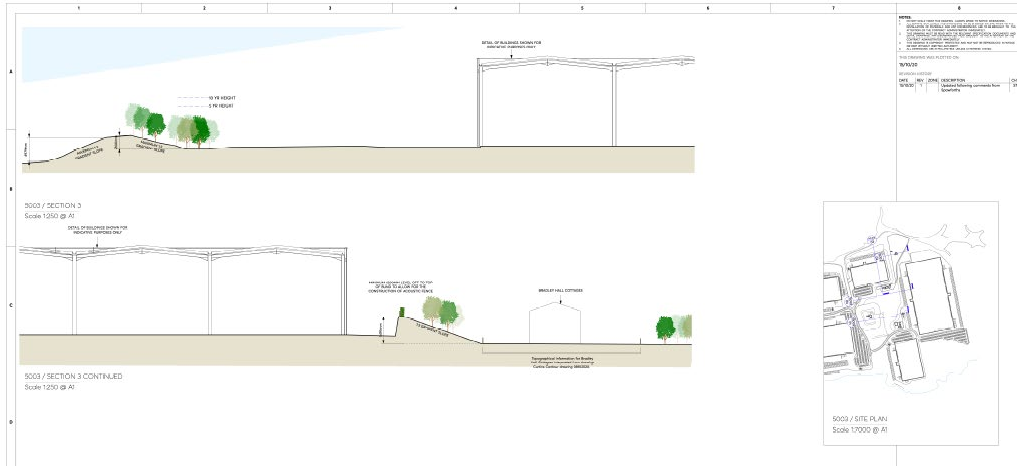


Figure 4.10c: Site Sections to show noise mitigation

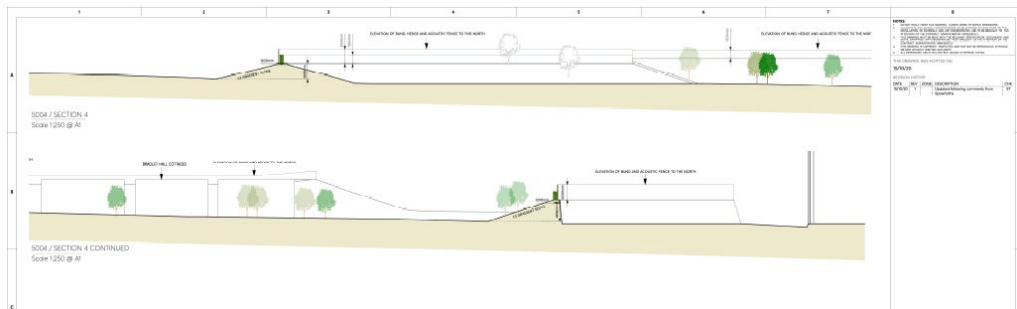


Figure 4.10d: Site Sections to show noise mitigation

Heritage

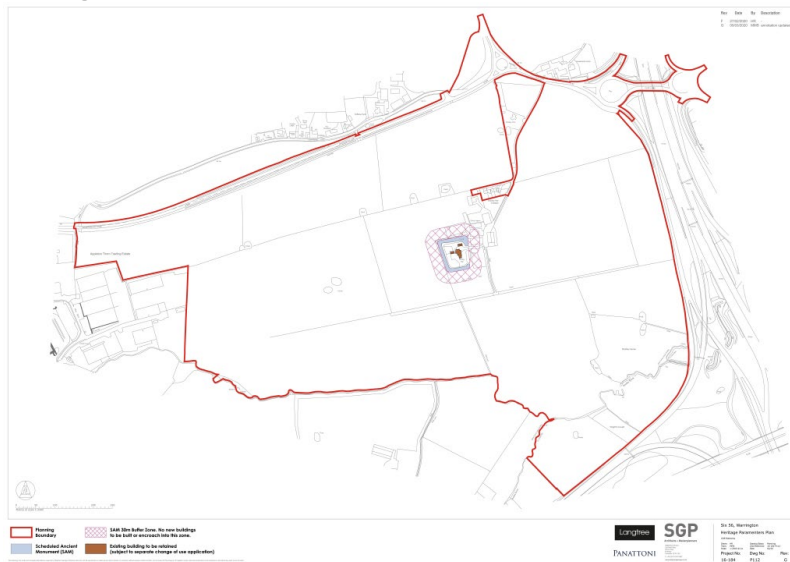


Figure 4.11: Heritage Parameters Plan (updated to include changes to the proposals)

2.60. Bradley Hall moated site is a Scheduled Ancient Monument (SAM) located within the Site boundary, to the eastern part of the site, adjacent to the farm buildings. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house, which is to be retained. The moated island is partly occupied by the farm house associated with Bradley Hall Farm, which is excluded from the Scheduling, but which will be retained ~~and converted to B1a office use as part of the Proposed Development.~~ This Heritage Parameter Plan seeks to identify a 30m stand-off and buffer between any built development and the moat which is a heritage asset. The existing Bradley Hall Farm building, which is a locally listed building (non-designated heritage asset), will be retained ~~and converted for B1a office use.~~ No new buildings will be built or encroach within the 30m stand-off and buffer.

2.61. The Applicant will agree through the grant of any outline planning permission to cease use of the existing Bradley Hall Farm building, for residential purposes on the commencement of development on the site, to remove any impact on residential amenity. This will be agreed through a S106 Legal Agreement. Further change of use applications will be required to determine future uses of these buildings and ensure uses are complementary to the setting of these locally listed buildings and the setting of the SAM. These are also shown on the plan included at **Appendix 5**:

Demolition

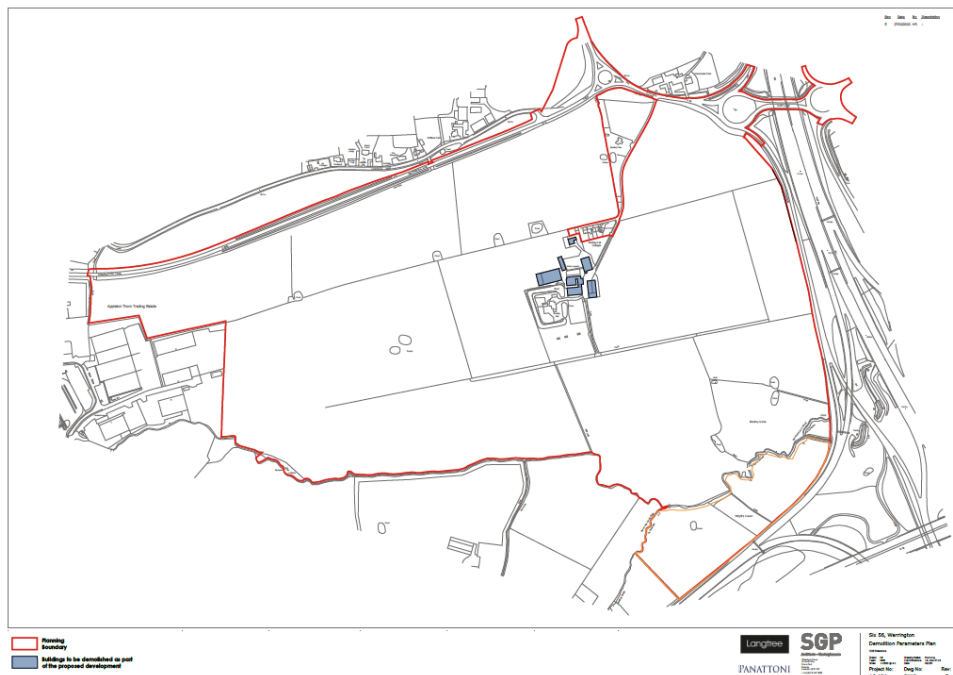


Figure 4.12: Demolition Parameters Plan

- 2.62. This Demolition Plan identifies the extent of the existing buildings on site proposed for demolition on site. These comprise the complex of farm outbuildings associated with Bradley Hall Farm.
- 2.63. The consultee response from the WBC Conservation Officer expressed initial concerns regarding the demolition of some of the farm outbuildings. A further structural investigation and heritage evaluation of these outbuildings has now been undertaken. This assessment which forms part of the updated Cultural Heritage and Archaeology Addendum Technical Paper confirms that these farm buildings have been subject of various alterations and re-building, which has significantly affected the historical character and integrity of the original complex of buildings. The poor structural architectural condition of the buildings has also diminished the significance of these buildings and the removal of many of the original features has degraded the building further. Given the significant amount of disturbance to the original structure and the diminishing structural integrity of the buildings, these buildings are not suitable for conversion therefore the assessment confirms they are proposed for demolition on the Demolition Parameters Plan.
- 2.64. Following this further investigation and assessment, it was accepted by Officers that these buildings have undergone alteration and extension to a degree that they are not suitable for conversion and therefore the demolition of these outbuildings is supported subject to agreement that these buildings should be recorded, prior to demolition.
- 2.65. These are also shown on the plan included at **Appendix 5**.

Infrastructure Arrangements and Ground Conditions

- 2.66. This section details service arrangements, drainage and flood risk, access and highways and ground conditions.

Existing Services Arrangements

- 2.67. The existing Site has the following services that will either be disconnected and / or diverted to facilitate the proposed development:
- Electrical services (Low Voltage only)

- Telecommunication services
- Water services

- 2.68. The existing electrical services comprise an overhead low voltage cable that runs south from the B5356 Grappenhall Lane, across the site to Barleycastle Lane. The cable serves Bradley Hall, an on-site telephone mast, adjacent to Bradley Gorse, and properties on Barleycastle Lane.
- 2.69. The Electrical supplies to the existing site will be disconnected and the existing services on Barleycastle Lane shall be re-fed from new supplies to the south of the Site. Should the residential properties adjacent to Bradley Hall Farm be retained, new services will be installed.
- 2.70. The telephone mast will be re-fed by a new supply via underground cabling from the proposed development.
- 2.71. The existing telecommunications services feed the existing residential properties adjacent to Bradley Hall Farm, these services will be disconnected back to B5356 Grappenhall Lane or new services installed to the residential properties.
- 2.72. The existing water services feed the existing residential properties adjacent to Bradley Hall Farm, these services will be disconnected back to B5356 Grappenhall Lane or new services installed should the residential properties.
- 2.73. The existing Gas, Electric and Telecomms services running along Grapenhall Lane / A50 are not envisaged to be affected by the re-aligned roundabout at the junction of Grapenhall Lane / A50.
- 2.74. The existing Water service running along Grapenhall Lane / A50 will require re-routing to facilitate the re-aligned roundabout at the junction of Grapenhall Lane / A50.

Proposed Services Arrangements

- 2.75. New Utilities services will be installed for the proposed development including electric, telecommunications, water and gas services.
- 2.76. The proposed electrical supplies to the proposed development will comprise a new 33kV primary sub-station to be located within the Proposed Development Site, this primary sub-station will feed a number of 11kV sub-stations located adjacent to the units. The capacity applied for the proposed development supply is 20Mva.

- 2.77. The proposed telecommunications services to the Proposed Development Site will comprise an infrastructure of below ground ducts and wire ways to each unit. The ducts will connect back to the telecommunications primary network on B5356 Grappenhall Lane.
- 2.78. The proposed water service to the Proposed Development Site will derive from the existing water main on B5356 Grappenhall Lane, and will distribute throughout the Site to serve each unit and fire hydrants. A pumping station is envisaged to be required at this stage to meet the required flow rates. The existing water mains infrastructure requires upgrading to support the Proposed Development. The capacity applied for the proposed development is 13.39 l/s.
- 2.79. The proposed gas supply to the Proposed Development will be derived from the existing 180PE M/P main, located near to the junction of Barleycastle Lane and Grappenhall Lane, the new gas main will run underground along Grappenhall Lane to the Proposed Development Site, this distance is approximately 900 meters. The new gas supplies for the Proposed Development will run underground to each unit location terminating into a dedicated gas meter per unit. The currently applied for gas load is 26,500 kWh. The existing network is unlikely to require reinforcement; confirmation of this is required from the asset owner following a full network study which will be carried out during detailed design analysis.

Drainage and Flood Risk

- 2.80. The Site is wholly within Environment Agency Flood Zone 1 land, classified as land that has a low probability of flooding.
- 2.81. A main EA river network is present on the southern boundary of the Site. A tributary of Bradley Brook originates from Barleycastle Lane flowing west to east before joining Bradley Brook prior to being culverted under the M6. The river continues north through Lymm with eventual connection to the Manchester Ship Canal network.
- 2.82. There are no groundwater abstraction points or primary aquifers within 1km of the Proposed Development.
- 2.83. There are no formal foul or storm artificial drainage connections offsite from the development. The existing drainage assets are limited to the farm house, cottages and field drainage. The waste from the existing properties is collected within an underground system and discharges to a series of local artificial cess pits which are emptied at regular intervals. The storm water drainage from the properties and surrounding infrastructure is collected and conveyed to a

combination of ground and overland routes with eventual collection in the Bradley Brook network on the southern boundary. Artificial drainage from the agricultural fields is also present with discharge to various ditches throughout the Site.

- 2.84. The closest adoptable sewer network is located in the industrial estate to the west, under the responsibility of United Utilities (UU). The closest adoptable sewer network with available connection to processing plants is found further south-west within the outer regions of Appleton.
- 2.85. The natural drainage patterns on the Site indicate mainly greenfield runoff toward Bradley Brook. There are also a series of onsite ponds which collect and store water for sub-catchments without positive artificial connections. Bradley Gorse also has an independent natural drainage network which includes ponds and overland connectivity with eventual connection back to Bradley Brook.
- 2.86. The proposed foul drainage strategy is to collect and convey waste via gravity to a central pumping station. This will then be pumped within a rising main west and south along the B5356 with connection to the United Utilities sewer network.
- 2.87. The foul water rising main will be laid in a dedicated trench within the existing road. It will exit the site by the site entrance roads into Grappenhall Lane (B5356). It will continue in the pavement of Grappenhall Lane, past the junctions of Broad Lane and Barleycastle Lane, to the centre of Appleton Thorn village at the crossroad junction of Lumb Brook Road, Arley Road and Grappenhall Lane.
- 2.88. The rising main will meet the existing UU sewer at this junction. The rising main will be laid at a typical depth of 1.1 to 1.2 metres. The trench will be located typically 1.0 metre off the kerbline / edge of the road to ensure there are no stability issues to adjacent properties. The trench is likely excavated using road saws, 5 – 13 T excavators with rubber wheels/tracks, dumper truck, and filled by grab and compacted by hand held rammer. Asphalt will be re-laid by hand and compacted by single drum vibrating roller.
- 2.89. The proposed storm water drainage strategy will see the Site with eventual discharge direct to Bradley Brook at Greenfield Runoff Rate (GRR). Storm water will be restricted to GRR from each plot and conveyed to a central Sustainable urban Drainage Systems (SuDS) corridor where

discharge from the road network will also discharge. Treatment levels will be provided both on plot and in the public realm.

- 2.90. In order to provide flood risk protection to the Site and to the surrounding neighbourhood to manage the limited storm water discharge, onsite attenuation will be provided both in the main infrastructure and within the plots. This will be to the required return periods as required by the LLFA including allowances for climate change in accordance with the Framework. All storm water flows for the 1 in 30 year storm events will be contained below ground with all flows for the 1 in 100 year events plus climate change allowance of 40% being contained safely within the site boundaries overland and/or underground.
- 2.91. Proposed detention basins, ponds and surface water features are included within the scheme as part of the proposed development stormwater attenuation requirement.
- 2.92. All new impermeable surfacing (roads, car parks, roofs etc.) will be drained to the new storm water drainage network and conveyed to new outfalls to Bradley Brook. As part of the main network, SuDS have been included to improve water quality prior to the discharge to the receiving waters. SuDS will naturally filter the water and remove pollutants and solids prior to discharge.
- 2.93. Swales are proposed to drain the access road where levels allow. All impermeable areas from the proposed Development plots, along with the water from the main highway will then pass through detention basin systems. In addition to this, on plot SuDS will be required for each development unit.
- 2.94. A series of Key Receptor Plans are included in **Appendix 6**.

Access Arrangement and Highway Works

- 2.95. The Site currently benefits from five access points along the B5356 Grappenhall Lane, including one main Site access into Bradley Hall Farm, between the A50 Cliff Lane / Grappenhall Lane roundabout and the western roundabout of the M6 Motorway Junction 20, plus four field accesses along the Site's frontage to Grappenhall Lane.
- 2.96. The main Site access into Bradley Hall Farm also forms part of the Public Right of Way Network (Footpath No 31), which allows a connection through the Site to Barleycastle Lane to the south (where the route becomes Footpath No 23).

Proposed Access

- 2.97. The proposed development will be accessed via two new roundabouts on Grappenhall Lane. Minor changes have been made to the alignment of the first roundabout access from the east to reflect realignment of the estate road access into the site and will alleviate noise impacts on residential properties. The principal roundabout will be at a point approximately 380m to the west of the A50 Cliff Lane / Grappenhall Lane roundabout and a secondary roundabout 350m to the east of the existing Broad Lane / Grappenhall Lane / Barleycastle Lane roundabout.

The roundabouts will be designed in full accordance with design standard TD16/07 of the Design Manual for Roads and Bridges and will accommodate the swept path manoeuvres of high volumes of large HGV vehicles.

Internal Roads

- 2.98. Internally, the initial section of the proposed Site access road served from the principal roundabout will feature a dual-carriageway road, which will lead to an internal network of roads with minimum 7.3m carriageway width and 2m footways.

- 2.99. The secondary roundabout to the west of the site will create a two lane entry and exit from the site which will connect into an internal estate road which links with the primary access into the site. This internal estate road and link between the two roundabouts will allow buses to penetrate the site with provision of a bus stop within the site.

- 2.100. Changes have been made to the illustrative masterplan to remove any proposed estate road close to Bradley Hall Cottages in order to reduce noise levels adjacent to the Cottages to an acceptable noise level. This will result in realignment of an estate road which provides vehicular access into proposed industrial units in Zone D of the updated Disposition Parameters Plan to the south of the SAM. Any proposed estates road and associated street furniture and lighting in this location will be constructed and built into the levels on the Site to minimise any impact of views through this green corridor which separates Zone B and D on the Disposition Parameters Plan and any impacts on the setting of the SAM. This can be controlled through planning conditions.

Pedestrian and Cycle Routes

- 2.101. A footway and cycleway is proposed along the length of the Site's northern boundary and frontage with the B5356 Grappenhall Lane. This should be a 3.5m shared cycleway/footway 1.2km in length along this road corridor. Suitable pedestrian and cycle provision will be catered for within the internal Site layout as part of the development of a detailed scheme layout.

- 2.102. The Applicant has also agreed to commit to providing a commuted sum towards continuing this shared cycleway/footway beyond the Application boundary extending the footway to the Grappenhall Lane / Broad Lane roundabout to provide better pedestrian permeability and connections. This would necessitate an additional 175m of footpath on existing highway land to the south of Grappenhall Lane to continue the pedestrian/cycle infrastructure to the Broad Lane roundabout. This commuted sum will be agreed through a S106 Legal Agreement.
- 2.103. The presence of street furniture and vegetation in this area and the width of the adopted verge may require a reduction of the 3.5m width to achieve this. It is understood that WBC would also like to see a new pedestrian/cycle crossing facility at the Broad Lane roundabout. This would further enhance connectivity with Broad Lane in the north and/or the southern section of Grappenhall Lane where the recently approved Stobart scheme is implementing a series of pedestrian and cycle enhancements. To tie into the Stobart infrastructure a new pedestrian/cycle link would also be required on the western side of the highway between the Broad Lane roundabout and Barleycastle Lane. This would be a distance of circa 220m. The Applicant is able to commit towards providing a commuted sum towards these improvements. The delivery of circa 1.5km of new pedestrian and cycle infrastructure and improvements to the existing PROW network through improved surface treatments and realignment through formal PROW diversion, would offer significant benefits over the existing situation. This infrastructure will enhance connectivity between the site and existing/proposed residential areas to the west, connectivity to Broad Lane. The enhanced PROW connections through the site and existing infrastructure at J20 does also provide a continuous link of connectivity to the M6 Junction 20 and beyond in the east and connectivity to the A50 Knutsford Road.
- 2.104. The Applicant has also agreed with WBC to safeguard a section of land, which will be landscaped (but not built upon) within the Application boundary extending from Grappenhall Lane to facilitate any future road widening and improvements required on Grappenhall Lane. This will ensure the protection of a 25m corridor along Grappenhall Lane can be achieved utilizing the existing adopted highway and a small part of the Applicant's land.
- 2.105. The existing Public Right of Way, Footpath 31 follows the line of the current farm access into the Site from the A50 Cliff Lane and continues past the Bradley Hall moated site and to the south of the Site as Footpath 23. It is proposed to retain Footpath 31 in its general extent,

although it may require a minor variation to the alignment along an to provide a safe crossing point across an internal estate road and around the SAM before it rejoins the existing route of this footpath.

- 2.106. Footpath 28 runs east-west across the site from Footpath 23 and 31, to the north of the Bradley Hall cottages, across the fields, before terminating at the field boundary to the western extent of the Site. Footpath 28 will be diverted as part of the Proposed Development. Its diverted route will run along the northern boundary of the site, parallel with the B5356 Grappenhall Lane at the point of the proposed eastern access point. It will then re-enter the site alongside an internal estate road and rejoin Footpath 23. A series of improvements are required to the A50 Cliff Lane / Grappenhall Lane roundabout and the two 'dumbbell' roundabouts at the M6 Motorway Junction 20 ~~(see paras 2.115–2.104)~~ (see paras 2.116– 2.117).

Public Transport

- 2.107. The accessibility of the proposed development via public transport is considered in detail as part of the Transport Assessment and ES.
- 2.108. In terms of access by sustainable modes, the Site is located within the typical preferred maximum 2km walking distance of Appleton Thorn Village, which includes facilities characteristic of its scale and nature.
- 2.109. The Site is also within the typical maximum 8km cycle distance of a range of areas including Daresbury to the west, central Warrington to the north-west, Warburton to the north-east, and Arley to the south.
- 2.110. The nearest bus stops to the site are situated in Appleton Thorn Village some 2.3km walk distance from the centre of the Site. Currently, the bus stops in Appleton Thorn are served by the No's 8/8A/8E & 7 services, which (combined) provide an hourly service to Warrington / Stockton Heath. This reflects the semi-rural location of Appleton Thorn in the Borough.
- 2.111. The potential to improve the accessibility of the Site by public transport will be set out in a Travel Plan Framework submitted as part of the planning application. The internal estate road and link between the two roundabouts will allow buses to penetrate the site with provision of a bus stop within the site. Setting aside the potential significant improvements to public transport that could be brought about by the Warrington Garden City-Suburb allocation, there is already a commitment to improve bus services to the west of the Site. It is understood that

Warrington Borough Council (WBC) have recently secured circa £500,000 via a S106 financial obligation from the HCA in connection with their three recently-approved residential schemes near Appleton, and that the obligation relates to the improvement of the no.8 bus service provision along Stretton Road (which becomes Grappenhall Lane further towards the Site).

2.112. Following further discussions with WBC following their consultation response the Applicant and Council agreed that a commuted sum of £600,000 towards improved bus services via a S106 financial obligation would be acceptable. This level of funding is comparable to the contribution Stobart agreed on their application which was to fund three shuttle buses from different directions (Warrington, Runcorn and Cadishead).

2.113. The nearest railway stations are in Warrington (Warrington Bank Quay and Warrington Central), both situated some 6.5km crow-fly distance from the Site. The stations lie within 8km cycle distance from the Site, making a longer journey by rail / cycle a possibility.

2.114. Both stations are collectively served by a large number of train services that route to a wide variety of destinations across the entire country at a high frequency. Whilst it is not intended to exhaustively list each destination, selected destinations include Manchester, Liverpool, Blackpool, London, Glasgow, Edinburgh and Llandudno.

Off Site Highway Impacts

2.115. An extensive scoping exercise has been undertaken with Highways Officers at Warrington BC, and Highways England. As a result of these discussions a number of junctions have been identified and considered as part of the Transport Assessment and ES.

2.116. Traffic counts have been undertaken at these locations and capacity assessments have been completed. As a result of this work, it is considered that an extensive package of mitigation works is proposed at the A50/Cliff Lane roundabout and M6 J20. The package includes:

- Relocation of the A50 Cliff Lane roundabout to the west of its existing location to enhance the storage capacity of the link between the roundabout and the motorway;
- Full signalisation of the new realigned A50 Cliff Lane roundabout with widening of all approach arms and reduction of the exit arm onto the A50 to one lane;
- Widening of the A50 link between the A50 Cliff Lane roundabout to provide two lanes for much of the links length;
- Partial signalisation of the two M6 J20 dumbbell roundabouts;
- Widening of the M6 Northbound off-slip;

- Widening of the circulatory carriageway on the two M6 J20 dumbbell roundabouts and rationalisation of the lane markings / directional arrows; implementation of a yellow box and installation of queue detectors; and
- Incorporating MOVA delay management (or equivalent technology) and appropriate queue detection; and
- Widening on the eastern approach to the dumbbell roundabouts.

2.117. These improvements as set out within the Transport Assessment and Transport Assessment Addendum will all be in place by completion of the construction of the proposed development and may be implemented in phases.

2.118. The Transport Assessment (TA) and Travel Plan and Addendum reports will provide a full assessment of the accessibility of the Site by non-car modes, all improvements that are to be included as part of the application and an assessment all transport & highway-related facets of the proposals.

2.119. The TA and Travel Plan and supporting Addendums will inform the traffic and transport environmental assessment and will be appended to the ES Traffic and Transportation Paper and its Addendum.

2.120. A plan of the Key Receptor Plan is included in **Appendix 5**.

Ground Conditions

2.121. The site is recorded as being undeveloped historically, aside from the curtilage of Bradley Hall. The inferred historical land uses are agricultural. In addition, it is known from the Unexploded Ordnance (UXO) assessments that part of the Site was used as a decoy during World War II.

2.122. Ground conditions at the Site are anticipated to comprise a downward sequence of topsoil, glacial till (clay) and sandstone. Depths to rock are expected to be shallow in the western third of the Site. No contamination is anticipated, though locally soft / unconsolidated soils may be present where any ponds or old watercourses have been infilled.

2.123. It is anticipated that the glacial till and sandstone would be suitable for re-use on Site as part of enabling works to create a development platform. Treatment for contamination is not anticipated. Topsoil is not suitable for re-engineering so any surplus topsoil will be accommodated in the landscaping on the Site.

- 2.124. Any soft / organic soils associated with infilled ponds etc. would also not be considered suitable for engineering purposes, therefore this material would require treatment and accommodated in landscaped areas, on Site. It should be noted that the volumes of material associated with infilled ponds etc. is not considered significant in the wider development context.
- 2.125. A detailed Agricultural Land Classification Survey of the agricultural land quality of the Site has been undertaken, including a survey of the soils. The detailed hand held auger survey showed that all the top soils are either sandy clay loam or clay loam and located to a depth of between 250 and 400 mm. Sub-soils ranged from coarse sands, coarse sandy loams to clay loams. 27% of the total site area is classified as agricultural Grade 3a and is typically defined by 350 mm of sandy clay loam to sandy loam top soil over sandy or coarse sands and gravels. 68% of the Site area is classified as Grade 3b and the soils are sandy clay loam to clay loam topsoil up to 250-350 mm over coarse sandy clay loams. In summary the majority of the land is classified as good to moderate agricultural land and not the 'best and most versatile' land.
- 2.126. As the Site is greenfield with no significant sources of contamination identified, and there is no requirement for a significant import of materials to form finished levels, the Site is considered to not represent a significant environmental risk during either the construction or operational phases.
- 2.127. The proposed Site levels will form a cut and fill balance across the site and tie in to existing boundary levels where possible. Cut and fill will be required to create the unit development platforms.
- 2.128. A plan of the Key Receptor Plan is included in **Appendix 5**

Ecology and Landscape

Ecology and Nature Conservation

- 2.129. There are no statutory designated sites within the Site, or within the study area. Four locally designated non-statutory sites are present within 2km of the Site, but no impacts to these are expected.
- 2.130. An 'extended' Phase I habitat survey undertaken in November 2016 identified features of ecological importance comprising:

- Broadleaved Woodland
- Hedgerows
- Ponds
- Scattered Trees
- Watercourses (Bradley Book and tributary adjacent to Site boundary)

2.131. Other habitats comprise improved grassland and arable fields, scrub and tall ruderal. Walkovers of the site have been undertaken since the initial Phase I habitat survey in November 2016 and the conditions on site remain the same as the initial survey.

2.132. Habitats of ecological importance will be retained wherever possible. Where losses are unavoidable, compensation will be made through the inclusion of replacement planting of similar species within the landscape design including enhancement of boundary features and replacement planting to provide green buffers and open space throughout the Site.

2.133. Based on the findings of the Phase I habitat survey and a desk-based study, a series of detailed species surveys have been undertaken, ~~or will be completed prior to submission of the outline planning application.~~ These surveys comprise:

- Badger survey (April 2017) and additional land parcel for highway improvements (December 2018)
- Bat Activity Survey (May – October 2017)
- Bat Preliminary Roost Assessment (PRA) of Buildings (March 2018)
- Bat and Barn Owl Preliminary Roost Assessment (PRA) of Trees, and follow-up aerial inspections (June 2018 – preliminary ground inspections June 2018 followed by some aerial inspections September 2018 and February 2019)
- Bat and Barn Owl Roost Surveys of Buildings to be demolished ~~(June – September 2018)~~ preliminary ground inspections June 2018 followed by some aerial inspections (September 2018 and February 2019)
- Breeding Bird Survey (April – June 2017)
- Great Crested Newt (GCN) Survey (April - June 2017)
- Otter and Water Vole Survey (June and September 2018)
- Wintering Bird Survey (October 2017 – March 2018)

- 2.134. A small population of GCN is present in one pond within the Site boundary. A small population of GCN was also recorded in an off-site pond to the south. A mitigation strategy and Natural England licence will be required prior to undertaking works, detailing measures to avoid killing/injury of GCN, and mitigation for losses of breeding and terrestrial habitat.
- 2.135. A three hole badger sett, and other evidence of badger activity has been recorded within the Site. Surveys for breeding birds identified a range of common passerine species; barn owl was also heard calling within the vicinity of the Site during the GCN surveys but no other evidence of this species has been recorded during detailed surveys of the farm buildings and trees. Bat activity surveys identified bats using the woodland, hedgerows and watercourse corridor for foraging and commuting, and two non-maternity a bat roosts were was recorded within two ~~one~~ of the farm buildings scheduled for demolition. Surveys for otter and water vole found no evidence of these species along the watercourses adjacent to the site boundary.
- 2.136. ~~Based on surveys undertaken to date, it is anticipated that compensation for losses to bat and bird habitats can be accommodated within the landscaping design, as described above.~~ Mitigation for losses to bat and great crested newt habitat and hedgerow nesting birds can be accommodated on site within the designated mitigation area and overall landscaping design, while it is proposed that impacts to ground nesting birds can be mitigated through an agreed contribution to the management of off-site habitats within the local area.

Landscape and Visual Impact

- 2.137. 'The Character of England' produced by Natural England places the Site within the Mersey Valley: National Character Area 60. To the south of the Site, the study area is placed within National Character Area 61: Shropshire, Cheshire and Staffordshire Plain.
- 2.138. Warrington Borough Council's Landscape Character Assessment (2007) places the majority of the Site within the Landscape Type 1b Undulating Enclosed Farmland – Appleton Thorn. The southern tip of the Site lies within the Landscape Type LFW 3: Arley Character Area identified by Cheshire East Council (2008).
- 2.139. The Site is predominantly a rural, pastoral landscape of small to medium-scale fields bounded by mature hedgerows with occasional hedgerow trees. Tree cover includes small woodland blocks and copses, including Wrights Covert and Bradley Gorse. The well-vegetated Bradley Brook runs along the southern boundary of the Site. There are several field ponds within the northern part of the Site with mature trees and scrub. To the centre of the Site lies Bradley

Hall Farm with the remains of Bradley Hall moated site, a Scheduled Ancient Monument, to the west of the farm. Immediately to the north of the farm are several small private dwellings and circa 150m further north, Bradley View, a larger private dwelling. Grappenhall Lane lies along the northern Site boundary linking fast moving traffic including HGVs from Barleycastle Trading Estate to the west, to the J20 M6/M56 Motorway Interchange east of the Site.

- 2.140. The baseline Arboricultural Survey and Assessment carried out in February 2019 (which will be appended to the Landscape and Visual Impact Technical Paper 4 and its Addendum) has established that the tree stock across the Site is broadly made up of either moderate (Category B) or high landscape value (Category A) trees, which are generally in a good condition. The report recommends that buffer zones should be placed between new development and landscape features including Wrights Covert, Bradley Gorse and Bradley Hall moated site. Managed hedgerows both within and along the boundaries of the Site are generally mature and appear to be in a good condition.
- 2.141. The existing trees and mature hedgerows within the Site will be retained and enhanced where possible. Retained trees and woodlands blocks, particularly along the Site boundaries, will form an important part of mitigating the potential impacts of new development. The landscape proposals will include new woodland belts on earth mounding along the Site boundaries and internal roads which with the Sustainable Urban Drainage Scheme will aim to enhance site-wide biodiversity and create new wildlife corridors.
- 2.142. The landscape philosophy accepts that the landscape character of the Site will change, from a rural, pastoral landscape heavily influenced by the established visual and audible presence of the nearby motorways and Barleycastle Trading Estate, to a landscape of large scale, coarse grain built form with associated infrastructure. The landscape proposals aim to deliver a robust scheme that over time will develop to mitigate the adverse nature of the impacts through the implementation of new native woodlands and tree cover; with the long-term goal of improving biodiversity, developing new ecological habitats, and establishing wildlife connections with the wider landscape to enhance the local area.
- Zone of Theoretical Visibility**
- 2.143. A desktop study has been carried out using a computer model of the 5km study area to produce a Zone of Theoretical Visibility (ZTV) based on the topographical OS data for the study area. The ZTV is used to ascertain locations from within the study area where the Proposed

Development is theoretically visible from an observer's eye level. The ZTV was run using three different building heights for the Proposed Development with the following results:

ZTV

- 14-17m High Units: **69.62%** theoretically visible within the study area.
- 14-22m High Units: **72.94%** theoretically visible within the study area.
- 14-40m High Units: **73.01%** theoretically visible within the study area.

2.144. The ZTV analysis was then modified to take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) with the following results:

ZTV (Modified)

- 14-17m High Units: **23.68%** theoretically visible within the study area.
- 14-22m High Units: **29.66%** theoretically visible within the study area.
- 14-40m High Units: **35.29%** theoretically visible within the study area.

2.145. A plan of the Key Receptor Plan is included in **Appendix 4**.

Air Quality, Dust and Odour

2.146. The main source of emissions to air at the Application Site is traffic-related pollution from the M6 Motorway, the M56 Motorway and the surrounding roads. There are no other nearby significant sources of emissions to air.

2.147. For the operational phase, arrivals at and departures from the Site may 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.

2.148. For the construction phase of the Site the key pollutant is dust, covering both the PM₁₀ fraction that is suspended in the air that can be breathed, and the deposited dust that has fallen out of the air onto surfaces and which can potentially cause temporary annoyance effects.

- 2.149. There are a number of Air Quality Management Areas (AQMAs) within close proximity of the site. AQMA No. 1 is a 50 m continuous strip on both sides of the M6, M62 and M56 Motorway corridors in WMB. A small part of the Proposed Development is within this AQMA. AQMA No. 2 is located approximately 5.5 km northwest of the Proposed Development and covers an area of central Warrington bounded by Parker Street, Wilson Pattern Street, Bold Street, Museum Street, Winmarleigh Street and Sankey Street.
- 2.150. A plan of the Air Quality Management Area in relation to the Site is shown on the plan below in orange:



Figure 4.13: Air Quality Management Area (AQMA) Plan

- 2.151. A plan of the Key Receptor Plan is included in **Appendix 6**.

Noise and Vibration

- 2.152. Baseline noise monitoring has identified that the prevailing noise climate around the Site is dominated by traffic noise from the adjacent M6 and M56 Motorways, with contributions from the B5356 to the north. There are no other significant sources of noise which have been identified in close proximity to the Site. Furthermore, no existing sources of environmental vibration have been identified.

2.153. The nearest and most exposed noise sensitive receptors are Grappenhall Lodge, the residential dwellings on Cartridge Lane, the Bradley View Cottages and the Howshoots Farm to the north of the Site, and Tan House Farm and Barleycastle Farm on Barleycastle Lane to the south of the Site. Generally speaking, the existing noise climate at existing receptors is relatively high due to the proximity to the Motorway network.

2.154. Following concerns raised by WBC Environmental Protection regarding high noise levels that may be experienced at existing properties on Cartridge Lane and sensitive receptors within the site comprising Bradley Hall Cottages and Bradley View the illustrative masterplan and acoustic parameters plan has now evolved to reduce these noise impacts.

Baseline and potential traffic flow data, along with identified fixed and moving plant items and vehicles have been used to create a revised 3D acoustic model of the site, reflecting the updated illustrative masterplan and parameters plans, in order to predict the noise levels at the identified noise sensitive receptors and to advise on potential noise mitigation measures during the Construction and Operation phases of the Proposed Development.

2.155. A plan of the Key Receptor Plan is included in **Appendix 6**.

Cultural Heritage/Archaeology

2.156. A corpus of work has been undertaken to understand the Cultural Heritage Context of the Site including the historical built form including listed buildings, conservations areas, the archaeological resource and the historic landscape within which the Site sits.

2.157. The Cheshire Environments Records (HER) have identified a number of archaeological sites and findspots within the area. These have either been recorded through aerial photographs, evaluation/ mitigation or through chance discoveries.

2.158. Identified to the southeast of the Site is an elliptical enclosure which may have prehistoric origins. Found to the north of this near to Junction 9 of the M56 Motorway was a prehistoric stone shaft-hole axe. No other artefacts or monuments of this date are recorded within the study area.

2.159. Recorded within the northern extent of the Site is a Roman road which heads in an east west direction. Accounts state that it has been traced for over 12km with its alignment dictated by

the crest-line of an escarpment of New Red Sandstone which overlooks the Mersey Valley to the north. Evidence for the road has been proven from the study of Tithe and estate maps, parish boundaries, hedge lines, place names, and observations of road material in plough fields.

- 2.160. A section through the road was excavated to the west of the site prior to the development of the adjacent industrial estate. At this point the road was found to be 13.5m wide. Accounts suggest that the road continued in use during the medieval period which is in part substantiated by the placement of a cross on the road near to Bradley Hall Medieval moated site.
- 2.161. Throughout the medieval and post-medieval periods the area was farmed as evident on the early Ordnance Survey map series. Depicted on the 1st edition Ordnance Survey map are a series of farms and barns some of which are recorded on the HER. This farming landscape evolved through the removal of a number of field boundaries to form larger fields in the late 19th and early to mid-20th century. Further change occurred with the construction of Stretton Airfield in World War II to the southeast of the Site and the development of the motorway infrastructure during the 1970s and 1980s.

Designated Assets

- 2.162. Located within the eastern part of the Site is Bradley Hall Moated Site which was designated a scheduled monument in 1991. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house. The moated island is approximately 70m by 55m and is grass covered in the areas not occupied by buildings. Excluded from the scheduling are the farmhouse which is locally listed, access drive, fences, hedged field boundaries and a telegraph pole.
- 2.163. The moat remains water filled and within the island are two occupation phases which survive beneath the present house and gardens. The moat surrounding the island is c. 10m wide and 2.5m deep. Part of the moat has been disturbed through the creation of an ornamental pond on its east side. Access is currently gained from a causeway also on the east side which replaced an earlier drawbridge.
- 2.164. The original hall within the moat was erected in the early 14th century. Documentary sources refer to it around this time with its first depiction on a map dating to 1735 which shows the hall to the northeast of its current position and the moat extending beyond its present location. The hall shown on the aforementioned map replaced that erected in the 14th century. Between

the early 18th and the early 19th century the hall was considerably altered as was the location and extent of the moat. Analysis of later maps shows the addition of a number of outbuildings to the hall as well as a number of agricultural buildings immediately to the northwest of the moat. These outbuildings currently serve a number of functions including a dairy, cattle holding pens, barns, storage and a workshop. The buildings are non-designated and are not listed on the Cheshire Historic Environment Record or the Local List.

- 2.165. The outbuildings are conjoined in a U-shaped courtyard arrangement which is open on its west side. Associated with these are a number of lean-to structures, separate barns and sheds and other structures including portacabins, slurry tank and storage silos. This courtyard arrangement was formed by extensions to the original early 19th century buildings shown on the 1820 Map of Cheshire (Figure 4.13a) and the 1847 Tithe Map Figure 4.13b).



Figure 4.13a: 1820 Map of Cheshire showing first phase of Bradley Hall Farm



Figure 4.13b: 1847 Tithe Map showing Bradley Hall Farm

- 2.166. Marked on the 1820 Plan of Cheshire is a rectangular structure which formed the southern part of the later mid-to late 19th century courtyard structure described above. To the north of this is a further structure whose position coincides with the later northern arm of the courtyard complex (see inset 1). South of these is a large rectangular building which is likely to have been associated. By the time the 1847 Tithe Map was published only the southern arm of the later complex is marked suggesting that the other two structures were demolished. Further re-configuration or re-building is evident on the 1877 Ordnance Survey map which shows the courtyard structure with central arched opening on its east side and lean-to structures on its northern arm. Smaller ancillary structures are also evident to the east and to the northeast, with the latter being the larger of the two. These structures did not last very long as in the late 1890s the larger one was replaced with a larger building and the other one demolished as shown on the 1899 edition.



Figure 4.13c: 1899 Ordnance Survey map

- 2.167. Later OS maps show some further development with a rectangular structure built to the northwest of the farm sometime between the publication of the 1938 and 1954 Ordnance Survey maps. Further expansion occurred in the 1960s demonstrated by the addition of a number of lean-to structures to the interior and exterior faces of the courtyard structure and the construction of new barns to the east and a slurry tank to the north.
- 2.168. Many of the original features associated with the southern and eastern range have been replaced at some point in the 19th/ 20th century including the roof which comprises bolted trusses. The eastern gable of the southern range appears to have been rebuilt noted by the different material treatment below the eaves the insertion of mock tudor timbers in the interwar period and the insertion of a taking in door. These changes may have been undertaken to facilitate its use as a dairy. Similarly, the western aspect of the southern range has been punched through to allow cattle to access the dairy which is housed in the eastern end of the southern range.
- 2.169. In November 2009 National Museums Liverpool Field Archaeology Unit undertook a watching brief at Bradley Hall on behalf of Brewster Associates. This was undertaken during works to replace an early 20th century extension to the farmhouse. The watching brief revealed a poorly constructed cobbled surface which was deemed to be associated with the construction of the

present house. Underlying the cobbles was a layer of clay which was interpreted as the arising from the excavation of the moat. During the watching brief a number of finds were encountered including the base of a 14th -15th century jar and later 17th to 18th century pottery sherds.

- 2.170. A number of listed assets are recorded to the south of the site along Barleycastle Lane including Beehive Farmhouse, Booth Farmhouse, Barley Castle Farmhouse and Tanyard Farm. All of these are listed at grade II with the exception of Tanyard Farm which is listed at grade II*.
- 2.171. A plan of the Key Receptor Plan is included in **Appendix 6**.

Demolition and Construction

- 2.172. Construction hours will be between 0800 hours and 1800 hours on Mondays to Fridays, and 0800 hours to 1300 hours on Saturdays with no working on Sundays or Bank Holidays, unless first agreed with the Local Planning Authority.
- 2.173. The construction site office and laydown areas will be within the Site, but outside the landscape and ecological mitigation areas. All deliveries will be within the construction working hours.
- 2.174. It is anticipated that construction access will initially be gained from the existing farm access from the A50 Cliff Lane in order to form Site compounds and to construct the new Site entrance from the B5356 Grappenhall Lane. Once the access points and associated access roads from Grappenhall Lane are constructed, these will be utilised by construction traffic to develop the rest of the Site.
- 2.175. No contamination is anticipated on Site. Control measures will be put in place to avoid any new contaminants being introduced to the Site during construction, so that no new contamination that represents a risk either to Site users or the wider environment is present.
- 2.176. Subject to materials being assessed as suitable for processing and reuse during the detailed design phase, and subject to the appropriate environmental permits and controls being in place during the construction phase, demolition materials (such as brick and concrete) could be utilised to produce a 'product' in an engineering context. Any suitable site won demolition material such as aggregate, concrete or brick will be assessed and processed for re-use as part of the enabling works. Demolition arising proving unsuitable will be removed from site. In

view of the lack of identified contamination risk on the Site the need to move materials off site is expected to be minimal.

- 2.177. The existing site topography slopes from 67.5m AOD in the north west corner to 51.0m AOD in the south east corner and is relatively gradual. Due to the platforms that are proposed to be created the slopes are pushed to the outer extremities of each plot boundary where majority of the earthworks is required. The proposed strategy is to achieve optimum floor levels on the building units which then cut into the existing slope on one side of the platform and require filling on the other. The new primary infrastructure on the site loosely follows the existing levels where possible with all proposed levels tying back into the existing levels on the boundary on the site.
- 2.178. Approximately 500,000m³ of material will need to be cut, moved and filled on the site to achieve a balance earthwork scheme. The earthworks strategy is to re-use all cut material as fill pending suitability and phasing requirements. Some material will be required to be removed from site if it falls outside of the suitability and phasing requirements. As part of the excavation of material, rock will be encountered with some excavation depths reaching up to 5m on the larger platforms.
- 2.179. Stockpiling locations for material to be retained for re-use on-Site is to be determined and the material is expected to be utilised within the Site shortly after excavation.
- 2.180. During construction, drainage features and flood prevention measures will be installed in the early phases of development. These will be required to limit the surface water run-off from the Site and provide flood storage areas with any required flow control measures to manage the storm water. Any required infrastructure for foul water including pumping stations, rising mains and offsite works will also be required for implementation prior to plot works occurring.
- 2.181. Given the Site's location, UXO (Unexploded Ordnance) banksmen will be required during construction to avoid encounters with previously unexploded ordnance, particularly during the bulk earthworks.
- 2.182. There are a number of existing buildings/structures associated with the current farm use that will be demolished as part of the proposals. As part of the demolition planning, pre-demolition surveys will be undertaken to gather the following information:
- The presence, location and condition of asbestos containing materials;

- The presence of any hazardous materials (e.g. agro-chemicals, fuel etc.);
- Constraints to demolition; and
- Pre-construction information.

- 2.183. The pre-demolition survey would also include an audit of the materials which make up the interior and exterior of the buildings to identify what materials could be reused or recycled. In the case of the farm house and farm buildings, the key demolition products are likely to be bricks, concrete and steel. Site clearance will also include the removal of fencing, necessary hedgerows, farm tracks, drainage and utilities to the farm house and farm buildings.
- 2.184. Where possible, material arising from demolition and Site clearance will be recycled and used on Site. Other types of waste likely to be generated during construction will be identified in the Waste Technical Paper 12 of the Environmental Statement.
- 2.185. Demolition works to drainage assets will be minor as the Site, to current understanding, only contains natural drainage depressions and localised relief drains for agriculture. Site outfalls to land boundaries are present however they will be maintained through the development of the Site.
- 2.186. During the construction phase of the development, the Site will be required to have the necessary safety and security lighting. The aiming of all lighting will be critical to minimise light trespass and sky glow. Light plants will be localized to the specific tasks to minimise any impacts. The lighting installed will be inspected, to ensure the aiming of all floodlights is appropriate and no lighting is being directed towards the residential properties, during the site set up and mobilization period.
- 2.187. The details of the type and quantity of construction and earthworks plant/vehicles will be those typically expected for large construction development sites. Further details of these will be provided within the Noise and Vibration assessment.
- 2.188. During the construction phase of the development, noise and vibration impacts from the construction of the Site and the infrastructure associated with it will depend on the length, the location and the type of plant used for the works taking place during each construction phase, as well as the location of proposed construction traffic routes. The implementation of best practice noise and vibration mitigation measures will be necessary to minimise the impact on the nearest noise-sensitive receptors. Such measures could include regulating plant operating times, directing plant away from receptors wherever possible or proposing engineering controls

to effectively sound attenuate the plant and will be set out as part of the Noise and Vibration assessment. The acoustic barriers and bunds will also be created during the initial site enabling and infrastructure works in the early phase of development.

- 2.189. For the construction phase of the Proposed Development the key emissions to air is dust, covering both the PM₁₀ fraction that is suspended in the air that can be breathed, and the deposited dust that has fallen out of the air onto surfaces and which can potentially cause temporary annoyance effects. The quantity of this will be assessed through the Air Quality environmental assessment and reported in the ES.
- 2.190. A Construction Environmental Management Plan (CEMP) at **Appendix 9** will be produced to ensure measures are taken to reduce the effects of the construction phase, particularly in respect of noise, vibration, dust, site lighting, ecology and habitats, trees, drainage and flood risk. For example, run off of silts / clays etc. into the Bradley Brook; good construction practice to mitigate spillages / leaks from plant and egress of dust into the wider environment; control measures to prevent the introduction of new contaminants to the Site; tree protection measures; and appropriate mitigation for flora and fauna.

Operation

- 2.191. The end use of the Site is B8 (storage and distribution) with ancillary BI(a) office. As such the operations are likely to be 24 hours.
- 2.192. The residues and emissions from the Site are those associated with a typical B8 use including for water, air, noise and vibration, light and waste.
- 2.193. The SuDS features in the public realm will be managed and maintained by a private management company in accordance with maintenance schedules to be set out in the drainage strategy. All Site drainage generally will be under the split ownership of Warrington Borough Council, United Utilities and the plot developers.
- 2.194. The need for noise mitigation measures to minimise the noise impact on the nearest noise sensitive receptors will be assessed through the Noise and Vibration assessment and its Addendum.

- 2.195. For the operational phase, arrivals at and departures from the Proposed Development may change the number, type and speed of vehicles using the local road network. Changes in road vehicle emissions are the most important consideration for air quality during this phase of the development. This will be assessed through the Air Quality environmental assessment and reported in the ES.
- 2.196. The Proposed Development uses will generate commercial and industrial (C&I) waste, and this will be assessed through the environmental assessment of waste.
- 2.197. The key changes to the development with regards to light spill and sky glow will be from the car park and loading bay lighting, amenity lighting and pathway lighting. A lighting strategy is to be devised and this will be centered around a higher quantity, of lower power luminaires mounted closer to the area to be lit, as this will provide a scheme which is far less likely to cause light pollution compared with more powerful but fewer luminaires.

Decommissioning

- 2.198. Decommissioning of the Proposed Development is not relevant to this project, given the proposed end use for the site.

Phasing

- 2.199. The delivery of the Proposed Development will come forward in phases. This will ultimately be driven by the demand for the employment buildings, however for the purposes of the Environmental Assessment, the following timescales have been assumed, which represent a precautionary approach (and therefore a worst case scenario) by assuming a single continuous phase of site enabling works:

- Planning Submission – 2019 (late Q1)
- Planning Determination – ~~2019~~ 2021 (Q3) (~~early Q3~~)
- Reserved Matters/Detailed Design – ~~2020-2022~~
- Initial Site enabling and infrastructure works – ~~2020 (6 months – Q2 2020 to Q3 2020)~~ 2022 (6 months – Q3 2022 to Q4 2022)
- Development – ~~2020 to 2027 (6.5 years – Q4 2020 to Q1 2027)~~ 2022 to 2029 (6.5 years – Q4 2022 to Q1 2029)

2.200. The Development stage is expected to take approximately 6.5 years, commencing with an initial enabling works phase. The delivery of the units will be phased across the 6.5 years, alongside the other infrastructure works which are likely to be developed on a plot by plot basis. This will be dependent on market demand.

3. The Need for Development

Development Need

- 3.1. The Application is made in the context of a significant shift in economic evidence that is informing the emerging Local Plan for Warrington. The context to this Application in economic terms is set out in greater detail within Technical Paper 6 of the ES Part 2 (Socio economic) and its Addendum.
- 3.2. The need for economic development is particularly evident in the logistics sector and there is a significant need for new employment floorspace particularly for logistics in the UK. The logistics sector is a key growth area for the region and will be an important catalyst for further growth in the region. The Northern Powerhouse Strategy (2010) recognizes the logistics sector is a key enabler of growth and predicts the logistics sector will grow by 83% between 2013 and 2035. By expanding the logistics sector in Warrington, which has strong history of successful logistics investments due to its proximity to the motorway network, the Application Proposals will make an important contribution in achieving the Governments Northern Powerhouse ambitions.
- 3.3. There is a significant need for logistics floorspace to serve the North West and the Cheshire and Warrington sub-region occupies a strategic location with close links to Manchester, Liverpool and the Midlands, with unique cross border opportunities with the Mersey Dee Economic axis. The area is also well positioned to take advantage of the continued major investment in the Port of Liverpool, including the new Panamax container terminal. The locational advantage of Warrington to the logistics sector is also evidenced by the proven success of Omega, which enhances Warrington's reputation as a centre for logistics and distribution. Omega North is now substantially complete and occupied, therefore there is a need for new large scale sites, with similar locational advantages in the South of the Borough to meet the needs of logistics operators in the sub-region.
- 3.4. National agents JLL who were appointed to provide market advice on behalf of the Applicant state that in 2018, there was ~~has been~~ approximately 4.2 million sq ft (390,186 sq m) of large scale premises take-up across the North West region. With total Grade A and Grade B space in 2018 totalling over 4.2 million sq ft, this ~~is~~ was the highest year on record up 30% on 2017 and up approx. 30% on the five year average (2014-2018).

- 3.5. Take up in 2020 has seen a strong start with 142,881 sq m (1,438,011 sq ft) of Grade A units let or contracted in the first seven months. This includes the letting of Haydock 525 (523,500 sq ft) to Kellogs, Evolution, Salford, (130,000 sq ft), Q110, Crewe (110,000 sq ft) let to AO.com, Magnitude, Middlewich 158,000 sq ft for Swizzells (build to suit), Icon 138, Manchester Airport (138,000 sq ft) and 375@Logistics North (375,000 sq ft) let to Dixons.
- 3.6. 623,000 sq ft or 43% of this take up are e commerce / internet shopping related occupiers. Take up in 2019 was 3.4 million sq ft. The majority of the lettings were for Grade A and B existing units totalling 2.38 m sq ft with 573,000 sq ft of build to suit and 497,000 sq ft of speculatively built take up. This was due to the political uncertainties this caused a slow down in take up for the first 3/4 of the year with the last quarter providing a surge which ties in with the General Election and the decision to leave the European Union at a fixed date. The five-year average take up of Grade A space is 2.1 m sq ft and the ten-year average is 2.3m sq ft.
- 3.7. Long term demand in terms of regional take up show the strength of the North West logistics and industrial sectors. The market has an average Grade A 10 year take up of 2.3 million sq. ft per annum. Demand in the region remains strong with over 1.4 million square feet of speculative build/build to suit units contracted in the first 7 months of 2020 in the North West.
- 3.8. On a regional basis there are eight speculative build units available with a total area of 1.259 million square feet. There are four units available under construction totalling 0.75 million square feet one of these units is currently under offer. There are two Grade A buildings available of totalling 0.557m square feet.
- 3.9. In terms of supply based on the five-year average take up of 2.1 million sq ft there is 14 months' supply and on the ten-year average take up of 2.3 million sq ft there is 13 months' supply.
- 3.10. In summary, the North West industrial and distribution market has had a consistent take up of speculative, Grade A units and build to suit sites despite the various economic and political issues of the last three years. The demand is driven by the expansion of new emerging sectors, the consolidation/expansion of established businesses and the impact on supply chains of the COVID 19 pandemic.
- 3.11. Design & build / speculatively built space accounted for 50% of all take up, which reinforces the need for further large scale development sites to accommodate future demand for new build accommodation. At the end of 2018 there were 14 large scale logistic units speculatively under

construction in the North West totalling approximately 3 million sq ft, eleven of which have now reached or with practical completion being imminent.

- 3.12. ~~In summary the Warrington M6 market can show a take up of 1.2 million square feet in the period Q2 2019 to end of Q1 2020 twenty of speculative build. This represents 32% of the total regional take up this shows the strength of the market and the sub regional location.~~
- 3.13. ~~Warrington has a single speculative/Grade A unit available of 184,000 sq ft with a further two units (308,000 and 203,000 sq ft) under construction and planning consent for a further unit (225,000 sq ft). All four units are at Omega South.~~
- 3.14. Warrington is one of the premier North West M6 centric logistics locations. Its location at the intersection of the M6/M62 and M6/M56 motorways enables it to serve the Manchester and Liverpool conurbations in addition to the M6 corridor. Omega has been the most successful industrial and logistics development site in the North West with over 5 million square feet being built out or under construction. In the local Warrington area, there is only one Grade A building over 100,000 sq ft immediately available at Omega Mountpark Warrington (184,000 sq ft) and three Grade B buildings available. Two speculatively built units (307,807sq ft and 203,180 sq ft) are under construction at Omega with completion in January 2021, a further unit (225,000 sq ft) will be available in late 2020. All four units are at Omega South.
- 3.15. With the development of the above units, this will complete the development at Omega Warrington. The only available site with planning permission within the Warrington BC administrative area is at Barley Castle Lane, Stretton which was the proposed HQ/National Distribution Centre for Eddie Stobart. The site has however now been called in by the Secretary of State.
- 3.16. Two properties have come to the market recently, the former Travis Perkins building (11.03 acres) and the former Shearings site (7.28 acres) at Stretton. The Travis Perkins site is an 'L'/irregular shaped site and has been purchased by a developer. The Shearings site is being marketed and it is reported that Government is taking an interest in it as an Import / Export document processing centre. . Neither of these sites can offer a building in excess of 250,000 sq ft.

- 3.17. In summary the Warrington area is one of the most successful logistics location in the North West. The Borough now has no immediately available sites that can accommodate large scale logistics development and a limited supply of Grade A buildings available.
- ~~3.18. Omega has been one of the most successful industrial and logistics development sites in the North West with over 5 million sq ft being built out at Omega.~~
- ~~3.19. With the completion of development at Omega Warrington, the only available site is at Barley Castle Lane, Stretton which was the proposed HQ/National Distribution Centre for Eddie Stobart~~
- ~~3.20. In summary the North West industrial and distribution market remains strong with take up of speculative/Grade A units and build to suit sites despite the various economic and political issues of the last three years. The ten year average take up remains in excess of 3m sq ft per annum.~~
- 3.21. With the 10 year average new build take up of approximately 2.5m sq ft this is currently standing at just over 1 years supply. Should 2019 take up levels hit 2018 recorded levels of 4 million sq ft JLL expect to see many of these units let during 2019. With increasing numbers of businesses seeking sites for distribution and warehouse facilities in strategic locations, with easy access to the region's major transport networks this speculative supply will be quickly taken up by ongoing pent up demand.
- 3.22. A further review and assessment of comparable sites in the sub region and at a local level, along the principal motorway corridors, which are subject to an allocation in an adopted statutory development plan or have a planning permission, will be undertaken to inform part of the separate Replacement Planning Statement to support the Very Special Circumstances (VSC) case to justify the application proposals with lie within the Green Belt. This will be undertaken following a request from the Council to extend the geographical area of search to surrounding local authority areas, to consider alternative sites driven by locational need and occupier interest.
- 3.23. Notwithstanding the above, this ES focuses on alternative sites within the Warrington Borough as is set out in the Section 4 - Alternative Options of this ES Part I Addendum Report. This reaffirms that there are no available alternative sites in the Warrington Borough that can be developed immediately to meet the needs for large-scale development for the logistics sector.

- 3.24. In terms of employment sites within Warrington Borough, with the exception of Barley Castle Lane, Warrington BC does not have any sites capable of providing a large building footprint with reasonable motorway access to meet the needs of the logistics sector. The former Fiddlers Ferry power station site will not be available for development for a number of years whilst decommissioning, demolition and remediation of site is undertaken. The site is also positioned to the west of Warrington town centre and is not well related to the strategic road network. It does not therefore meet the locational requirements of the logistics sector and is not therefore a suitable alternative to the Application Site.
- 3.25. Given the Application Site's proximity to the M6/M56 intersection the Site is attractive to occupiers and satisfies the criteria within NPPF paragraph 82, which recognizes the need to address the specific locational requirements of different sectors, specifically storage and distribution operations in accessible locations.
- 3.26. The above confirms that there is still a chronic imbalance between supply and demand as logistics operators continue to seek sites for distribution and warehouse facilities in strategic locations with easy access to the region's major transport networks.
- 3.27. This demand for large scale employment sites in strategic locations within the Borough corresponds with the ambitions of the Council's Economic Growth and Regeneration Programme (Warrington Means Business) (2019) to grow the economy and the Council's Economic Development Needs Assessment (EDNA), which identifies the future quantity of land and floorspace (in quantitative and qualitative terms) required for economic development use in Borough, which informs the emerging Local Plan and decisions on future land allocations.
- 3.28. The Study forecasts the role of logistics in the regional economy will continue to expand as the pent up demand in this sector continues. This translates into additional growth in jobs in this sector and employment floorspace requirements, with the EDNA reporting the need to meet this demand and the interest from stakeholders consulted as part of this Study by identifying further strategic scale sites in the Borough, particularly in South Warrington with access to the M56, which would require adjustments to Green Belt boundaries to meet the scale of the need.
- 3.29. Evidence in the Council's Updated Economic Development Needs Assessment (2019), which aligns itself with housing need concludes that the Borough has an employment land need, of 362 hectares to 2037 and that land will need to be released from the Green Belt to deliver 215 hectares of this employment need.

- 3.30. The Six 56 Application Site was identified in the Preferred Options Local Plan Document and now in the Proposed Submission Version of the Local Plan (~~April~~March 2019) as an employment location as part of the strategic employment site at Junction 9 of the M56 and Junction 20 of the M6 which forms a key component of the wider Garden Suburb and will meet the majority of Warrington's employment land requirement.
- 3.31. The Application Site meets with the locational requirements and site requirements for logistics operators. These locational characteristics and site requirements cannot currently be fully met at any other location within the Borough. The site is relatively flat and expansive with no topographic constraints. It is accessible to the supporting supply chain and it will be close to an established employment area and an area of population growth, given it forms part of a Garden Suburb in which up to 7400 ~~7000~~ additional houses are now proposed. All these attributes are key drivers for logistics operators when making decisions on locations for new employment space. It is logical therefore for employment land to be allocated in this location which is attractive to the employment market and will continue the success in the Borough provided by Omega.
- 3.32. As set out in more detail within the Alternatives Section of this ES Part I (see Section 4 below), an Alternative Site Assessment has been undertaken which considers the availability of sites to accommodate the Proposed Development (Alternative Site Assessment Report_included at **Appendix 10**). This assessment considered a number of sites and concluded that there are no other sites available to deliver the Proposed Development in part or in whole. This further supports the need for the development of the Site for employment development to help meet the employment need in the Borough.

Regeneration Need

- 3.33. The delivery of this site as a strategic employment site is a fundamental element of the Council's regeneration programme and plans for economic growth set out in the Council's emerging Local Plan which identifies the specific locational advantages of this site in terms of its size and close proximity to the strategic road network in identifying this as a preferred site for employment use. Delivery of high quality logistics floorspace on this site will act as a catalyst for urban regeneration and will aid delivery of the wider Garden Suburb, creating a well-balanced community by generating significant long term employment. The Application Proposals will help to support the regeneration of these neighbourhoods, providing a range of accessible

jobs and working with organisations such as Warrington & Co., will help to ensure that the uptake of employment by economically inactive residents can be optimised.

- 3.34. There is also a wider regeneration need for the Borough. As set out in more detail in ES Addendum Technical Paper 6 – Socio Economic, in Part 2 of this ES Addendum. The Application proposals will help deliver the Council's regeneration ambitions and stimulate economic growth in the local and sub-regional economy and complement development elsewhere, helping to attract additional investment and business. The number of operational jobs that could be generated on-site as a result of the proposed development, based on the floorspace provided is 4,113 full time jobs.
- 3.35. It is also estimated that the Operational Phase of the Proposed Development would generate net additional GVA of around £210 million per annum within the Cheshire and Warrington LEP area.
- 3.36. The growing demand for a higher level and a broader range of skills within the logistics sector also presents opportunities for improving the pathways to work and career advancement, supporting people into decent, secure and well-paid jobs, and helping to tackle the barriers to both gaining employment and progression to higher wage occupations, in addition to job's which would be accessible to new entrants to the labour market and those who are currently unemployed. The Proposed Development will therefore have a significantly beneficial impact on the local labour market, and have regeneration benefits.

Delivery Need

- 3.37. The Development Need section above identifies the need for the development. To realise this need and the benefits the development will bring, there is a need for these Proposals to be delivered now. This is supported by the imbalance between supply and demand for logistics sites in strategic locations in the Borough evidenced in the emerging Local Plan evidence base and verified by JLL who have undertaken a report to support the planning application to demonstrate need and supply in the north west logistics market.
- 3.38. The delivery of the Site will bring direct and indirect employment opportunities, in the short-term for construction and, as the Site is developed, longer-term employment opportunities. In turn the Proposals will also lead to in-ward investment and confidence in the market, bringing

about further investment and development opportunities. This is all of direct benefit to the Borough and its regeneration.

Summary

- 3.39. There is a clear development, regeneration and delivery need for the Proposed Development that will be of benefit to the Site and its locality as well as the wider the Borough and sub region.

4. Alternative Development Options

4.1. Paragraph 2, Schedule 4 of the 2017 EIA Regulations (as amended by the temporary 2020 Regulations) states the need for inclusion of the following details:

“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

4.2. Section 3 has considered why a need exists for the Proposed Development. As part of the consideration of the alternatives, the most appropriate location and the consideration of sites for the Proposed Development have been considered. This is addressed fully within the Alternative Sites Assessment attached at Appendix 10 and summarised in the Alternative Sites Assessment sub-section below.

4.3. A series of alternatives associated with scheme design have also been considered as part of the evolution of the Proposed Development. These are as follows:

- Do nothing
- Preferred Option
- Preferred Option - Scheme Evolution

4.4. These are described in more detail below:

Alternative Sites Assessment

4.5. The Application Site is designated as Green Belt. In line with National Policy and the adopted Development Plan requirements, development that is identified as being ‘inappropriate’ in Green Belt should not be approved except in ‘very special circumstances’. The case for ‘very special circumstances’ is set out as part of the planning justification within the Planning Statement. This will be updated within a Replacement Planning Statement. The Alternative Sites Assessment report (**Appendix 10**) considers whether there are potential alternative sites that could accommodate the Proposed Development in whole or in part. This is not in itself a ‘test’

of national Green Belt policy, but where there is a lack of alternatives to accommodate a development, this may form a part of the case for development.

- 4.6. Warrington Borough Council has acknowledged through published 'needs' studies as part of the evidence base for its emerging Local Plan that to meet development needs in Warrington, particularly through large scale developments, there will be a need to use land that is currently in Green Belt.
- 4.7. The Alternative Site Assessment therefore considers whether there are any sites that are deliverable to meet the scale of needs accommodated within the Application Proposals. For robustness, the scope for disaggregation, based on the Proposed Development Cells (see Development Cells Parameter Plan, **Appendix 4**) for the Site, was also considered.
- 4.8. The geographical area considered within the Alternative Site Assessment is Warrington as the Proposed Development is being promoted in the context of meeting the needs of Warrington. The Warrington Proposed Submission Version of the Local Plan (April 2019, identifies a need for 362ha of new employment land within Warrington of which some 215ha is required to come from the Green Belt. This confirms the need for Green Belt release for employment uses within the Borough.
- 4.9. In reviewing the potential for alternative sites, consideration has been given to any allocated employment sites remaining in the adopted Core Strategy that are over 2.3 Ha in area and could accommodate a unit of 8,918.7m². This is based on the smallest unit and plot / development cell identified on the updated Parameters Plans and updated Illustrative Masterplan at **Appendix 4 and 5** of this ES Addendum Part One Report.
- 4.10. Sites with permission for employment development and built out with unoccupied units and sites that have been promoted and are identified in the emerging Local Plan are also considered.
- 4.11. A number of existing employment sites identified in both the adopted Core Strategy and referenced as available in the EDNA (2019) have been considered and discounted. The Alternative Sites Assessment report (**Appendix 10**) provides further commentary outlining the reasons these were discarded and discounted.
- 4.12. The assessment takes a series of stages. **Stage 1** is to establish whether the identified sites meet the minimum requirements for logistics development, namely proximity to the motorway

network, good access to this via A roads, public transport connectivity and ability to mitigate for sensitive uses where these are present.

- 4.13. **Stage 2** then considers a range of additional factors to establish the suitability of development such as site shape and proximity to workforce.
- 4.14. **Stage 3** then assesses the remaining sites and considers the approach taken by the Local Plan and Green Belt Assessment in 2016 and 2017. This approach has been agreed and accepted by the Council as it has assessed the Application Site in the Green Belt Assessment and concluded that it is suitable to take forward for development in the emerging Local Plan.
- 4.15. The Assessment considered nine sites. A plan of the sites is included within the Appendices of the Alternative Site Assessment at **Appendix 10** of this ES Addendum Part I Report.
- 4.16. Notwithstanding the geographical area agreed and scoped with the Council within the Alternative Site Assessment, at the request of the Council, the Applicant has subsequently agreed to extend the geographical area of search to surrounding local authority areas, considering alternative sites driven by locational need and occupier interest, based on market intelligence secured from Agents JLL instructed by the Applicant. The findings will be reported separately in the Replacement Planning Statement to inform the Very Special Circumstances (VSC) case for development in the Green Belt.
- 4.17. This Alternative Site Assessment demonstrates that the Application Site is the most appropriate site in overall planning and regeneration terms within Warrington and as such the Proposed Development should be directed here and not elsewhere. Furthermore, no other site will provide the regenerative benefits delivered by the Application proposals.

Do Nothing

- 4.18. Having identified the preferred site for the Proposed Development, alternative uses were considered briefly.
- 4.19. To 'do nothing' with the Site would mean that the Site would remain as existing and therefore continue to be farmed and used for agricultural purposes. Whilst the Site would remain undisturbed, the 'do nothing' would not realise the significant economic, social and

environmental benefits that the Site's redevelopment would bring. This includes the job creation and inward investment that such development brings.

- 4.20. It is estimated that the Proposed Development would involve approximately £180 million of construction related expenditure. Based on the estimated level of construction expenditure, total construction employment generated by the Proposed Development could amount to some 1,762 person years. This would equate to an average per annum over a 6.5 year build period of 271 gross jobs.

To maximise the local economic impact that can be achieved through the Construction Phase, it is envisaged that a Local Employment Agreement will be established, drawing on best practice from previous and ongoing developments such as Omega. This will include measures to encourage and facilitate local businesses in bidding for supply chain contracts as well as working with local partners to enable people from nearby deprived communities to access the job opportunities, work experience and training that will be provided during the Proposed Development's Construction Phase. It is estimated therefore that the proposed development will support 180 new trainees over the 6.5 year construction period, based on approximately £180 million of construction expenditure.

- 4.21. In terms of net GVA, it is estimated that the Proposed Development would generate net additional GVA of around £74 million within the Cheshire and Warrington LEP area. This would equate to an average of £11.3 million per annum over the 6.5 year construction period, which is considered to be significant.

- 4.22. In the operational phase the proposed development will help address the employment levels within the Borough by creating 4,113 gross FTE (full time equivalent) jobs. This would represent a noticeable boost to the economy. The Planning Statement confirms that a Local Employment Agreement would continue into the operational phases and maximizing jobs for local people would be a key component of this phase. It is estimated that the proposed development would also generate net additional GVA of around £210 million per annum within the wider impact area of the Cheshire and Warrington LEP during the operational phase. This is significantly beneficial to the area. Once fully developed, the Proposed Development would generate an estimated £7.1 million of business rates revenue per annum which would go to Warrington Council.

- 4.23. The ‘do nothing’ scenario would not make effective and efficient use of this sustainable site, located on a strategic highway network site that is identified as an employment site and prime location for logistics development in the emerging Local Plan and its evidence base.

Preferred Option – Compliance with the Development Plan

- 4.24. The Planning justification is set out in full within the Planning Statement and only summarised here to provide context as to the Proposed Development’s compliance with the Development Plan and other material planning considerations.
- 4.25. With regards to compliance with the Development Plan, the starting point is the consideration of the Development Proposals in the context of relevant local and national Green Belt policy, given its current designation in the Core Strategy Local Plan.
- 4.26. The Replacement Planning Statement will update the current Planning Statement and will assess the potential impact of the Proposed Development on the openness and purposes of Green Belt and ascribes weight to these conclusions. It will also identify any “other harm” that may emanate from the Proposed Development which is not related to Green Belt. It will then assesses any “other considerations” that may weigh in favour of the Proposed Development and finally it will draw conclusions as to whether these “other considerations” outweigh the Green Belt and non-Green Belt harm. The Replacement Planning Statement will show that this is the case and hence that Very Special Circumstances (VSC) have been shown to justify why the Proposed Development should be allowed in the Green Belt.
- 4.27. In summary, the preferred option can demonstrate that Very Special Circumstances exist to justify the Proposed Development in the form of the socio-economic benefits which will be realized throughout the temporary construction phase and the long term operational phases of the Proposed Development.
- 4.28. This conclusion supports the Council’s own conclusion that “exceptional circumstances” exist to justify the removal of the Site from the Green Belt through the emerging Local Plan. We consider that significant material weight should be attached to the evidence base which supports the emerging Local Plan, which justifies the removal of the site from the Green Belt to meet an identified employment need in the Borough, the scale of which can only be met through release of land from the Green Belt.

4.29. The material weight to be applied to the emerging Local Plan and its evidence base is set out in Paragraphs 48 and 49 of the Framework, which advises that authorities may give weight in their decision making to relevant policies in emerging local plans, prior to adoption. Paragraph 48 of the Framework advises that the amount of weight the Authority can give to an emerging policy depends on the following three considerations:

- the stage of preparation of the emerging plan (the more advanced the preparation, the greater the weight that may be given);
- the extent to which there are unresolved objections to relevant policies (the less significant the objections, the greater the weight that may be given); and
- the degree of consistency of the relevant policies in the emerging plan to this Framework (the closer the policies in the emerging plan to the policies in the Framework, the greater the weight that may be given)

4.30. The Planning Statement has considered the emerging Local Plan and its supporting evidence base in the context of paragraph 48 of the Framework and it outlines the reasoned justification for the proposals, including its degree of consistency with the Framework and considers that whilst weight may be limited in respect of the emerging Plan itself, which is currently at submission stage, the evidence that has underpinned the emerging Plan and its approach to economic growth is highly material and significant weight can be ascribed to this evidence base as a material consideration. This justification will be updated within the Replacement Planning Statement.

4.31. As is shown through this ES and its Addendum, whilst the development will have impacts on the environment, some of which are adverse, their significance will be managed and where possible reduced through suitable mitigation and balanced by the significant benefits that the proposals will bring.

Preferred Option – Design Evolution

4.32. Following the confirmation of the preferred use for the site, the proposals have evolved, with consideration of the technical constraints and environmental impacts being key to the design evolution. The Development team is a long established team who has worked closely together to ensure the Proposed Development takes full account of the various matters that need to be addressed for each of the specific technical areas. This has also been heavily influenced by the Environmental Assessment as well as community and stakeholder engagement as detailed within

Section I of this report. The updated Parameters for the Development Proposals are included at **Appendix 5**, with an updated Illustrative Masterplan at **Appendix 4**.

4.33. The evolution of the design has taken account of the following to ensure the environmental impacts and their effects are managed and reduced as far as possible:

- Consideration of the Proposed Development in the context of the emerging Local Plan and its evidence base.
- The Development Proposals have evolved embracing the concept of maximizing material re-use on site. Development proposals have included developing a ‘cut and fill’ model that not only allows for 100 % of suitable materials to be re-used on the site, but also, has been designed to allow for the ‘bulking’ of materials which can occur following excavation (this can represent a volume increase of between 10 and 30 % depending on the mechanical characteristics of the source material).
- The Site access junction was at an earlier stage considered to be designed as a single roundabout. However, two junctions are now proposed to enhance permeability for buses to minimise car travel.
- With regard to off-site mitigation, amendments to the Cliff Lane roundabout and M6 Junction 20 Dumbbell roundabouts were always envisaged. Earlier iterations of the mitigation involved widening works at all junctions, but through discussions with WBC and HE it became clear that this may not be sufficient and may have unacceptable impacts with regard to pedestrian routes in the area. On this basis a revised mitigation scheme involving the realignment of the Cliff Lane roundabout and full signalisation was developed. The revised scheme is set out in more detail in the Traffic and Transport Addendum Technical Paper 2 in Part 2 of this ES.
- More traditional drainage methods were considered but the inclusion of proposed Sustainable Urban Drainage Systems (SuDS) have been specified to achieve higher levels of water quality and treatment for storm water following investigation into the wider area. Similarly, more traditional methods of road drainage were considered, such as gully to pipe or kerb drain to pipe to underground structure or even a free-flowing infrastructure. However, as storm water detention basins and swales have been included wherever space permits, some areas of traditional road drainage will not be required. Instead storm water will be able to discharge directly into swales and attenuation basins to improve water treatment. This is an improvement on standard schemes that may only concentrate on plot

developments (future reserved matters/detailed applications by building parcel). This was influenced by the investigation into the wider area, including the local flood risk and guidance document as well as LLFA and EA expectations. The existing uncontrolled foul discharge into the ditch in the north east of the Site and the cesspits at the agricultural and housing buildings will be designed out.

- Bradley Gorse woodland and the Ecological Mitigation Area in the south of the Site, which has habitat connections to key habitat features in the south have been safeguarded throughout the evolution of the illustrative masterplan. Inclusion of additional native tree planting will be included along the boundary of the Ecological Mitigation Area to screen the area from the motorway slip road to the southeast. Pond loss will be mitigated through the inclusion of ~~six~~ seven new ponds within the Ecological Mitigation Area, allowing translocation of the GCN population. These ponds will be positioned relatively close to each other so that close habitat links can be created between them and the two existing ponds retained within this area. The Ecological Mitigation Area will also connect to Bradley Gorse which contains another three of the ponds retained within the development thereby providing additional terrestrial habitat linkages.
- Although a development offset along the watercourse and the area around Bradley Gorse was also always in place, this has been increased to a minimum of 15m through the design process to ensure that impacts to these receptors are avoided during construction and operational phases. This buffer will form an important wildlife corridor.
- Retention of the locally listed building within the moat maintains the SAM and its historical integrity. The Landscape proposals have been carefully considered to develop a scheme which will result in minimal level changes. This is to aid in the retention of mature existing vegetation and landscape features, particularly surrounding the scheduled monument and along the southern boundary to limit the impact on the setting of listed buildings which lie either side of Barleycastle Lane. The existing site topography will be levelled to accommodate the proposed units with some areas reduced to soften the impact they have on their surroundings. The material generated will be used to create screening bunds to soften the edges of the units and to screen views of the proposed units.
- During the development of the scheme proposals, it was recognised that given the significance of the SAM a sense of openness needs to be maintained around the

asset to reduce the level of harm to the setting of the monument, to allow an appreciation of the monument and to enhance the heritage experience. In light of this an area of land has been set aside to accommodate this and a view cone will be maintained from the south. This will make provision for a wildflower meadowland in the centre of the site.

- In order to bring visitors into contact with the SAM the existing PROW FP23 will be moved to the west to bring users closer to the monument.
- Building heights, massing, orientation and proximity to the SAM have been considered to alleviate the impact on the setting of the monument.
- Immediately to the north and north east of the SAM are a number of agricultural buildings which currently diminish the setting and integrity of the moat. The structures re-use has been considered but improving the setting and intelligibility of the asset outweighed this option and the agricultural buildings will now be demolished.
- To alleviate impact on the setting of the SAM and those listed and non-listed buildings within the landscape, the design, style and materials will be carefully considered where feasible to limit any adverse impact and to enhance any receptors that will be affected.
- The proposed re-use of existing top soil on strategic landscape areas and bunds within the site. Top soil can take over 100 years to form a 25 mm deep layer and retaining the removed top soil is important in preserving this asset.
- The location and height of bunds have been refined to provide effective mitigation to attenuate noise egress from the site during the operational phase. Additional acoustic barrier screening has also been carefully considered at roadside and bund locations adjacent to Bradley Hall Cottages, which should result in a reduction in specific noise levels at these receptors. The bunds will have maximum 1:3 gradient slopes with 2-3m high acoustic fencing around Bradley Hall Cottages.
- The orientation and the location of loading bay / service yards has also been carefully considered in order to minimise noise impact at sensitive receptors. Earlier iterations of the Illustrative Masterplan and Parameters Plans included zones of potential noise generating activities (e.g. loading bays and service yards) facing key residential receptors. Due to the potential for increased noise effects at these receptors the masterplan and parameters plan has been amended to avoid this adjacency.

- If unsuitable soils are encountered during preparatory works, the options of either off-site disposal or on-site treatment for re-use on site have been considered. Where technically and economically feasible, the material would be remediated and re-used on Site.
- All services are to be installed within an agreed services corridor and installed underground within soft verge where possible, taking into account any existing natural environment and habitats within the Site.
- The proposed usage of the site facilities influenced the load capacities required from the local utilities infrastructure, and the locations of the Points of Connections.
- A number of options in respect of energy and technologies have been considered and discounted where these are not suitable or feasible for the Site or Proposed Development. These have been in respect of reducing the demand for energy and increase energy efficiency, renewable and low carbon technologies. This has influenced design and layout to maximise natural daylight and ventilation and reduce heat loss and air infiltration. This is however relevant at detailed design stage and will be considered further at this stage.

Post Submission Amendments

- 4.34. Since the submission of the planning application, consultation responses have been received from key consultees and further discussions have taken place with the Council and their key consultees (namely WBC Highway Officers, Highways England (HE) and their consultants Atkins, WBC Environmental Protection Officers, Historic England and WBC Conservation Officer and Ramboll landscape designers acting on behalf of WBC). This Addendum therefore includes additional and updated information to address the comments raised. This has included the following matters that have been addressed through the illustrative masterplan and parameters plan as part of the design proposals:
- 4.35. Amendments have now been made to the detailed design of the mitigation package of works to junction 20 of the M6, including rationalisation of lane markings; works to carriageway widths on the Grappenhall Lane/A50 roundabout and updates to the M6 Junction 20 Base Model to reflect discussions with HE and WBC Highways.
- 4.36. Minor amendments have been made to the Parameters Plan and updates to relevant sections of the Part I and Part sections of this ES Addendum to reflect agreements to provide a

commuted sum towards continuing the shared cycleway/footway beyond the Application boundary and safeguarding a section of the Applicants land, adjacent to Grappenhall Lane to facilitate any future road widening and improvements required on Grappenhall Lane. Agreement has also been reached with WBC Highways on a commuted sum of £600,000 towards improved bus services via a S106 financial obligation.

4.37. Minor amendments to the illustrative masterplan, Cut and Fill Finished Levels Contour Plan to illustrate amendments to the location of landscape bunds and proposed Parameter Plans have now been made to reduce noise levels adjacent to the Cottages to an acceptable noise level and consequential changes to other plans, including the green infrastructure, drainage and noise parameter plans to reflect concerns raised by the Council's Environmental Protection team and comments raised by GMEU regarding ecological mitigation and the number and function of replacement ponds.

4.38. A green corridor and view corridor will be maintained from north to south within the Site to retain an open corridor around the Bradley Hall moated site and through the Site and the updated illustrative masterplan and updated parameters plans highlight the need for proposed estates roads through this green corridor to be constructed to minimise any impact of views through this corridor and impacts on the setting of the SAM.

5. Plans and Policies

- 5.1. Section 38 of the Planning and Compulsory Act 2004, states that applications should be determined in accordance with the development plan unless material considerations indicate otherwise.
- 5.2. Section 38 of the Planning and Compulsory Purchase Act 2004, states that applications should be determined in accordance with the development plan unless material considerations indicate otherwise.

Statutory Development Plan

- 5.3. The statutory Development Plan for the consideration of this application comprises:

- Adopted Local Plan Core Strategy (July 2014) (CS)

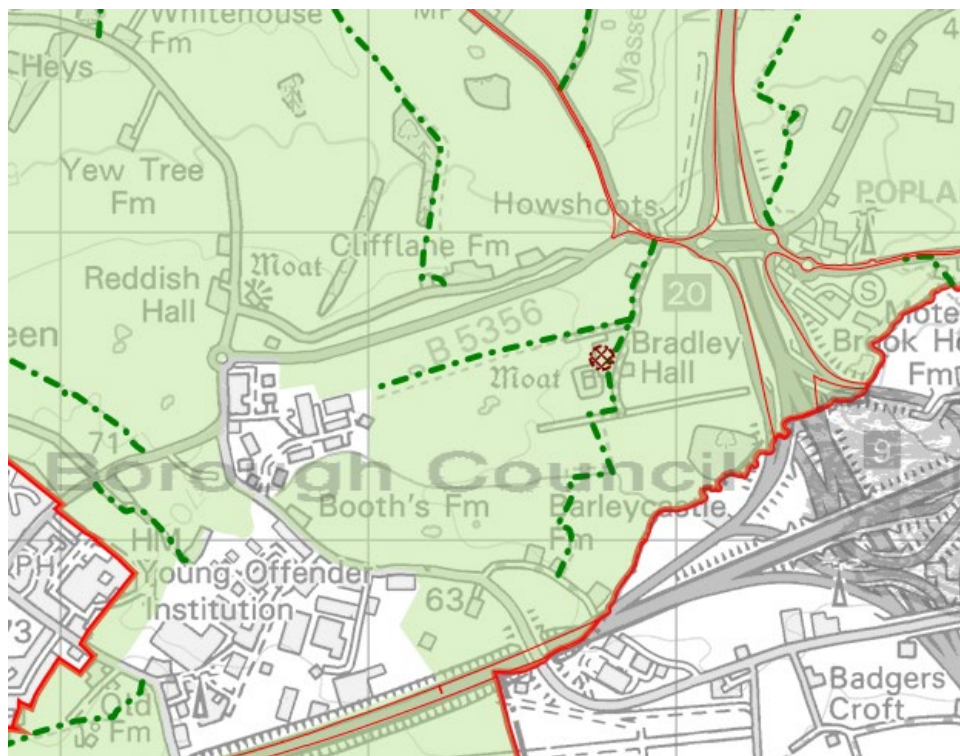
- 5.4. The High Court Challenge to the adoption of parts of the Warrington Local Plan Core Strategy was heard on 3 and 4 February 2015 with judgement given on 19 February by Mr Justice Stewart. The Judge ruled in favour of the council on six of the nine issues that the claimant challenged on. The outcome resulted in the removal of elements of the housing policies from the Local Plan.
- 5.5. The parts of the Plan which have been overturned are:
- The housing target of 10,500 new homes (equating to 500 per year) between 2006 and 2027; and
 - References to 1,100 new homes at the Omega Strategic Proposal.
- 5.6. Not all of the Local Plan Core Strategy has been overturned. All other policies within the plan remain unaltered.
- 5.7. Consideration will also be necessary to the appropriate weight to be afforded to the development plan following the publication of the National Planning Policy Framework (hereafter referred to as 'The Framework'). This is also considered in the context of the National Planning Practice Guidance (hereafter referred to as 'PPG').

5.8. Each Technical Paper and their Addendum identifies the planning policies and other material considerations which are relevant to this Proposed Development and that specific technical area. This is contained in Section 2 (Documents Consulted) of each of the ES Technical Papers in Part 2 of this ES.

5.9. Below is an overview of the policy context and in particular the local planning policy context.

Site Specific Allocation

5.10. The Adopted Core Strategy Policies Map currently identifies the Site as Green Belt land.



5.11. The Adopted Local Plan Core Strategy sets out the overarching strategic policy document for the borough of Warrington.

5.12. The Local Plan Core Strategy policies relevant to the application proposals are identified in Section (Documents Consulted) of each of the Technical Papers in Part 2 of this ES.

National Planning Policy Framework (The Framework)

- 5.13. A revision to National Planning Policy Framework was published on 19th February 2019, providing updated text to the Framework adopted in July 2018. The National Planning Policy Framework (The Framework) is a key material consideration as the statement of national policy and should therefore be taken into account and given appropriate weight when assessing this application.
- 5.14. Adopted as an expression of national planning policy, The Framework sets out the presumption in favour of sustainable development and the Government's key objective to help build a strong, responsive and competitive economy. Where relevant policies are out of date, it states planning permission should be granted.
- 5.15. In summary, the key elements of The Framework relevant to the proposals are:

- Achieving sustainable development
- Decision-making
- Building a strong, competitive economy
- Conserving and enhancing the historic environment

National Planning Practice Guidance (PPG)

- 5.16. The National Planning Practice Guidance (PPG) provides guidance to support the policies within The Framework, and in that sense does not provide additional policy but rather more detailed consideration of how policies within The Framework should be approached and met. The guidance covers all relevant planning policy areas under separate topics and will be updated online as and when required.

Other Relevant Policies

Emerging Local Policy and Evidence Base – Preferred Development Option Consultation

- 5.17. Warrington Council consulted on their Local Plan Preferred Development Option Regulation 18 documents in September 2017.

- 5.18. This preferred development option sets out the Borough's growth ambitions and housing and employment needs to reflect this aspiration. To achieve the growth ambitions and meet the need over the 20 year plan the Council recognizes that land will need to be released from the Green Belt to deliver at least 9000 homes and 252 ha of new employment space. This is underpinned by a range of evidence which provides a robust case for housing need and economic growth to be aligned. The Council believes planning for this level of growth provides a unique opportunity for Warrington to make the transition from a New Town into a New City.
- 5.19. The Preferred Development Options Document confirms that Warrington has significant ambitions for economic growth, as reflected in the Warrington Means Business regeneration programme, updated in December 2016 and in the scale of development proposed as part of the Cheshire and Warrington Devolution bid. The devolution bid figure has now been embedded in the Cheshire and Warrington Local Enterprise Partnership's (LEP) Strategic Economic Plan (SEP). The LEP has undertaken further work in preparing the SEP, working closely with the Council, to analyse the job growth figures across Cheshire and Warrington as a whole and specifically in respect of Warrington. The LEP and the Council are confident the level of growth proposed is achievable with the interventions set out in the SEP and the scale of public and private sector investment the LEP is seeking to secure. The Council is therefore making the positive decision to plan for this level of growth.
- 5.20. The evidence base within the Council's Economic Development Needs Assessment (EDNA) (2016) also confirmed the Objectively Assessed Need for employment states local needs requires a further land of 381 ha to 2037.
- 5.21. The Preferred Development Option identifies four main areas of growth – The City Centre, the Waterfront, a Garden City Suburb in the South East of the Borough (currently identified as Green Belt land) and a South West Urban Extension.
- 5.22. The south eastern extension of Warrington will create a new Garden City Suburb, providing the potential development of around 7,000 new homes to be delivered over the full 20 years of the Plan. The suburb will also provide a major new employment area as an extension of the existing Appleton Thorn / Barleycastle estates at the intersection of the M6 and M56. This includes the Application site which is identified for employment use. The Garden Suburb development option is also underpinned by the South Warrington Urban Extension Framework

Plan Document (SWUEFP) (June 2017) and Garden Suburb Development Framework (March 2019) produced on behalf of Warrington Borough Council.

5.23. The evidence base accompanying the Preferred Development Option included the following:

- Mid Mersey Strategic Housing Market Assessment (SHMA) Update - Warrington Addendum
- Warrington Local Plan - Review of Representations on Objectively Assessed Need (OAN)
- Mid Mersey Strategic Housing Market Assessment (SHMA) - January 2016
- Mid Mersey Strategic Housing Market Assessment (SHMA) Addendum - October 2016
- Economic Development Needs Assessment 2016
- Strategic Housing Land Availability Assessment (SHLAA) 2017
- Urban Capacity Statement Update 2017
- Warrington Interim Sustainability Appraisal Report
- Green Belt Assessment - Addendum following Regulation 18 Consultation
- Green Belt Assessment - Additional Site Assessments
- Green Belt Assessment - Original Report October 2016
- Green Belt Assessment - Original Report October 2016 - Appendix F
- Garden City Suburb - Development Concept
- Warrington Viability Review 2017
- Warrington Transport Summary 2017
- Strategic Economic Plan
- Review of Warrington Employment Targets to 2040

Emerging Local Policy and Evidence Base – Proposed Submission Version Local Plan (March 2019)

5.24. The Council ~~are seeking to consult~~ on the next stage of their Local Plan, the Proposed Submission Version Local Plan ~~from~~ in April 2019, for a period of 8 weeks. This Submission Version of the Local Plan was presented to Full Council Board on the 25th March 2019, seeking approval to commence public consultation. ~~—prior to formal consultation commencing.~~ Following consultation the Council ~~will then~~ are reviewing all of the representations made during the consultation prior to submitting the Plan for ‘Examination in Public’ to be carried out by an independent Inspector. The Council confirmed in October 2020 that they have paused progress on their Local Plan until Summer 2021 to consider the implications of the Government’s proposed planning reforms and national guidance on calculating housing need. Following the Examination in Public, the Inspector will issue a report setting out their recommendations, including any required modifications to the Plan. The Council must carry out a final consultation on any Main Modifications before formally adopting the Plan.

5.25. The Submission Version of the Local Plan (March 2019) continues to identify the Site for redevelopment for Employment Use (116 ha) as part of the Warrington Garden Suburb under emerging Policy MD2. The evidence based prepared to inform the Submission Version of the Local Plan (March 2019) includes the Warrington Garden Suburb Development Framework Document (March 2019) produced on behalf of Warrington Borough Council which also classifies the Site for redevelopment for Employment Use.

5.26. ~~Whilst the Submission Version of the Local Plan has not commenced formal consultation at the time of submission of this planning application, the Local Plan has been presented to Members at a Full Council Committee Meeting.~~ In summary, the Local Plan and its supporting evidence base confirms the following:

- The Council has updated its evidence base relating to housing, employment and retail needs to ensure the Plan is based on up to date evidence, meets the requirements of the NPPF 2019 and associated Planning Policy Guidance.
- The Council's updated Economic Development Needs Assessment (2019) has re-confirmed the scale of employment land that the Council needs to plan for. The Plan makes provision to meet the full requirement of 362ha of employment land between 2017 and 2037. This means there is a requirement for provision of around 215ha of employment land through Green Belt release.
- The Proposed Submission Version Local Plan proposes a minimum housing requirement of 945 homes per annum, which equates to 18,900 new homes compared to the 1,113 per annum proposed in the Preferred Development Option. Around 7,000 of these homes through release of Green Belt land. This housing requirement is around 4% above the minimum housing requirement under the Government's Standard Housing Methodology (using the 2014 based Household Projections, in accordance with Government's Planning Practice Guidance).
- The proposed spatial strategy continues to identify a new Garden Suburb to the south east of the main urban area, which will deliver around 5,000 homes (including 4,200 through Green Belt release) in the Plan period up to 2037, with a potential for a further 2,300 homes from Green Belt release beyond the Plan period.

- The Garden Suburb Employment Area (116ha), which includes the Proposed Development Site will meet a large proportion of the Borough's identified B8 requirement. The Submission Version of the Local Plan confirms that it will benefit from proximity to the Garden Suburb's neighbourhood centre and contribute towards planned improvements to road infrastructure. Proposed Policy DEV4 - Economic Growth and Development confirms that the Proposed Development Site will contribute towards meeting the Council employment land requirement.
- Key development requirements and principles of the Garden Suburb, including details of phasing and the requirement for a delivery strategy, are set out in a Proposed Policy Allocation - Policy MD2 - Warrington Garden Suburb which provides a framework to deliver the 116 hectares of employment land.

5.27. The adopted Core Strategy remains the statutory development plan until such time as the new Local Plan is adopted, however the emerging Local Plan evidence base is highly relevant to the Proposed Development.

6. Methodology and Approach

Introduction

- 6.1. This section sets out the approach and methodology for assessing the environmental effects of this development. The ES and Addendum to the ES has been undertaken to facilitate the assessment of the proposed development by identifying existing baseline conditions and comparing the significant environmental effects of the proposal with appropriate legislative limits and guidelines.

Relevant Legislation and Guidance for Preparing and ES

- 6.2. All proposals for projects that are subject to the European Environmental Impact Assessment (EIA) Directive 2014/52/EU must be accompanied by an Environmental Assessment (ES). The legislation has been transposed into UK law through the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended by the temporary 2020 Regulations) which are the EIA Regulations for England only (hereafter referred to as 'the 2017 EIA Regulations (as amended by the temporary 2020 Regulations)').
- 6.3. The ES and Addendum to the ES has been prepared in the context of relevant legislation and guidance. Under the EIA Amended Regulations, a planning application must be accompanied by an ES in certain circumstances. The proposals fall under Schedule 2 of the Amended Regulations where an ES is required to be prepared where a development may have significant effects on the environment due to:-
- Size/scale of the environmental effects
 - Sensitivity/vulnerability of the site/location concerned
 - Nature/complexity of the environmental effects
- 6.4. In preparing the ES, the Study Team have taken account of guidance in the Town and Country Planning Act 1990 (Section 62), the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended by the temporary 2020 Regulations) and Planning Practice Guidance.

Study Team's Approach

6.5. The Study Team is aware of the legislative and guidance framework above. The Team has undertaken the approach outlined in Schedule 4 of the 2017 EIA Regulations (as amended by the temporary 2020 Regulations) for the assessment of the environmental effects of the proposal. This comprises:-

- Description of development
- Description of the reasonable alternatives studied
- Description of the relevant aspects of the current state of the environment and likely evolution without the development
- Description of the aspects of the environment likely to be significantly affected by the development
- Description of the likely significant effects of the development on the environment
- Description of the forecasting methods or evidence, including details of any difficulties in compiling the required information
- Description of mitigation measures and any monitoring
- Where relevant a description of the expected adverse effects of the development on the environment from the vulnerability of development or risks of major accidents and/or disasters
- A non-technical summary

6.6. As far as possible a common methodology was used as the basis for all technical papers; the importance of the receptor; the significance of effect; and confidence level. All technical papers conclude with an assessment of impacts and mitigation measures summarising the significance of effects in a tabular format.

Study Area

6.7. The Study Area, unless otherwise defined in the Technical Chapters, has comprised the application site. In several cases, however, there has been a need to look at wider areas, e.g. the immediate locality, or the District as a whole when considering certain impacts.

Difficulties in Compilation and Assessment

- 6.8. In line with Paragraph 7 of Schedule 4 of 2017 EIA Regulations (as amended by the temporary 2020 Regulations) this section identifies the difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information for the environmental assessment.
- 6.9. In respect of the cumulative assessment, the likely effects of the cumulative developments identified in Section 9 (Table 9.1) have been assessed where relevant for each technical area (Section 10 of each of the ES Addendum Technical Papers in Part 2 of this ES, with an overview provided in Section 9 of this ES Addendum Part I Report).
- 6.10. Warrington Council's Scoping Opinion confirmed the need to consider the Warrington Garden Suburb identified in the emerging Local Plan as part of the cumulative assessment in respect of 'Traffic and Transport.' The Garden Suburb has therefore been included as part of the cumulative assessment in order to address this.
- 6.11. The proposal referenced in the Council's Local Plan Preferred Development and Submission Version Local Plan (March 2019) is still at a broad masterplanning level with indicative quantities of development which has not been fully tested, therefore there are limitations in respect of environmental assessment.
- 6.12. We have reached an agreed position with the Council to undertake a cumulative assessment of the Garden Suburb, based on assessment of only the quantum of development and phases of the Garden Suburb expected to be delivered in parallel with the phasing and delivery of the Six 56 Application proposals as referenced in the Project Description (Section 2) of this ES Part One Report and its Addendum. The quantum of development and uses assessed are detailed in Section 9 of this ES Part One Report and its Addendum.
- 6.13. Due to the limited information available in respect of the Garden Suburb, the Six 56 Warrington Cumulative Assessment will be a non-spatial assessment.
- 6.14. Traffic and Transportation, Noise and Vibration and Air Quality cumulative assessments have been undertaken using the information available from the Council's Warrington Multi Modal Transport Model (WMMTM) produced for the emerging Local Plan and will therefore be based on the assumptions made within the WMMTM. Agricultural Land and Socio Economic

cumulative assessments have been based on only the phases of the Garden Suburb development expected to be delivered in parallel with the Development Proposals.

- 6.15. There is not sufficient information available in terms of spatial delivery for cumulative assessments to be undertaken in respect of the other technical areas, which include Geology and Ground Conditions; Flood Risk and Drainage; Landscape and Visual Impact; Ecology and Nature Conservation; Cultural Heritage and Archaeology; Utilities; Waste; and Energy. As such a cumulative assessment has not been undertaken in respect of these technical areas.
- 6.16. Within the Cumulative Assessment, third party forecast traffic data has been used. The traffic data was obtained from the Council's WMMTM for future years of 2021 and 2031. This data was requested by Warrington Borough Council (WBC) so that Curtins could undertake a high-level assessment of the impacts across the wider network, including the emerging Local Plan allocations. The WMMTM includes all committed development and Local Plan allocations. This model data has also been used to inform the Traffic and Transport Technical Paper and transposed into the relevant format for the Air Quality and Dust and Noise and Vibration cumulative assessments.
- 6.17. As requested by WBC/Highways England (HE) prior to submission of the planning application during recent discussions, a sensitivity test was ~~has also be~~ undertaken to take account of the potential 59,010m² logistics development scheme (promoted by Liberty Properties and Stobarts) to the west of the Site. This ~~is~~ was despite the fact that the submitted planning application was initially refused by WBC. This refused application is subject of an ongoing appeal and a further full planning application was submitted to the Council which has subsequently being approved in principle by members and referred to the SoS. On the 21st May 2020 the SoS confirmed that he was Calling In this application and will consider this jointly with the appeal scheme as they are effectively identical, and the scheme currently has no committed status. In the interests of being robust this approach was agreed, ~~in view of the prospects that Liberty Properties and Stobarts may appeal or re-submit proposals on their Site.~~
- 6.18. The data in the WMMTM has been analysed and assessed by Curtins. The results demonstrate that if the entire development came forward in 2021, impacts in the AM peak period would only be in excess of 5% at six locations. This includes the M6 J20 and Cliff Lane Roundabout to the east of the development which is to be expected given the proximity of the site to the motorway.

- 6.19. However, the modelling also predicts impacts at the Grappenhall Lane/Broad Lane roundabout, London Road/Lyons Road junction, Witherwins Lane/Lyons Lane roundabout and Church Lane/Broad Lane. These locations are to the north and west. This is not expected on the basis that conventional traffic forecasting set out in Curtins TA and the forecasting for the Liberty development suggested the vast majority of traffic would travel towards the motorway.
- 6.20. The results demonstrate that if the entire development came forward in 2021, impacts in the PM peak period would also be in excess of 5% at six locations. This includes the M6 J20 and Cliff Lane Roundabout to the east of the development. However, the modelling also predicts impacts at the Grappenhall Lane/Broad Lane roundabout, Stretton Road/Barleycastle Lane, Witherwins Lane/Lyons Lane roundabout and Church Lane/Broad Lane. As with the AM, these locations are to the north and west. Again, as with the AM this is not expected. This is counter intuitive given the location of the site adjacent to the M6 J20, and the fact that there are HGV restrictions to the west of the site.
- 6.21. Following discussions with Highways Officers at WBC prior to submission of the planning application it would appear that some of the HGV restrictions to the west of the site have not been included in this version of the WMMTM. The loading point (Access) for the Proposed Development is located to the south of the Broad Lane roundabout on Barleycastle Lane. This is much further to the west than in reality with the actual access being located on Grappenhall Lane to the east of then Broad Lane roundabout. The model does not also include consideration of any mitigation at the M6 J20.
- 6.22. The above explains the apparent bias towards the west, and the traffic flows predicted by the WMMTM at the M6 J20, Cliff Lane/A50 roundabout and A50/A56 junctions are all less than the flows predicted in the conventional traffic forecasting contained in the Curtins TA and ES Technical Paper and its Addendum. WBC Highways Officers ~~have~~ previously confirmed that the impacts to the west are likely to be significantly lower in the next iteration of the Local Plan modelling which will seek to address the above matters.
- 6.23. Notwithstanding the above, the Proposed Development will not be fully operational by 2021 and therefore the figures in the WMMTM also represent a significant overestimation of traffic flows in 2021, but does however provide an overly robust methodology for considering cumulative impacts.

- 6.24. The level of trips assessed by Curtins that could be generated by the scheme referenced in their Technical Paper in the ES Part 2 and in their TA were initially estimated through reference to average peak hour trip rates obtained from surveys of 'commercial warehousing' schemes from within the industry-standard TRICS Database. The level of assumed 'staff' vehicle movements has been calculated simply by deducting the estimated number of component HGV trips from the estimated total vehicle trips. Whilst this approach is considered by Curtins to be an acceptable methodology, WBC and HE requested consideration of Omega North trip rates. On this basis Curtins commissioned an ATC traffic survey at Omega North.
- 6.25. This represents a very worst case assessment of the likely trip rates expected as part of any Proposed Development as the Omega North trip rates are significantly higher than industry standard prediction methods.
- 6.26. The same highway data has been used to assess the noise impacts associated with peak operational road traffic flows on internal roads (based upon the Omega trip rates) combined with service yard operational noise sources on each development plot. BS 4142 acoustic feature corrections have then been added to the noise from all sources operating concurrently and compared against night-time background noise levels at nearby receptors. It should be noted that the current assessment can be considered an absolute worst-case assessment. In reality, the probability of all such sources operating concurrently is reasonably low and can only be assessed in detail once specific operators come forward with reserved matters applications. At this point, detailed mitigation measure requirements could be determined and implemented. In summary, using the Omega trip rates adopts an overly robust approach and the impacts may indeed reduce at detailed stage, once assessments are undertaken based on specific operators and end users.
- 6.27. In terms of impacts on agricultural land, there has been no detailed land classification carried out on all the land to the north of the Proposed Development on land proposed as part of the Garden Suburb, considered as part of the cumulative assessment. The Provisional Agricultural Land Classification (ALC) survey 1968-1972 carried out by MAFF showed the agricultural land occupied by the Garden Suburb consists mainly of categories 2 and 3. Areas which have been assessed show grades 2, 3a, and 3b. It is not possible, therefore to accurately state how much of the 'best and most versatile' land would be lost. However, if we assume that the split of land grades is similar to the Proposed Development site, then the potential combined land loss of

the two proposals could see a loss of around 800 ha of agricultural land. It would therefore be reasonable to assume that more than 200 ha could be 'best and most versatile' land.

- 6.28. The landscape and visual impact of the Proposed Development contained in Technical Paper 4 Addendum of the ES Part 2 has been based on an assessment of a series of design parameters contained within the Parameters Plan at Appendix 5 of this ES Part One Report and Addendum. The Height Parameters Plan identifies a range of building heights across the site, which is subdivided in zones with a range of buildings from 12.5m to 40m (104.50 AOD) (to haunch). Whilst the LVIA has been assessed on a possible building which is maximum 40m in height across Zone B2, this represents a worst case assessment, which may not result in all sections of the building or any building within this zone being 40m in height. The size and scale of buildings will be driven by market demand and may not reach these upper limits tested within this ES. Only when specific operators have been identified and proposals come forward with reserved matters applications can detailed assessments be undertaken to determine true impacts and detail proposed mitigation measures.
- 6.29. The LVIA includes wireframe photomontages at 10 agreed view points in the study area. These wireframe models are of the proposed building units and include landscape proposals such as planting or other external infrastructure, to provide an accurate visualization to demonstrate how the proposed landscape mitigation in the form of bunds and trees will mature to reduce the impacts over a fifteen period post completion of the Proposed Development.

Study Process

- 6.30. The Scoping Report set out the methodology that will be applied to the assessment within all the technical reports. The 2017 EIA Regulations (as amended by the temporary 2020 Regulations) stipulate that an ES should, where possible, identify, describe and assess the likely significant effects of the development on the environment. The methodology has three stages to identify the significant effects:
- Receptors
 - Environmental Impacts
 - Significant Effects

Receptors

6.31. The significance of an effect is relative to the sensitivity or quantity of a receptor. Receptors are set out in accordance with the magnitude of their importance. Some receptors are given relatively high levels of importance through legislation, such as designated conservation sites or world heritage sites. Determining the importance of other receptors can be more subjective. To maintain consistency in how receptors are considered, this Environmental Statement assesses each one in relation to the following hierarchy:

- International
- National
- Regional
- County
- Borough/District
- Local/Neighbourhood

6.32. Each environmental topic area within this Environmental Statement has outlined the relevant receptors and how they fit within the above hierarchy. The Environmental Statement provides an opportunity for consultees to have an input into the designation of each receptor. A plan of the Key Receptors is included as **Appendix 6**.

Environmental Impacts

6.33. This Environmental Statement adopts the standard approach of assessing the impacts of the relevant area of the proposals. These impacts have been developed giving due regard to the following, taking account of the environmental protection objectives established at Union or Member state level which are relevant to the project (including 92/43/EEC (Habitats Directive) and 2009/147/EC (Birds Directive)):

- Beneficial and adverse effects
- Short, medium and long term effects
- Direct and indirect effects
- Secondary effects
- Permanent and temporary impacts
- Cumulative impacts

6.34. Each of the impacts assessed is categorised as being:

- Neutral
- Negligible
- Minor
- Moderate
- High
- Substantial

6.35. These impacts are classified as being either positive or negative.

Significant Effects

6.36. Once the receptors and impacts have been established they need to be assessed against each other to provide the likely significant effects. Each of these will be considered in relation to the following:

- Extent and magnitude of the effect
- Effect duration (whether short, medium or long term)
- Effect nature (whether direct or indirect, reversible or irreversible)
- Whether the effect occurs in isolation, is cumulative or interactive
- Performance against environmental quality standards or other relevant pollution control thresholds
- Sensitivity of the receptor
- Compatibility with environmental policies

6.37. In order to define the magnitude of the effect the matrix below (Table 6.1) has been developed. An effect will be categorised as being either:

- | | |
|---------------|---|
| • Substantial | This will have a significant influence on decision making |
| • High | This may have a significant influence on decision making |
| • Moderate | This will have a slight influence on decision making |
| • Minor | This may have a slight influence on decision making |
| • Negligible | This will not have an influence on decision making |
| • Neutral | This will not have any influence on the environment. |

6.38. The interaction or cumulative impact or nature of these effects is also important. In isolation the lower categories may not have a significant influence on decision making however in combination with a number of other effects, the significance may be increased.

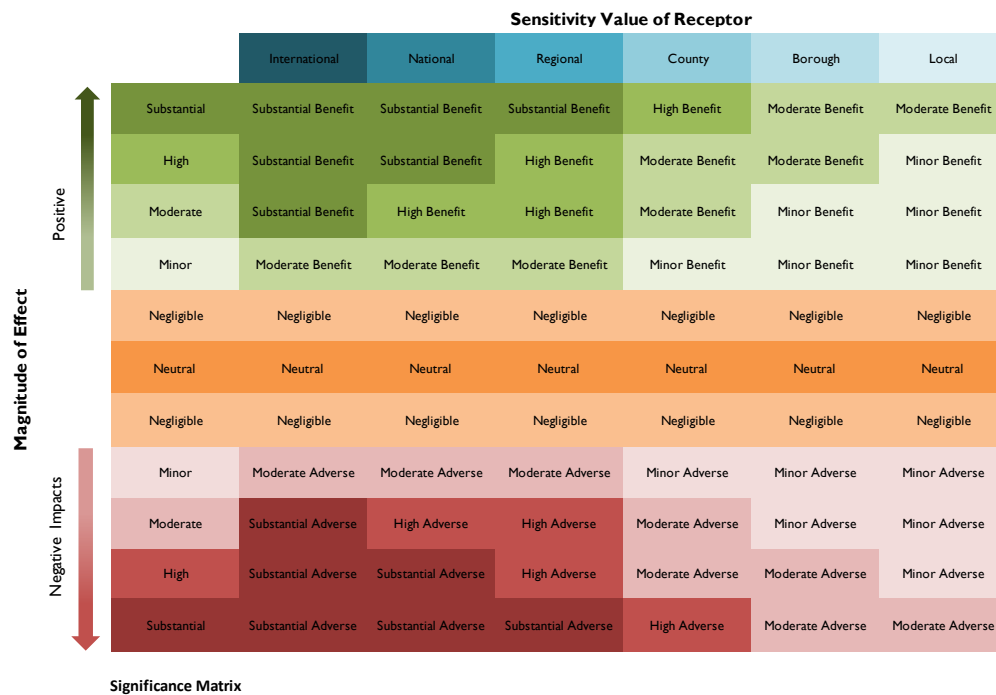


Table 6.1 Significance Matrix

Impact Prediction Confidence

6.39. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

7. Summary of Environmental Impacts

- 7.1. This section provides a summary of the environmental impact of the proposals. As highlighted in the earlier parts of this ES there are a series of Part 2 technical reports and their Addendums which accompany this Part 1 document and its Addendum which have been produced across a range of topics and should be referenced to understand the impact of the proposals. Providing all the necessary ES information in one composite document was considered to be too lengthy and as a result this Part 1 document and its Addendum provides a summary of the environmental impact, key mitigation measures and an appraisal of cumulative and interaction of effects.
- 7.2. All key receptors associated with each of the technical areas are identified on the plan within **Appendix 6**.
- 7.3. **Table 7.1** below provides a summary of the environmental impact across all of the topic areas. The table is structured to consider the nature of the impact, the mitigation measures to be employed where appropriate and the resulting residual impact. It should be noted however that the ES and its Addendum should be read as a whole and the Part 2 of the ES and the Addendum to it should be consulted for a detailed review of specific environmental effects

TABLE I.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Geology and Ground Conditions			
Construction Phase			
Migration of silts / soils into adjacent surface waters (Bradley Brook)	Minor Adverse	EA Pollution Prevent Guidelines (PPG), bunding and sealing of stockpiles	Neutral
Inhalation of dust by site workers	Minor Adverse	PPE and dust control	Neutral
Inhalation of dust by adjacent residents and other adjacent site users	Minor Adverse	Dust control	Neutral
Increased traffic movements due to disposal of unsuitable soils off site.	Minor Adverse	Careful control to minimize off-site disposal and use sheeted lorries.	Neutral
Inhalation of dust by construction workers, adjacent site users and adjacent residents due to disposal of unsuitable soils off site.	Minor Adverse	Careful control to minimize off-site disposal and use sheeted lorries.	Neutral

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Geology and Ground Conditions			
Operational Phase			
Phytotoxic effects	Neutral	Areas of landscaping will be completed with suitable topsoil to provide a growing medium.	Neutral
Zootoxic effects	Neutral	Areas of landscaping will be completed with suitable topsoil to provide a growing medium	Neutral

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Environmental Statement Part 2 – Traffic and Transport Technical Paper			
Construction Phase			
Increase in HGV traffic flows on the M6 may impact on driver delay due to construction traffic	Moderate Adverse	CEMP	Minor Adverse
Increase in HGV traffic flows on the M56 may impact on driver delay due to construction traffic	Moderate Adverse	CEMP	Minor Adverse
Increase in HGV traffic flows on the local highway network may impact on driver delay, road safety, pedestrian amenity and public transport	Moderate Adverse	CEMP	Minor Adverse
The HGVs associated with the construction process may result in increased dust and dirt	Minor Adverse	CEMP	Minor Adverse
The construction of the Site will create a number of construction jobs over a number of years. These workers may have an impact on the local network in terms of driver delay, pedestrian amenity, road safety and public transport	Minor Adverse	CEMP	Minor Adverse
The construction of the Site will create a number of construction jobs over a number of years. These workers may have an impact on key roads.	Minor Adverse	CEMP	Minor Adverse
The construction of the Site will create a number of construction jobs over a number of years. These workers will arrive from all over the region and therefore the additional traffic may have an impact on the M6 and M56 in terms of driver delay	Minor Adverse	CEMP	Minor Adverse

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Environmental Statement Part 2 – Traffic and Transport Technical Paper			
Operational Phase			
A50 Knutsford Road/A56 Chester Road			
Knutsford Road North	Negligible	No Specific Mitigation	Negligible
Chester Road East	Negligible	No Specific Mitigation	Negligible
Knutsford Road South	Negligible	No Specific Mitigation	Negligible
Chester Road West	Negligible	No Specific Mitigation	Negligible
A56 Chester Road /Church Lane			
Chester Road East	Negligible	No Specific Mitigation	Negligible
Church Lane	Minor Adverse	No Specific Mitigation	Minor Adverse
Chester Road West	Negligible	No Specific Mitigation	Negligible
Broad Lane/Stockton Lane			
Church Lane North	Minor Adverse	No Specific Mitigation	Minor Adverse
Stockton Lane	Negligible	No Specific Mitigation	Negligible
Church Lane South	Minor Adverse	No Specific Mitigation	Minor Adverse
Broad Lane/Church Lane			
Broad Lane North	Minor Adverse	No Specific Mitigation	Minor Adverse
Church Lane	Negligible	No Specific Mitigation	Negligible
Broad Lane South	Minor Adverse	No Specific Mitigation	Minor Adverse
Broad Lane/Grappenhall Lane			
Broad Lane	Minor Adverse	No Specific Mitigation	Minor Adverse
Grappenhall Lane East	Minor Adverse	No Specific Mitigation	Minor Adverse
Grappenhall Lane South	Negligible	No Specific Mitigation	Negligible
Barleycastle Lane/Grappenhall Lane			
Grappenhall Hall Lane North	Negligible	No Specific Mitigation	Negligible
Barleycastle Lane	Negligible	No Specific Mitigation	Negligible
Grappenhall Hall Lane West	Minor Adverse	No Specific Mitigation	Minor Adverse
Grappenhall Road Western Access			
Grappenhall Road East	Moderate Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
Secondary Access	N/A	New Sustainable Transport Infrastructure and Highways Improvements	N/A
Grappenhall Road West	Minor Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
Grappenhall Road Eastern Access			
Grappenhall Road East	Moderate Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
Primary Access	N/A	New Sustainable Transport Infrastructure and Highways Improvements	N/A
Grappenhall Road West	Minor Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
Knutsford Road/Cliff Lane/Grappenhall Lane			
Knutsford Road	Negligible	New Sustainable Transport Infrastructure and Highways Improvements	Negligible
Cliff Lane	Minor Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
Grappenhall Lane	High Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
M6 J20			
Cliff Lane West	Minor Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
M6 Northbound OffSlip	Moderate Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
M6 Northbound OnSlip	High Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
M6 Southbound Offslip	High Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
M6 Southbound Onslip	High Adverse	New Sustainable Transport Infrastructure and Highways Improvements	Minor Adverse
Cherry Lane	Negligible	New Sustainable Transport Infrastructure and Highways Improvements	Negligible
Cliff Lane East	Negligible	New Sustainable Transport Infrastructure and Highways Improvements	Negligible
Cliff Lane/Lymm Services			
A50 Cliff Lane East	Negligible	No Specific Mitigation	Negligible
Lymm Services	Negligible	No Specific Mitigation	Negligible
Cliff Lane West	Negligible	No Specific Mitigation	Negligible

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Drainage and Flood Risk			
Construction Phase			
Ground water ponding in excavations	Minor Adverse	Large holes avoided, covered then managed through PPG 5	Local
Increase in impermeable areas leading to increased flood risk	Minor Adverse	Haul road or matting used. Temporary drainage installed, attenuation installed early	Local
Existing flow routes cut off	Minor Adverse	Diversions put in place where required	Local
Existing cesspits may be ruptured leading to pollution to minor watercourses	Minor Adverse	Existing cesspits to be avoided until foul pump and tank to be installed early.	Local
Damage to existing foul drainage leading to pollution to minor watercourses	Minor Adverse	Heavy machinery routes to be kept away from existing properties.	Local
Pollution through conveyed storm water with silt/sediment	Minor Adverse	No untreated water to be discharged to existing systems (including treatment where required). Management of earthworks.	Local
Excessive ponding leading to raised groundwaters	Minor Adverse	Earthworks, excavation, potential treatment and conveyance procedures as all above.	Local

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Drainage and Flood Risk			
Operational Phase			
Overland flows originating offsite flooding the site	Minor Adverse	None required	Local
Increased development leading to increased flood risk offsite	Minor Adverse	All storm water conveyed, restricted and attenuated and afforded greater protection than the previous Site.	Local
Climate change impact on storm intensity	Minor Adverse	40% allowance to be made within the drainage system or overland storage.	Local
Increased storm and foul water flow to receiving waters	Minor Adverse	Flows to be restricted to equivalent Greenfield Runoff from site to mimic undeveloped state (existing drainage connections removed)	Local
Increased pollution to receiving waters due to increased industrial surfaces	Minor Adverse	SuDS treatment proposed including permeable paving, swales, <u>ponds</u> and detention basins to improve falling stormwater quality. Removal of existing leachate.	Local
Potential pollutants to below underlying aquifer	Minor Adverse	All impermeable areas are to be treated and conveyed direct to the brook system.	Local
Retention of existing flow waters through Phase I Development Site	Minor Adverse	Diversions / continuation to be put in place where necessary.	Local
Removal of existing uncontrolled drainage	Minor Benefit	None required	Local
Removal of existing cesspits	Minor Benefit	None required	Local
Removal of existing agricultural waste runoff	Minor Benefit	None required	Local
Developing over a groundwater recharge zone	Negligible	None required	Local

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Landscape and Visual Impact			
Construction Phase			
Scheduled Ancient Monument (SAM) Change to the surrounding landscape setting through loss of open agricultural fields	Moderate/ Major	Introduction of screen planting surrounding the SAM in order to filter views out towards the units. Lowering of existing topography within Plots 4, 5, 6, & 7 in order to order to create base FFL that are lowest possible levels in order to minimise the proposed units over shadowing effect. Limited maximum building heights for the Units immediately adjacent to the SAM to a maximum of 21m. 30m buffer zone surrounding the monument to retain sense of openness. Introduction of a wildflower meadow surrounding the SAM.	Moderate/ Major
Landscape Character The development will result in considerable change through clearance and earthworks with the introduction of large-scale buildings and associated construction plant via incremental changes.	Moderate / Major	Introduction of screen planting and bunding along the external boundaries of the Site, especially along the northern boundary within the early stages of development to allow maximum timeframe for establishment. The retention of Bradley Gorse and its surrounding tree planting in order to form an ecological mitigation area within the Site and maintain the mature vegetation featured within.	Moderate/ Major
Residential Relatively small numbers of residential properties directly affected by the development, however, those that are close to the Site will experience large and major size and scale of effects. These properties include Bradley Hall Cottages, Bradley View and the properties along Cartridge Lane and Barleycastle Lane.	Substantial to Moderate / High	New bunding and screen planting introduced around the perimeter of the proposed development in order to filter views the proposed units. Orientation of the proposed units and car parking facilities to reduce visibility of traffic movement within the Site where possible.	Substantial to Moderate / High
Transport Visibility of the Site from the roads in the immediate context. Further afield particularly to the west of the M6 Motorway and south of the M56 Motorway visibility of the site during construction is very limited. Amendments to the A50 Cliff Lane roundabout and subsequent tree loss will allow more visibility of the proposed development from users travelling southbound along the A50 Cliff Lane.	Substantial to N/A	Retention of existing boundary vegetation where possible. Where existing boundary vegetation is to be removed replacement hedgerow and tree planting are to be implemented within the early stages of development to allow maximum establishment timeframes and provide filtering of the views of the proposed development.	Substantial to N/A
Public Rights of Way (PROW) PROW's within and within close proximity to the Site will experience the most change from the vary degrees of construction. PROW's to the south will experience little change due to existing vegetation cover.	Substantial to N/A	Proposed redirection of the Appleton FP23 in order to allow users greater visibility / access to the SAM. Introduction of a wildflower meadow surrounding the SAM and additional route, encircling the SAM, connecting to Appleton FP23 at both ends in order to provide a larger walkers route for works and other users groups within the Site. New tree planting along PROW to help filter views of the proposed units where possible.	Substantial to N/A

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Landscape and Visual Impact			
Operational Phase			
Scheduled Ancient Monument (SAM) Change to the surrounding landscape setting through loss of open agricultural fields	Moderate/ Major	Tree planting introduced within the early stages of construction will have had time to establish and therefore will have larger canopy sizes compared to trees that would have been introduced in the later stages of construction, therefore providing a stronger filter to views of the proposed Units which will still be visible above the canopies.	Moderate/ Major
Landscape Character The development will result in considerable change through clearance and earthworks with the introduction of large-scale buildings and associated infrastructure.	Moderate / Major	CEMP will provide mitigation to adjacent and site retained landscape features.	Moderate/ Major
Residential Relatively small numbers of residential properties directly affected by the development, however, those that are close to the site will experience large and major size and scale of effects. These properties include Bradley Hall Cottages, Bradley View and the properties along Cartridge Lane and Barleycastle Lane.	Substantial to Moderate / High	Vegetation introduced within the early construction stage will have established and therefore provide stronger cover / filter to the views of residential receptors. The proposed Units will still be visible above the tree canopies due to the limited maturation time allowed for the proposed planting and the scale of the Units involved.	Substantial to Moderate / High
Transport New buildings will become dominant feature of the view. Existing boundary vegetation where retained will screen ground level and car parking provisions. Users of the A50 Cliff Lane will have clear visibility of plot 2. Plots 1, 5 & 6 will be more visible from the B5356 Grappenhall Lane and from locations further to the north travelling south towards the Site.	Substantial to N/A	Tree and hedgerow vegetation along with the proposed bunding introduced along B5356 Grappenhall Lane and the A50 Cliff Lane roundabout within the early stages of construction will have had time to establish and provide a stronger filtering of the views from road users. Over a 15 year time period this screening tree planting and bunding could grow to become a large 'wall' of vegetation which could start to impose of the views. (see Viewpoint 7 of Appendix 4.3). Selective thinning would be required in order to prevent this.	Substantial to N/A
Public Rights of Way (PROW) PROW's within and close to the Site will experience the most change from the vary degrees of construction. PROW's to the north and south will experience little change due to existing vegetation cover and the topography of the area.	Substantial to N/A	Proposed tree planting within the Site during the early construction stages will have established and start to provide a stronger screen / filter of the proposed units. The proposed units will still be visible above the canopies of the trees.	Substantial to N/A

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Ecology and Nature Conservation			
Construction Phase			
Statutory Sites – direct / indirect impacts	Negligible	None Required	Negligible
Non-statutory Sites – direct / indirect impacts	Negligible	None Required	Negligible
Broadleaved Woodland – permanent loss, fragmentation or degradation	Minor Adverse	Strengthening the wildlife corridor along the brook (delineating the southern boundary of the site) and enhancement of the retained hedge linking the brook and retained habitats associated with the Farm / SAM.	Negligible
Hedgerow - permanent loss, fragmentation or degradation	Minor Adverse	<ul style="list-style-type: none"> Enhancement of retained hedge extending north towards the Farm / SAM from the brook along the southern boundary (to the west of development Zone D on the Parameter Plan at Appendix 5 of the ES Part I <u>Addendum</u> Report); The formation of a 15 m wide corridor containing a mixture of rough grassland and scrub habitat along the southern boundary brook, thereby strengthening this existing wildlife corridor; Inclusion of new native tree planting blocks between the northernmost plots (cells 5 and 6 within development Zone B on the Parameters Plan, at Appendix 5 of the ES Part I <u>Addendum</u> Report); <p>Inclusion of additional native tree planting will be included along the boundary of the Ecological Mitigation Area to screen the area from the motorway slip road to the southeast; and</p> <ul style="list-style-type: none"> Planting of a hedge to link the proposed boundary planting (described above) to the hedge and associated drain present on the northwest boundary of the mitigation area. 	Negligible
Ponds - permanent loss or degradation	Minor Adverse	<p>Inclusion of six <u>seven</u> new ponds created specifically for wildlife (notably GCN) within the Ecological Mitigation Area located in the southeast corner of the development. These ponds will be positioned relatively close to each other so that close habitat links can be created between them and the two existing ponds retained within this area.</p> <p><u>To increase the provision of new wetland habitat towards a 2:1 replacement of all ponds (a total of 12 new pond features), a number of the proposed attenuation basins will be designed so that they will permanently hold water. Where possible, ponds selected for this treatment will be those most closely linked to the proposed Green Infrastructure and Bradley Brook watercourse corridor and will be landscaped to maximise benefits for biodiversity.</u></p> <p>Also, the Ecological Mitigation Area will connect to Bradley Gorse which contains another three of the ponds retained within the development thereby providing additional terrestrial habitat linkages.</p>	Negligible

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Scattered Trees and Scrub - permanent loss, or degradation	Minor Adverse	New tree planting will mitigate some of the effects of individual tree loss however, this cannot replace the loss of those features associated with mature trees such as cavities and decay. Loss of scrub will be mitigated through the inclusion of a scrub component within the Ecological Mitigation Area.	Negligible
Tall Ruderal - permanent loss or degradation	Negligible	Inclusion of a ruderal component within the Ecological Mitigation Area.	Negligible
Watercourses – degradation	Minor Adverse	Pollution control measures will be implemented	Negligible
Arable and Improved Grassland – permanent loss	Negligible	None Required	Negligible
Buildings and Hard standing – permanent loss	Neutral	None Required	Negligible
Spread of Rhododendron	Neutral	Woodland habitats would be protected from incidental disturbance by fencing which will prevent the accidental spread of rhododendron during the construction phase of the development.	Neutral
Badger - disturbance, killing / injury	Neutral (but legislative requirement)	The enhancement of habitat along the southern boundary brook and within the proposed Ecological Mitigation Area should provide additional secluded habitat.	Neutral
Bats – loss / fragmentation of habitat, loss of several day roosts of common bat species sites risk of disturbance, killing / injury	Minor Adverse	<p><u>The principles of proposed mitigation will include roost replacement at a ratio of 2:1 using bat boxes, timing of construction work to minimise impacts (i.e. during the autumn, winter or early spring when bats are likely to be absent from buildings).</u></p> <p>Enhancement of linear habitat along the southern boundary brook to increase the value of this habitat as a foraging and commuting corridor and through provision of a mixture of wetland habitat (ponds and associated margins), scrub and hedges within the Ecological Mitigation Area located in the southeastern corner of the site.</p> <p>Habitat features described above for foraging / commuting bats would be protected from incidental disturbance from construction lighting where necessary.</p>	Negligible

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Birds - loss / fragmentation of habitat, disturbance, killing / injury	Minor Adverse	<p>The provision of a high-quality mosaic of rough grassland, scrub, wetland and ponds within the Ecological Mitigation Area and provision of new tree planting. However, this cannot replace open farmland habitat of importance to skylark and lapwing. The loss of open farmland habitat of importance to skylark and lapwing will be compensate through the implementation of off-site habitat for ground-nesting / overwintering birds including lapwing and skylark arranged via a S106 agreement with a third-party landowner.</p> <p>Provision of nest boxes on new buildings</p> <p>Clearance of any habitats (including buildings) would be timed to avoid the bird nesting season.</p>	Minor Adverse Negligible
Brown Hare – loss / fragmentation of habitat, disturbance	Minor Adverse	No specific mitigation is proposed. Habitat creation proposed in the Ecological Mitigation Area will provide dense cover in which hares could lay up whilst not foraging on adjacent open farmland.	Minor Adverse
GCN (and other amphibians) - loss / fragmentation of habitat, disturbance, killing / injury	Minor Adverse	<p>Mitigation for the loss of breeding habitat and surrounding terrestrial habitat as well as avoiding killing / injury of GCN will need to consist of the following elements:</p> <ul style="list-style-type: none"> Provision of replacement breeding habitat - seven new ponds are to be created within the Ecological Mitigation Area; Provision of replacement terrestrial habitat – the above ponds will be surrounded by 9 ha’s of high-quality terrestrial habitat most of which will be immediate (i.e; within 50m of a breeding pond); Translocation of the GCN population from pond 3 into the proposed Ecological Mitigation Area. <p><u>Additional attenuation features (including several which will be designed to be permanently wet) will also contribute to the provision of terrestrial and aquatic habitat for GCN and other amphibians across the wider site.</u></p>	Minor Beneficial
Hedgehog - loss / fragmentation of habitat.	Minor Adverse	No specific mitigation is proposed. Habitat creation proposed in the Ecological Mitigation Area will provide dense cover in which hedgehogs could lay up and forage	Minor Adverse

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Ecology and Nature Conservation			
Operational Phase			
Statutory Sites – direct / indirect impacts	Negligible	None Required	Negligible
Non-statutory Sites – direct or indirect impacts	Negligible	None Required	Negligible
Broadleaved Woodland –habitat degradation	Minor Adverse	Adoption of an Ecological Management Plan (EcMP) to cover both retained and new habitats incorporated into the development layout. This could be secured via a planning condition.	Negligible
Hedgerow - habitat degradation	Minor Adverse	Adoption of an Ecological Management Plan EcMP	Negligible

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Ponds - habitat degradation	Minor Adverse	Adoption of an Ecological Management Plan EcMP	Negligible
Scattered Trees and Scrub - habitat degradation	Minor Adverse	Adoption of EcMP	Negligible
Watercourses – habitat degradation	Minor Adverse	Adoption of (EcMP). Use of SUDs will prevent any pollution (for example from surface water drainage reaching watercourses). Following relevant Environmental Agency Guidelines on pollution protection as previously stated for construction impacts should ensure that pollution is stopped before it even reached SUDs.	Negligible
Improved Grassland – habitat degradation	Negligible	None Required	Negligible
Badger – none expected	Neutral	Speed limits around site together with warning signs. Access would be restricted access to ecologically important areas.	Neutral
Bats – disturbance / displacement from retained habitats and roost locations on site.	Minor Adverse	Where roosts are present, they would be protected from incidental disturbance by restricting access to roost features. Lighting design would ensure that any roost locations are not lit at night by street or security lighting. Lighting would also be designed to avoid illumination of areas likely to provide feeding foraging / commuting routes for bats.	Negligible
Birds – disturbance / displacement from retained habitats	Minor Adverse	Speed limits would be imposed around site together with suitably located warning signs. This would reduce the risk of birds being struck by traffic moving through the site. Implementation of the EcMP will ensure that habitats for priority and other bird species are maintained.	Negligible
Brown Hare – disturbance / displacement from retained habitats	Minor Adverse	Speed limits with suitably located warning signs would reduce the risk of hares being struck by traffic moving through the site. The lighting design of the proposed development would ensure that hedges providing cover for hares and other wildlife are not lit at night by street or security lighting.	Negligible
GCN (and other amphibians) – displacement / displacement from retained habitats, direct killing/injury	Minor Adverse	Offset gully pots which allow for the passage of amphibians along the bottom of kerbs. would be used throughout the development to allow free passage of amphibians across the site.	Negligible
Hedgehog – disturbance / displacement from retained habitats, habitat fragmentation	Minor Adverse	Speed limits to be imposed around site together with suitably located warning signs would reduce the risk of hedgehogs being struck by traffic moving through the site. The lighting design of the proposed development would ensure that hedges providing cover for hedgehog and other wildlife are not lit at night by street or security lighting.	Negligible

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Socio Economic			
Construction Phase			
Temporary increase in employment	Moderate Benefit	None required	Moderate Benefit
Short-term increase in economic output (GVA)	Moderate Benefit	None required	Moderate Benefit
Training and apprenticeship opportunities	Minor Benefit	None required	Minor Benefit
Effect on local labour market	Minor Benefit	None required	Minor Benefit
Commuting and migration impact	Negligible	None required	Negligible
Effect on local services and facilities	Negligible	None required	Negligible
Wider socio-economic impacts	Negligible	None required	Negligible

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Socio Economic			
Operational Phase			
Creation of long-term employment opportunities	High Benefit	None required	High Benefit
Long-term increase in economic output (GVA)	High Benefit	None required	High Benefit
Increase in business rate revenue	Moderate Benefit	None required	Moderate Benefit
Training and apprenticeship opportunities	Minor Benefit	None required	Minor Benefit
Effect on local labour market	Moderate Benefit	None required	Moderate Benefit
Commuting and migration impact	Minor Benefit	None required	Minor Benefit
Effect on local services and facilities	Negligible	None required	Negligible
Wider socio-economic impacts	Moderate Benefit	None required	Moderate Benefit

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Noise and Vibration			
Construction Phase			
Construction noise impacting on existing noise sensitive receptors	Neutral to Minor Adverse	Construction Environmental Management Plans	Negligible
Construction traffic noise impacting on existing noise sensitive receptors	Negligible	Construction Environmental Management Plans	Negligible
Construction vibration impacting on existing noise sensitive receptors	Negligible	Limit piling activities / Utilise low vibration plant and techniques	Negligible

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Noise and Vibration			
Operational Phase			
Industrial noise impacts associated with Development – Most Receptors	Minor Adverse	Parameters Plan considerations, Reserved Matters site layout and noise barrier mitigation	Minor Adverse
Industrial noise impacts associated with Development - Bradley Hall Cottages	Moderate Minor Adverse	Parameters Plan considerations, Reserved Matters site layout and noise barrier mitigation	Minor Adverse
Increase in traffic on local road networks	Minor Adverse	None	Minor Adverse

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
[Project Title]

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Air Quality, Odour and Dust			
Construction Phase			
Increase in suspended particulate matter concentrations and deposited dust.	N/A ¹	See IAQM control and mitigation measures in Section 8.	Negligible (Not significant after application of IAQM control and mitigation measures).

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Air Quality, Odour and Dust			
Operational Phase			
Increase in NO ₂ , PM ₁₀ and PM _{2.5} concentrations from traffic generated by the development.	Not significant	None	Negligible (Not significant)

¹ The IAQM dust guidance recommends that significance is only assigned to the effect after the activities are considered with mitigation in place. The environmental impact without dust control measures in place is not a likely scenario.

**TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington**

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Cultural Heritage			
Construction Phase			
Impact on setting of Scheduled Bradley Hall Moated Site (101924)	High Adverse	30m landscape buffer, green corridor, re-orientation to previously designed landscape bunds to the north, retention of existing vegetation, demolition of farm buildings, retention of Bradley Hall (DCH127563)	Moderate Adverse
Effect on Setting of Bradley Hall (DCH127563) and change to internal layout and impact on external features	Minor Adverse	Archaeological recording prior to groundworks	Minor Adverse
Effect on Setting of Grade II* Listed Tanyard farm building (DCH13677)	Moderate Adverse	Retention of hedgerow and trees along southern boundary and creation of 15m buffer south of the boundary	*Moderate Adverse - Negligible
Effect on Setting of Grade II Listed Barley Castle Farmhouse (DCH1935)	Moderate Adverse	Retention of hedgerow and trees along southern boundary and creation of 15m buffer south of the boundary	*Moderate Adverse - Negligible
Effect on Setting of Grade II Listed Booths Farm, Shippon on Left (North West) Side of Farmyard Grade II Listed Building 1139362	Moderate Adverse	Retention of hedgerow and trees along southern boundary and creation of 15m buffer south of the boundary	*Moderate Adverse - Negligible
Effect on Setting of DCH1934 Booths Farm Farmhouse Grade II Listed Building 1329740	Negligible	Retention of hedgerow and trees along southern boundary and creation of 15m buffer south of the boundary	*Moderate Adverse - Negligible
Direct impact on Roman road (547117) within the site	Moderate Adverse	Programme of archaeological works prior to groundworks	Minor Adverse
Direct impact on Medieval Cross (551)	Minor Adverse	Programme of archaeological works prior to groundworks	Negligible
Loss of agricultural buildings to the east of Bradley Hall Farm	Minor Adverse	Programme of Archaeological Building Recording prior to groundworks	Negligible

* Whilst the matrix states a range from moderate adverse to negligible it is considered that with mitigation in place this Residual Impact Significance Score is Minor Adverse.

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Cultural Heritage			
Operational Phase			
Impact on setting Bradley Hall Scheduled Moated Site (101924)	High Adverse	Maturation of landscape mitigation measures	Moderate Adverse
Effect on Setting of Bradley Hall (DCH127563)	Minor Adverse	Maturation of landscape mitigation measures	Minor Adverse
Effect on Setting of Grade II* Listed Tanyard farm building (DCH13677)	Moderate Adverse	Maturation of landscape mitigation measures	*Moderate Adverse - Negligible
Effect on Setting of Grade II Listed Barley Castle Farmhouse (DCH1935)	Moderate Adverse	Maturation of landscape mitigation measures	*Moderate Adverse - Negligible
Effect on Setting of Grade II Listed Booths Farm, Shippon on Left (North West) Side of Farmyard Grade II Listed Building 1139362	Negligible	Maturation of landscape mitigation measures	Negligible
Effect on Setting of DCH1934 Booths Farm Farmhouse Grade II Listed Building 1329740	Negligible	Maturation of landscape mitigation measures	Negligible

* Whilst the matrix states a range from moderate adverse to negligible it is considered that with mitigation in place this Residual Impact Significance Score is Minor Adverse.

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56, Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Utilities			
Construction Phase			
Disconnections / Diversions of any existing utility infrastructure crossing the Site and directly adjacent to the Site or at the re-aligned roundabout	Neutral	Services identified, will be removed or diverted to facilitate the Proposed Development in accordance with the asset owners to plan in and minimize any disruptions.	Neutral
New HV supply from Primary	Minor adverse	Suitable traffic management plan for all roads affected by installation of new cables. Infrastructure sized to accommodate future expansion to reduce impact in the future.	Negligible
Temporary / Proposed utilities to site	Minor adverse	Temporary supplies to be taken from local networks rather than temporary plant.	Negligible

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Utilities			
Operational Phase			
Disruption to existing operations on Proposed Development	Neutral	Install utilities in resilient manner to reduce the risk of loss of supply to existing users, and size infrastructure to suite future expansion	Neutral

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56, Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Energy			
Construction Phase			
Increase in CO ₂ emissions	Minor Adverse	Adopt systems of metering to monitor the extent of CO ₂ emissions.	Minor Adverse
Increase in NO _x emissions	Minor Adverse	Adopt systems of metering to monitor the extent of NO _x emissions.	Minor Adverse
Increase in water consumption	Minor Adverse	Adopt systems of metering to monitor the extent of water use.	Minor Adverse

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Energy			
Operational Phase			
Increase in CO ₂ emissions	Minor Adverse	Adopt strategies to reduce carbon emissions and promote renewable and low carbon technology	Negligible
Increase in NO _x emissions	Minor Adverse	Minimise reliance on fossil fuels and adopt low NO _x appliances	Negligible
Increase in water consumption	Minor Adverse	Adopt water efficient appliances	Negligible

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Waste			
Construction Phase			
Impact of waste generated on the capacity of existing/proposed waste management infrastructure	Moderate adverse	Implementation of the Site Waste Management Plan	Minor adverse
Treatability of the waste generated	Minor adverse	Implementation of the Site Waste Management Plan	Minor adverse
Conformity with waste targets/policy (international)	Substantial adverse	Implementation of the Site Waste Management Plan	Negligible
Conformity with waste targets/policy (regional/industry)	High adverse	Implementation of the Site Waste Management Plan	Negligible

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Waste			
Operational Phase			
Impact of waste generated on the capacity of existing/proposed waste management infrastructure	Moderate adverse	Implementation of the Operational Waste Management Strategy	Minor adverse
Treatability of the waste generated	Minor adverse	Implementation of the Operational Waste Management Strategy	Minor adverse
Conformity with waste policy (national)	High adverse	Implementation of the Operational Waste Management Strategy	Negligible
Conformity with waste policy (borough/district)	Minor adverse	Implementation of the Operational Waste Management Strategy	Negligible

TABLE 7.1 SUMMARY OF ENVIRONMENTAL IMPACT
Six 56 Warrington

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Agricultural Land and Soils			
Construction Phase			
Land loss 3a 'best and most versatile'	Moderate Adverse	None	Moderate Adverse
Land loss 3b	Minor Adverse	None	Minor Adverse
Economic	Moderate Adverse	Land purchase enabling farmer to vacate and relocate or retire	Minor Benefit
Soil compaction	Minor Adverse	Tracks and controlled traffic on landscaped areas. Soil used in reinstatement. Soil management in CEMP	Negligible
Noise and Dust	Minor Adverse	Dust prevention Soil management through CEMP	Negligible
Drainage	Minor Adverse	Pre and post construction drainage. Re-using soil in landscaping and bunding. Soil management in CEMP	Negligible
Access and Severance	Minor Adverse	Maintain field access as required Total land purchase negates need	Negligible

Nature of Impact	Significance of Impact	Mitigation / Enhancement Measures	Residual Impact
Agricultural Land and Soils			
Operational Phase			
Trespass	Minor Adverse	Signage and fencing	Negligible
Noise	Minor Adverse	Noise mitigation measures	Minor Adverse
Pollution	Minor Adverse	Signage and fencing	Negligible
Light	Minor Adverse	Planned light strategy	Negligible

8. Key Mitigation Measures

8.1. The evolution of the scheme has taken account of the following mitigation and as such this is inherent in the design of the proposals:

- Areas of landscaping will be completed with suitable topsoil to provide a growing medium. This will have the effect of providing mitigation to risks associated with zootoxicity and phytotoxicity. In addition, it will prevent dust generation, and even if some soils become eroded / devoid of vegetation – it will be the clean soils at surface that will generate dust.
- Access into the Site is from two roundabout junctions into the site from Grappenhall Lane, which are proposed to enhance permeability for buses in an attempt to minimise car travel.
- An extensive package of mitigation works is also proposed at the A50/Cliff Lane roundabout and M6 J20.
- Pedestrian/cycle infrastructure will be provided on Grappenhall Road to the north of the development, with upgrades to the existing Public Right of Way network that exists within the Site.
- The foul water network has been sized and designed to accept all flows from the proposed Development Site and conveyed to a purpose built pumping station. The pumping station will discharge to a United Utilities foul sewer west of the Site in Appleton Thorn. The storm water network has been sized and designed to accept all flows from the proposed Development Site with additional flood protection including climate change allowances. The system has multiple new discharge locations to Bradley Brook at a restricted rate of discharge (Greenfield Runoff Rate). The storm water design is in accordance with the LLFA Flood Risk/Drainage design guidance and the Framework. The limited storm water discharge will reduce flood risk offsite from the Development Site.
- In order to provide flood risk protection to the Site and to the surrounding neighbourhood to manage the limited storm water discharge, onsite attenuation will be provided both in the main infrastructure and within the plots. This will be to the required return periods as required by the LLFA including allowances for climate change in accordance with the Framework. All storm water flows for the 1 in 30 year storm events will be contained below ground with all flows for the 1 in 100 year events plus climate change allowance of

40% being contained safely within the site boundaries overland and/or underground. Proposed detention basins and surface water features are included within the scheme as part of the proposed development storm water attenuation requirement.

- All new impermeable surfacing (roads, car parks, roofs etc.) will be drained to the new storm water drainage network and conveyed to new outfalls to Bradley Brook. As part of the main network, Sustainable urban Drainage Systems (SuDS) have been included to improve water quality prior to the discharge to the receiving waters. SuDS will naturally filter the water and remove pollutants and solids prior to discharge.
- Swales are proposed to drain the access road where levels allow. All impermeable areas from the proposed Development plots, along with the water from the main highway will then pass through detention basin systems. In addition to this, on plot SuDS will be required for each development unit.
- No infiltration is proposed to the sub-strata below due to the low permeability at the surface.
- Retention of existing boundary vegetation, on site woodland, tree, scrub and grassland habitats wherever possible, with bunds and extensive new tree planting on the perimeter and between buildings to soften the visibility of new building structures.
- Careful selection of building cladding and roofing material using muted colours and non-reflective surfaces.
- The existing site topography will be levelled to accommodate the proposed units with some areas reduced to soften the impact they have on their surroundings.
- Bradley Gorse woodland and the Ecological Mitigation Area in the south of the site, have been safeguarded and will create a number of new habitats to replace those lost during the construction phase. Pond loss will be mitigated through the inclusion of ~~six~~ seven new ponds within the Ecological Mitigation Area, allowing translocation of the GCN population alongside permanent drainage ponds providing a habitat for local wildlife. A 15m stand off and buffer from Bradley Brook to the south of the site will form an important wildlife corridor.

- Retention of the locally listed building within the moat maintains the SAM and its historical integrity. Retention of existing mature vegetation and landscape features to the southern boundary of the site and surrounding the SAM will limit the impact on the setting of listed buildings which lie either side of Barleycastle Lane and the locally listed Bradley Hall.
- The sense of openness around the SAM has been maintained with views into the site from the south to reduce the level harm to the setting of the monument and allow an appreciation of the monument. This 30m buffer around the SAM will make provision for a wildflower meadowland in the centre of the site.
- Building heights, massing, orientation and proximity to the SAM have been considered to alleviate the impact on the setting of the monument.
- In order to bring visitors into contact with the SAM minor deviations to the existing PROW FP23 will be made to bring users closer to the monument.
- The location and height of bunds provide effective mitigation to attenuate noise egress from the Proposed Development. Additional acoustic barrier screening has also been carefully considered at roadside and bund locations adjacent to Bradley Hall Cottages, which should result in a reduction in specific noise levels at these receptors. The Detailed heights of these bunds and acoustic barriers will be agreed through the outline planning permission determined at detailed design stage, once end users and occupiers are known, however with the bunds will have having a maximum 1:3 gradient slope to a maximum height of approximately 5m with a further 2-3m high acoustic fencing on the bunds to shield Bradley Hall cottages and Bradley Hall View.

8.2. **Tables 8.1 and 8.2** below provides an overview of the key mitigation measures to be included as part of the proposals. Full details of mitigation measures can be found within the detailed Technical Papers which form Part 2 of the ES. These mitigation measures will form part of the development proposal and can be secured by planning condition or legal agreement where appropriate.

Table 8.1 – Summary list of Mitigation Measures - Construction

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
Geology and Ground Conditions	<p>Construction Environmental Management Plan (CEMP) – as detailed in Section 8 of the Technical Paper in Part 2 of the ES. To include:</p> <ul style="list-style-type: none"> • EA Pollution Prevention Guidelines (PPG), bunding and sealing of stockpiles. • Personal Protective Equipment (PPE) and dust control • Careful control to minimize off-site disposal. Use sheeted lorries. • Prior to re-use of made ground soils, any deleterious or geotechnically unsuitable materials shall be removed and segregated • All works should follow the EA’s Pollution Prevention Guidelines to mitigate migration of leachable heavy metals and hydrocarbons. 	CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.
	A Materials Management Plan (MMP) will be produced with the scheme in accordance with the Definition of Waste Code of Practice (DoWCoP) which will provide a permanent record of how materials have been controlled and re-used on the site in accordance with current guidance, legislation and good practice. This is detailed in Section 8 of the Technical Paper in Part 2 of the ES.	A Materials Management Plan (MMP) to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. Materials Management Plan (MMP) to be implemented during construction.
Traffic and Transportation	<p>A Construction Environmental Management Plan (CEMP) will also be produced to manage the impact of the traffic associated with the construction of the Proposed Development. This will contain a package of measures to reduce deliveries and manage deliveries to the Site. – as detailed in Section 8 of the Technical Paper in Part 2 of the ES. The CEMP will include the following:</p> <p>Work to specified hours only to minimize disruptions;</p> <ul style="list-style-type: none"> • Co-ordinate on-site construction movements via a Site Logistics Plan; • List the vehicle and plant types used in detail, and assurance they can enter and exit the site with minimal disruptions to the existing highways network; • Manage potential conflicts between construction activities and the local 	CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	<p>highways networks, including the junctions;</p> <ul style="list-style-type: none"> • Co-ordinate Pedestrian Routes and manage conflicts between pedestrian/cycle traffic and construction traffic and include the use of designated walkways, crossing points, and barriers; • Trip Generation – identification of anticipated level of vehicular traffic during each phase of construction with an aim of reduction of required movements where possible through a combination of route planning, construction activity phasing, and optimal loadings of delivery and construction vehicles; • Measures which can reduce vehicle use and parking demand such as car sharing, access to public modes of transportation, walking and cycling, etc.; • Construction Access Strategy; • Parking provisions within the site; • Monitoring of the condition of the local highways to identify if any damage has arisen as a result of the construction activities and ensure remedial work will be carried out; • Implementation and enforcement of safe speed limits within the work site; • Entrance and egress to and from the site should be controlled via a gateman located within a cabin next to the entrance point; • Maintaining access for emergency services; • Signage Requirements; • Banksman Requirements; • Notification of public and local businesses; • Delivery requirements and procedures; and • Prevention of silt and solids being tracked onto Public Highways. 	
Flood Risk and Drainage	<p>All of the mitigation measures to be put in place during the construction period will be provided through a CEMP as detailed in Section 8 of the <u>Addendum</u> Technical Paper in Part 2 of the ES. Measures include:</p> <ul style="list-style-type: none"> • All large and deep construction excavations should be avoided as far as possible. Where this is not possible, they should be covered, especially in periods of heavy rain. As a last resort, they should be managed in accordance with Pollution Prevention Guideline (PPG) 5 and potentially pumped out under controlled fashion. No 	CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	<p>connection from excavations should be made to the watercourse unless treatment processes are put in place.</p> <ul style="list-style-type: none"> • Haul roads or matting should be provided as part of the construction works to prevent consolidation of the Site, which will reduce permeability and increase runoff but will limit the amount of disturbed sediment/soils from reaching surface waters. • Should waters onsite be found to be polluted, treatment may be necessary before disposal and this should include settlement of solids in a lagoon, removal of hydrocarbons through interceptors and other treatment techniques to be developed in the CEMP or part of the environmental management plan on site. In accordance with the FCEMP, oil spill skits are to be based at the construction compound as well as being carried with all site plant and vehicles. • A portion of surface water attenuation should be developed prior to increasing the impermeable area, where necessary, to utilize as storage. Water management on site is to be in accordance with PPG5. • A suitable surface water management system should be developed as part of any construction plans which should include the use of temporary drainage where required. • If existing live flows (that are required to be retained) are to be cut off by the works (either overland or underground) temporarily these are to be maintained in a like for like scenario without hindering the course of flow or adding to it. • The cesspits serving the housing and agricultural buildings will be emptied completely prior to removal. Temporary measures to collect the flows to these cesspits will be required prior to picking the flows up with the new drainage. • Based on walkover observations there are existing drainage connections to the ditch in the north east, ditch in the north west and Bradley brook. During construction, existing flows and connections may need to be retained until construction is complete. The existing drainage systems are not to be used to discharge newly generated site runoff during construction without the required treatment to prevent any potential pollution to the receiving waters. 	

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	<ul style="list-style-type: none"> • Potential pollution spills should be managed and monitored in accordance with a CEMP. This should include providing bunds around at-risk areas, particularly handling oils and fuels and these areas should be isolated and away from potential water pathways • Disturbance of ground should be limited to works required for the permanent scheme, otherwise haul roads, lay down or matting should be used to prevent consolidation and increase potential runoff with silts/solids entering existing drainage pathways. Disturbance of ground through major earthworks should be planned, designed and phased to ensure that it is not a direct source for storm water to convey silts/solids overland. • In order to minimise the risk of sediment on the construction site, vegetation should only be removed from areas that need to be removed and stockpiles should be seeded or covered. • Any drainage ditches, swales, <u>ponds</u> or basins to be excavated are to be sealed or finished immediately to prevent the conveyance of silts and solids to receiving waters. • Any vehicles accessing the Site and tracking through the disturbed ground are to be removed of potential debris that could pollute offsite waters prior to them leaving site. This should include a wheel wash facility to be detailed in the CEMP and should be located away from potential water pathways. • Wheel Washing facilities will be located a minimum of 30m from the watercourses and drainage sources. • All works should follow the EA's Pollution Prevention Guidelines. • If any waters onsite are known to be polluted, treatment may be necessary before disposal to the surface water receptor. Treatment should include settlement and separation in accordance with the CEMP and PPG. • The potential ponding of temporary excavations should be dealt with as detailed above in relation to restricting and sealing earthworks and therefore will be minimal. However, where collection of water is inevitable, due to the procedures put in place this will have no impact to the receiving waters. • Any works that are planned to take place within 8m of Bradley Brook, an EA 	

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	Main River, will require to be done under permit from the EA.	
Landscape and Visual Impact	Perimeter Screen planting and new landforms in the form of bunds and retention of perimeter landscape features where possible. Opportunity to implement mitigation early in the construction process to allow maximum time for establishment of planting.	Details to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. Details approved to be implemented as agreed.
	Measures detailed in the CEMP will identify and specify mitigation measures during the construction phase. See detail in Framework CEMP at Appendix 9 of the ES Part 1 Report.	CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.
	<p>CEMP – as detailed in Section 8 of the <u>Addendum</u> Technical Paper in Part 2 of the ES. Measures include:</p> <ul style="list-style-type: none"> • Locate the site compound within the site so it is visually screened as much as possible • Public rights of way are to be determined where applicable, and construction works are to either avoid or manage these as necessary and practicable. • Temporary signage to direct public away from the construction activities where possible • Appropriate protection of trees and hedgerows to be retained. • Earthworks in proximity to neighbours to be phased in such a way to screen future works where practicable • The retention of perimeter landscape features where possible and incorporation of landscape and conservation features consistent with local management objectives • The retention of boundary vegetation and woodland blocks with perimeter screen planting 	CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.
Ecology and Nature Conservation	<p>Details for protection of retained habitats, avoiding the risk of pollution and avoiding impact to badgers, foraging resources for bats and breeding birds would be provided within a CEMP as detailed in Section 8 of the <u>Addendum</u> Technical Paper in Part 2 of the ES. Measures include:</p> <ul style="list-style-type: none"> • Pollution control measures in accordance with relevant pollution prevention guidance will be implemented throughout the construction phase, in this case: Guidance on Pollution Prevention. • Works and Maintenance in or Near Water: EGPP 5; PPG 6 Working at Construction and Demolition Sites; and GP22 Dealing with Spills. • Mitigation for the following habitats: 	<p>CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.</p> <p>Specific ecological mitigation strategies would be produced to provide detailed mitigation measures to be implemented in respect of bats and GCN. To be secured by planning condition and approved by Warrington BC prior to the commencement of construction.</p> <p>Mitigation relating to protected species will need to be subject to a detailed strategy and once planning consent is granted, an application made for a European Protected Species Licence from Natural England to implement the measures proposed.</p>

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	<ul style="list-style-type: none"> • Broadleaved woodland • Hedgerows • Ponds • Scattered trees and Shrubs • Tall Ruderal • Watercourses • Mitigation for the following protected and priority species: <ul style="list-style-type: none"> • Badger • Bats • Birds • Brown Hare • Great Crested Newt • All retained habitats (including trees as per the Arboricultural Assessment) to be protected during construction activities in accordance with best practice standards. • Details of proposed ecology buffer zones and how they are to be protected is to be agreed with the local authority and implemented into the CEMP. • Woodland habitats would be protected from incidental disturbance by fencing which will prevent the accidental spread of rhododendron during the construction phase of the development. • Details on any invasive species present and how to prevent the spread of these are to be taken into account and included within the CEMP. • An invasive Species Method Statement and Management Plan is to be required. • Legally compliant mitigation to be implemented to ensure no breeding birds are harmed construction and enabling works. Works in these areas should be conducted outside of the bird breeding season (March - August inclusive). If this cannot be achieved, a nesting bird survey should be completed by a competent ecologist and an exclusion zone retained around identified active bird nests until the chicks have fledged. • The Principal Contractor will produce an Environmental Management Plan, which is to be included within the CEMP, and follows ISO 14001 accredited environmental management system and contract requirements. • <u>Loss of farmland habitat which is suitable for breeding skylark and overwintering birds such as lapwing and starling cannot be mitigated entirely within the scheme boundary. It is proposed that mitigation for such losses will be provided as a financial contribution to an off-site habitat management scheme. The off-site</u> 	

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	<p><u>mitigation should be located within the local area (within WBC area). The exact details of the proposal will be agreed with WBC (and their statutory consultee GMEU) and can be secured via a Section 106 agreement.</u></p> <ul style="list-style-type: none"> The Environmental Management Plan is to indicate how the requirements, obligations, and practices will be adopted and how they meet the environmental and CEMP requirements. Furthermore, the Environmental Management Plan will detail the responsibilities of the staff involved for achieving these requirements, and list the method in which all staff will be aware of their obligations. 	
	<p>Provision of a buffer to the brook identified at construction stage delineating the southern boundary of the site which will form an important wildlife corridor.</p>	<p>This will be implemented as part of a landscaping scheme. Landscaping details to be secured by planning condition and approved by Warrington BC prior to the commencement of the relevant phase of construction. Details approved to be implemented as agreed.</p>
	<p>Habitat severance arising from loss of the hedge connection during construction will be mitigated through strengthening the wildlife corridor along the brook (delineating the southern boundary of the site) and enhancement of the retained hedge linking the brook and retained habitats associated with the Farm / SAM.</p>	<p>This will be implemented as part of a landscaping scheme. Landscaping details to be secured by planning condition and approved by Warrington BC prior to the commencement of the relevant phase of construction. Details approved to be implemented as agreed.</p>
Socio-Economic	-	
Noise and Vibration	<p>A CEMP will follow Best Practicable Means (BPM) to minimise the noise and vibration impact on nearby noise sensitive properties – as detailed in Section 8 of the Technical Paper in Part 2 of the ES. To include:</p> <ul style="list-style-type: none"> All construction plant and equipment should comply with EU noise emission limits. Strategic locations of temporary stockpiles to shield the environment from noise impacts Machines in intermittent use should be shut down in the intervening periods between work or throttled down to a minimum. Proper use of plant with respect to minimising noise emissions and regular maintenance. All vehicles and mechanical plant used for the purpose of the works should be fitted with effective exhaust silencers and should be maintained in good efficient working order. 	<p>CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.</p> <p>Hours of construction works to be agreed by planning condition and approved by Warrington BC.</p>

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	<ul style="list-style-type: none"> • Selection of inherently quiet plant where appropriate. All major compressors should be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers. • Plant and equipment such as flatbed lorries, skips and chutes should be lined with noise attenuating materials. Materials should be handled with care and be placed, not dropped. • Care should be taken when erecting or striking scaffolds to avoid impact noise from banging steel. All operatives undertaking such activities should be instructed on the importance of handling the scaffolds to reduce noise to a minimum before access is possible. • All ancillary plant such as generators, compressors and pumps should be positioned so as to cause minimum noise disturbance. If necessary, localised screens and enclosures should be used to reduce noise from particular noisy, static operations. • Wherever possible, the use of hydraulic attachments or other means of crushing concrete and hard materials should be used in preference to pneumatic breakers. Where the use of impact hammers is necessary, their attachment to larger and heavier excavators often can reduce the level of vibration. • Deliveries should be programmed to arrive during daytime hours wherever practicable. Care should be taken when unloading vehicles to minimise noise. Delivery vehicles should be routed so as to minimise disturbance to local residents. Delivery vehicles should be prohibited from waiting on the highway or within the site with their engines running. • Construction contractors would be obliged to adhere to the codes of practice for construction working and piling given in British Standard BS 5228 and the guidance given therein minimising noise emissions from the site. • Piling should be avoided wherever possible and low vibration piling techniques such as continuous flight auger piling should be adopted wherever practicable. • Problems concerning noise from construction works can sometimes be avoided by taking a considerate and 	

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	<p>neighbourly approach to relations with the local residents. Anticipated working hours are 08:00 to 18:00 Monday to Friday, 08:00 to 13:00 on Saturday and no proposed working Sundays and bank holidays.</p> <p><u>The bunds and acoustic barriers will be constructed during the construction phase of development. The bunds as shown on the updated Acoustic Parameters Plan and Site Sections and will have maximum 1:3 gradient slopes and maximum height of approximately 5m, with 2-3m high acoustic fencing around Bradley Hall cottages and Bradley Hall View.</u></p> <p>The 'Proposed Finish Level Including Mounds' drawing (Cundall drawing no. CLXX(52)4003 Issue P4) (Appendix 7 of the ES Part 1 Report) shows the proposed bunds as incorporated within the noise model. <u>The updated Acoustic Parameters Plan, Site Sections and Appendix 7.3 of the ES Addendum Noise and Vibration Technical Paper identifies the location of the fences.</u></p>	<p><u>The detailed design can be secured by planning condition and approved by Warrington BC prior to the commencement of construction.</u></p>
Air Quality and Dust	<p>CEMP – as detailed in Section 8 of the Technical Paper in Part 2 of the ES. Measures include:</p> <ul style="list-style-type: none"> • Communication • Dust Management Plan • Site Management • Monitoring • Preparing and maintaining the Site • Operating vehicle/machinery and sustainable travel • Operations • Waste Management • High risk measures specific to earthworks, construction and track out 	<p>CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.</p>
Archaeology and Cultural Heritage	<p>Archaeological recording and programme of works prior to groundworks and demolition of farm buildings adjacent to Bradley Hall and works that impact on the Roman Road within the site.</p>	<p>Archaeological recording and programme of works to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. Recording and works to be implemented during construction. Evaluation trenching will be undertaken to verify the results of the geophysical survey undertaken around the possible Roman Road. Should the road and/or features be found, an appropriate scheme of investigation will be undertaken in accordance with a WSI.</p>

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
	Landscape mitigation in the form of perimeter screen planting and new landforms in the form of bunds and retention of perimeter landscape features where possible to screen site to the south adjacent to Grade II Listed Buildings. <u>Any estate road which traverses the green corridor should be built into the levels of the site and not have street lighting to reduce impacts on the setting of the green corridor and SAM.</u>	This will be implemented as part of a landscaping scheme. Landscaping details to be secured by planning condition and approved by Warrington BC prior to the commencement of the relevant phase of construction. Details approved to be implemented as agreed.
Agricultural Land & Soils	The following mitigation will be put in place as part of the CEMP during the construction phase to mitigate impact on agricultural land and soils. <ul style="list-style-type: none"> • Retention of stripped top soil and re-use in structural landscaping following CCoP guidelines. Use of vegetation and planting to help restore soil functionality over time. • Minimising soil compaction in landscaped areas and the use of traced runways to preserve soil integrity • Soil Management Plan to form part of CEMP. • Installation of pre-construction drains where applicable. • Wetting of soils to minimise dust contamination measures 	CEMP and Soil Management Plan to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP and Soil Management Plan to be implemented during construction.
Energy	The following mitigation will be put in place as part of the CEMP during the construction phase to monitor and mitigation use of energy. As detailed in Section 8 of the Technical Paper in Part 2 of the ES. Measures include: Adopt systems of metering to monitor the extent of CO2 emissions, water use and NOx emissions.	CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.
Utilities	Services identified, will be removed or diverted to facilitate the Proposed Development in accordance with the asset owners to plan in and minimize any disruptions.	Matters to form part of detailed design for reserved matters submission(s).
	Suitable Traffic Management Plan (TMP) for all roads affected by installation of new cables associated with new HV supply from Primary. Infrastructure sized to accommodate future expansion to reduce impact in the future.	TMP to be secured by planning condition and approved by Warrington BC prior to commencement of construction. TMP to be implemented during construction.
	Temporary proposed utility supplies to be taken from local networks rather than temporary plant. To be agreed through CEMP	CEMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. CEMP to be implemented during construction.

ES Topic Area	Mitigation Measure - Construction	Implementation and Timing of Mitigation
Waste	A Site Waste Management Plan (SWMP) is proposed. This will set out a management strategy for construction waste. Measures have been identified for each option within the waste hierarchy (i.e. prevention, re-use, recycle, recover and disposal). These measures include using pre-fabricated materials for onsite assembly, just in time deliveries, re-use of spoil on site and the use of recycled content materials. The aim would be to use options from the top of the waste hierarchy to manage each waste stream. The targets set by the revised Waste Framework Directive and BREEAM would be applied. The Plan is a working document to be used during the construction process to record movements of waste from the site and to demonstrate that duty of care obligations are being met. See details in Appendix 11.1 of the Waste Technical Paper 11 in Part 2 of the ES.	A SWMP to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. SWMP to be implemented during construction.

Table 8.2 – Summary list of Mitigation Measures - Operation

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
Geology and Ground Conditions	Areas of landscaping will be completed with suitable topsoil to provide a growing medium. This will have the effect of providing mitigation to risks associated with zootoxicity and phytotoxicity. In addition, it will prevent dust generation, and even if some soils become eroded / devoid of vegetation – it will be the clean soils at surface that will generate dust-as detailed in Section 8 of the Technical Paper in Part 2 of the ES.	Implemented as part of a landscaping scheme. Landscaping details to be secured by planning condition and approved by Warrington BC prior to the commencement of construction. Details approved to be implemented as agree
Traffic and Transportation	An extensive package of mitigation works is proposed at the A50/Cliff Lane roundabout and M6 J20 – as detailed in Section 8 of the <u>Addendum</u> Technical Paper in Part 2 of the ES and Appendix 2.1 of the <u>Addendum</u> Technical Paper, contained in the TA. The package includes: <ul style="list-style-type: none"> • Relocation and realignment of the A50 Cliff Lane roundabout to the west of its existing location to enhance the storage capacity of the link between the roundabout and the motorway; • Full signalisation of the realigned A50 Cliff Lane roundabout with widening of 	Details to be secured through S106 Legal Agreement and planning condition and approved by Warrington BC. All the mitigation is to be completed prior to completion of the Proposed Development and maybe implemented in phases. The requirement for a Travel Plan to be submitted with each phase / reserved matters and implemented prior to occupation will be secured by planning condition.

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
	<p>all approach arms <u>and reduction of the exit arm onto the A50 to one lane;</u></p> <ul style="list-style-type: none"> • Widening of the A50 link between the A50 Cliff Lane roundabout to provide two lanes for much of the links length; • Partial signalisation of the two M6 J20 dumbbell roundabouts • Widening of the M6 Northbound off-slip • Widening of the circulatory carriageway on the two M6 J20 dumbbell roundabouts and rationalisation of the lane markings / directional arrows; <u>implementation of a yellow box and installation of queue detectors;</u> and • <u>Incorporating MOVA delay management (or equivalent technology) and appropriate queue detection;</u> and • Widening on the eastern approach to the dumbbell roundabouts. • <u>Updated drawings of the mitigation schemes are included in the TA contained at Appendix 2.1 of the Addendum Technical Paper in Part 2 of the ES.</u> • Measures to enhance Sustainable Travel. The Development Proposals will be supported by a Framework Travel Plan which seeks to minimise the level of traffic associated with staff trips, single occupancy trips and to promote sustainable modes of travel. Measures detailed in the Travel Plan and those set out below will help to mitigate the impacts of the traffic associated with the development proposals. The Framework Travel Plan is included at Appendix 2.2 of the Technical Paper in Part 2 of the ES. • More than 1.2km of new pedestrian/cycle infrastructure will be provided on Grappenhall Road to the north of the development; • <u>The Applicant has also agreed to commit to providing a commuted sum towards continuing the shared cycleway/footway beyond the Application boundary extending the footway to the Grappenhall Lane / Broad Lane roundabout to provide better pedestrian permeability and connections. This would necessitate an additional 175m of footpath on existing highway land to the south of Grappenhall Lane to continue the pedestrian/cycle infrastructure to the Broad Lane roundabout.</u> 	

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
	<ul style="list-style-type: none"> • <u>It is understood that WBC would also like to see a new pedestrian/cycle crossing facility at the Broad Lane roundabout. This would further enhance connectivity with Broad Lane in the north and/or the southern section of Grappenhall Lane where the Stobart scheme on Barleycastle Lane could implement a series of pedestrian and cycle enhancements. To tie into the Stobart infrastructure a new pedestrian/cycle link would also be required on the western side of the highway between the Broad Lane roundabout and Barleycastle Lane. This would be a distance of circa 220m. The Applicant is able to commit towards providing a commuted sum towards these improvements.</u> • Significant upgrades are proposed to the existing Public Right of Way network that exists within the Site; and • Funding for new Public Transport services will be provided, including the provision of new infrastructure within the site itself. <u>The Applicant and Council have agreed that a commuted sum of £600,000 towards improving bus services via a S106 financial obligation would be acceptable.</u> • Vehicle charging points delivered with each unit 	
Flood Risk and Drainage	<p>The proposed Drainage Strategy outlines the mitigation measures included in restriction and attenuation to reduce offsite flood risk to low levels providing minor betterment to the existing situation. The detail of the Drainage Strategy is contained in Appendix 3.2 of the <u>Addendum</u> Technical Paper in Part 2 of the ES. Measures include:</p> <ul style="list-style-type: none"> • Bradley Brook will be used to provide a primary discharge method for surface water. • Gullies will be used to drain the access roads across the site. Wherever possible these will connect directly to ponds and swales. • Where space or levels restrictions do not allow for SuDS systems, an underground piped system located beneath the access roads will be used to drain the remaining road areas. These underground piped systems will direct flows to a system of ponds and swales which will discharge into Bradley Brook. 	Details to be secured by planning condition and approved by Warrington BC prior to construction of the relevant phase. Details approved to be implemented as agreed.

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
	<ul style="list-style-type: none"> • Each plot will require an individual drainage design. Whatever the surface water layout for plot, a proposed surface water connection point into an attenuation pond will be provided. This will ensure all surface water across the development is directed through a SuDS system. Some of these ponds will connect to the underground piped system whereas others will outfall directly into Bradley Brook. Each connection to Bradley Brook will be restricted to the greenfield runoff rate. • The drainage systems will be designed so that there is no flooding to the development in a 1 in 30-year event and so that there is no property flooding in a 1 in 100 year plus climate change event. • The existing ponds will be filled in and built-over as part of the development. However, these existing ponds will be replaced at a rate of 2 for 1 for water body offset mitigation. • The flow rate off site will be reduced to Greenfield runoff rates. • To manage the flow of surface water across the site, flow control devices will be used. These will be designed to ensure that the flow rate from individual plots cannot overwhelm the system of ponds and swales. If required additional underground attention will be provided within each plot as required. • The drainage will be designed to ensure that a self-cleansing velocity of 1.0 l/s is achieved within the pipework. • Swales and ponds have been selected as the SuDS systems for the development. • Surface water runoff from all hardstanding areas within the development will pass through ponds and/or swales. Where gully pots and channel drains are used, silt traps will be provided. The ponds and swales will provide filtration and settlement of the surface water. The vegetation of the swales, filter strips and filter drains will allow capture and filtration of hydrocarbons, heavy metals and nutrients. • All vehicle car parks and service yards will be drained via. Hydrocarbon interceptors. • The foul water network has been sized and designed to accept all flows from the proposed Development Site in 	

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
	<p>accordance with Sewers for Adoption, and conveyed to a purpose-built pumping station within the Development. The pumping station will discharge to a United Utilities foul sewer west of the Site in Appleton Thorn village.</p> <ul style="list-style-type: none"> • The storm water network has been sized and designed to accept all flows from the Proposed Development Site with additional flood protection including climate change allowances. • The storm water design is in accordance with the LLFA Flood Risk/Drainage design guidance and the Framework, 	
Landscape and Visual Impact	<p>Landscaping details comprise the following:</p> <ul style="list-style-type: none"> • Dense perimeter screen planting and new landforms in the form of bunds, which will filter and screen development as it matures. • Retention of existing on site woodland, tree, scrub and grassland habitats which will be managed and maintained through the creation of an Ecological and Landscape Management Plan (ELMP). • A number of new habitats will have been created throughout the site in order to mitigate the loss of habitats within the construction phase. The primary habitats will be in the form of an Ecological Mitigation Area to the southeast corner with the retention of Bradley Gorse woodland and the adjacent strip of mature trees; as well as a buffer along the southern boundary to the brook • New tree planting blocks between the northern plots (Plots 5&6 on the Illustrative Masterplan). • Six <u>Seven</u> new ponds will be included within the Ecological Mitigation Area <u>created specifically for wildlife (notably GCN).</u> • <u>To increase the provision of new wetland habitat towards a 2:1 replacement of all ponds (a total of 12 new pond features). Two of the proposed attenuation basins will be designed so that they will permanently hold water. These are to be located adjacent to Plot 1 and 2. Where possible, ponds selected for this treatment will be those most closely linked to the proposed Green</u> 	<p>Details to be secured by planning condition and approved by Warrington BC prior to completion / occupation of the relevant phase. On plot landscaping to be agreed through reserved matters submission(s). Details to be implemented as agreed in the condition.</p>

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
	<p><u>Infrastructure and Bradley Brook watercourse corridor and will be landscaped to maximise benefits for biodiversity.</u></p> <ul style="list-style-type: none"> Retention of the PROW FP23 with an adjustment to the route in order to bring visitors closer to the Scheduled Ancient Monument, with signage and interpretation giving users greater access to the surrounding area. 	
	<p>The proposed new buildings will use non-reflective, recessive muted colours, which blend into the sky. The layout and orientation of buildings will seek to minimise impacts on existing residential buildings and the SAM</p>	<p>To be agreed through reserved matters submission(s).</p>
<p>Ecology and Nature Conservation</p>	<p>Degradation of habitats both as a result of human activity (changes in management, disturbance, pollution etc.) would be avoided through the adoption of an Ecological and Landscape Management Plan (ELMP) to cover both retained and new habitats incorporated into the development layout. As detailed in Section 8 of the <u>Addendum</u> Technical Paper in Part 2 of the ES. Measures include:</p> <ul style="list-style-type: none"> Lighting design would ensure that any bat roost locations are not lit at night by street or security lighting. Similarly lighting would also be designed to avoid illumination of areas likely to provide feeding foraging / commuting routes for bats. Speed limits would be imposed around site together with suitably located warning signs. This would reduce the risk of animals being struck Suitably located warning signs to reduce the risk of road kill. Access would be restricted to ecologically important areas along brook, woodland and Ecological Mitigation Area to avoid human disturbance of badger setts and adjacent foraging habitat. Offset gully pots which allow for the passage of amphibians along the bottom of kerbs would be used throughout the development to allow free passage of amphibians across the site. 	<p>EcMP to be secured by planning condition and approved by Warrington BC prior to completion / occupation of the relevant phase. Details to be implemented as agreed.</p>
	<p>Use of SUDs will prevent any pollution (for example from surface water drainage reaching watercourses).</p>	<p>Details to be secured by planning condition and approved by Warrington BC prior to completion of the relevant phase. Details to be implemented as agreed in the condition.</p>

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
Socio-Economic	-	
Noise and Vibration	<p>Future Reserved Matters planning applications should include further assessments on noise impacts, based on confirmed proposals such as building layout, operating procedures, plant requirements, and vehicle flows. These future assessments may affect the mitigation measures required, such as the detailed design of perimeter bunding currently included within the outline application and referred to in Section 8 of the Addendum Technical Paper in Part 2 of the ES.</p> <p>Nevertheless, mitigation measures to limit noise impacts should be adopted as detailed within the Parameters Plans. Measures embedded in the design include:</p> <ul style="list-style-type: none"> • The orientation of loading bays / docks with respect to sensitive receptors. • The location of services plant to maximize distance from noise-sensitive receivers and the potential screening effects afforded by proposed units. • Additional acoustic barrier screening to carefully considered roadside and bund locations. <p><u>The bunds and acoustic barriers shown on the Updated Acoustic Parameters Plan and Site Sections will be constructed during the construction phase of development. The bunds will have maximum 1:3 gradient slopes and to a maximum height of approximately 5m, with 2-3m high acoustic fencing around Bradley Hall cottages and Bradley Hall View.</u></p> <p>The 'Proposed Finish Level Including Mounds' drawing (Cundall drawing no. CLXX(52)4003 Issue P4) (Appendix 7 of the ES Part I Report) shows the proposed bund as incorporated within the noise model. <u>The Updated Acoustic Parameters Plan, Site Sections and Appendix 7.3 of the ES Addendum Noise and Vibration Technical Paper identifies the location of the fences.</u></p> <p>The final mitigation strategy will be dependent upon the Reserved Matters application and could only be assessed in detail once specific operators come forward with Reserved Matters</p>	<p>Requirement for further noise assessments to be secured by planning condition and approved by Warrington BC prior to commencement of development of each phase / plot. Detailed mitigation to be implemented as agreed.</p>

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
	applications. At this point, further detailed mitigation measure requirements could be determined and implemented.	
Air Quality and Dust	No mitigation measures are considered necessary. Nevertheless, as outlined in Technical Paper 2: Traffic and Transportation in Part 2 of the ES, the development will include vehicle charging points.	Details to be secured by planning condition and approved by Warrington BC prior to completion. Details to be implemented as agreed in the condition.
Archaeology and Cultural Heritage	Design, style, materials, layout and positioning of buildings and landscape design will be carefully considered at detailed design stage to limit any adverse impact on the SAM and other receptors.	Design principles to be secured through approval of the <u>updated</u> Heritage Parameters Plan. Detailed design to be agreed through reserved matters submission(s) in accordance with the approved suite of Parameters Plans.
	Demolition of farm buildings within the Bradley Hall Farm complex i.e. to the northeast of the SAM will improve the setting of the scheduled monument	Principle of demolition of buildings to be secured through approval of the <u>updated</u> Demolition Parameters Plan. Detailed design to be agreed through reserved matters submission(s) in accordance with the approved suite of Parameters Plans.
	A landscaping scheme, including provision of an open green corridor to maintain views between the Scheduled Monument and the agricultural land to the south. This will also extend to the north allowing connectivity to the monument. This will comprise a 30m landscape buffer around the SAM, with retention of existing trees and vegetation.	Landscaping details to be secured by planning condition and approved by Warrington BC prior to completion / occupation. Landscaping details to be in accordance with accordance with the approved suite of Parameters Plans. Details to be implemented as agreed in the condition.
	The retention of Bradley Hall will provide context to the moat in the ability to appreciate the massing that the former hall would have had and its relationship with the moat.	To be agreed through reserved matters submission(s). Details to be in accordance with accordance with the approved outline application and suite of Parameters Plans, which secures its retention and conversion for office use.
	Provision of Heritage Interpretation Boards near to the Scheduled Monument, including re-location of the existing PROW nearer to the Scheduled Monument	Details to be secured by planning condition and approved by Warrington BC prior to completion of the relevant phase.
Agricultural Land and Soils	Suitable signage and fencing to prevent trespass and fly tipping and adjacent agricultural land.	Details to be secured by planning condition and approved by Warrington BC prior to completion / occupation.
	Appropriate lighting strategy to minimise light pollution issues.	Details to be secured by planning condition and approved by Warrington BC prior to completion / occupation.
Energy	Specific detail and technologies will be established at the detailed design stage once specific end users and operators are known. Measures will mitigate the energy use and subsequent carbon emissions to meet Warrington BC Core Strategy	Requirement for further Energy Strategy to be secured by planning condition and approved by Warrington BC prior to commencement of development of each phase / plot. Detailed design to be carried out in accordance with the

ES Topic Area	Mitigation Measure - Operation	Implementation and Timing of Mitigation
	Policies and improve on the Part L2A of the Building Regulations.	approved strategy and detailed use of technologies and building fabric(s).
Utilities	To minimise disruption of connections to existing operations building on site, the utilities will typically be installed on a 'ring' type distribution, to ensure buildings can be back fed during any works to the utility services. Services will be sized to accommodate future expansion.	To be agreed through reserved matters submission(s).
Waste	An Operational Waste Management Strategy (OWMS) is proposed which will set out the procedures that would be implemented to manage the environmental impacts of operational waste. The strategy will be written in accordance with duty of care obligations and the waste hierarchy principle. Targets to divert operational waste have not been included at this stage, however the overall objective would be to divert as much operational waste from landfill as possible. Design recommendations for the recycling and storage facilities have been included in an Outline Strategy. Operators of the units will be required to follow the measures in the Site OWMS and will be encouraged to prepare OWMS for their individual units. See details in Appendix 11.2 of the Waste Technical Paper 11 in Part 2 of the ES	An OWMS to be secured by planning condition and approved by Warrington BC prior to the commencement of construction of the relevant phase. OWMS to be implemented during construction.

9. Interaction of Effects and Cumulative Impact

- 9.1. In respect of the assessment of cumulative effects, Schedule 4 of the 2017 EIA Regulations (as amended by the temporary 2020 Regulations) states that an Environmental Statement must include a description of the likely significant effects of the development on the environment resulting from ‘*the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources*’ (Schedule 4 (5)(e)).
- 9.2. In respect of the assessment of the interaction of effects, Regulation 4 (2) of the 2017 EIA Regulations (as amended by the temporary 2020 Regulations) requires a description and assessment in an appropriate manner, of the direct and indirect significant effects of the proposed development on the interaction of the factors assessed within the ES (i.e. population and human health; biodiversity; land, soil, water and climate; and material assets, cultural heritage and the landscape).
- 9.3. For the purposes of this ES we define the cumulative and the interaction of effects as:

‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself and the synergistic effects (in-combination) which arise from the reaction between impacts of the project on different aspects of the environment.’

- 9.4. The additive impacts and their effects and the synergistic effects are considered in turn below.

Additive Impacts (Cumulative Impacts and their Effects)

- 9.5. The developments that are likely to have a cumulative impact when considered with the proposed development have been scoped with the Local Authority and Key Consultees during the preparation of this ES. This is detailed within the Scoping Request and subsequent Scoping Opinion from the LPA and further correspondence with Warrington Council confirming the approach to cumulative impacts associated with the Garden Suburb (**Appendices 12, 13 and 17**) in order to produce a list of agreed projects to be considered cumulatively.
- 9.6. The Council’s Scoping Opinion confirmed the need to consider the Warrington Garden Suburb identified in the emerging Local Plan as part of the cumulative assessment in respect of ‘Traffic

and Transport.’ The Garden Suburb has therefore been included as part of the cumulative assessment in order to address this.

- 9.7. Paragraph 6.8 of the ES Addendum Part One Report already details the difficulties in compilation and assessment of the ES and outlines the approach to cumulative development in respect of the emerging Local Plan Garden Suburb allocation, including the limitations in respect of testing this through the ES as the Garden Suburb remains at a broad masterplanning level with only indicative quantities of development. Due to the limited information available in respect of the Garden Suburb, the application Cumulative Assessment will therefore be a non-spatial assessment.
- 9.8. On this basis, the Applicants have reached an agreed position with the Council to undertake a cumulative assessment of the Garden Suburb, based on an assessment of only the quantum of development and phases of the Garden Suburb expected to be delivered in parallel with the phasing and delivery of the Application Proposals as referenced in the Project Description (Section 2) of this ES Part One Addendum Report. The quantum of development and uses assessed are detailed in **Table 9.1**.
- 9.9. A geographical search area has now been identified where it is considered that cumulative impacts could be caused together with the Proposed Development, as shown on the Cumulative Development Plan (**Appendix II** and **Table 9.1** below). Within this geographical area, through discussions with Warrington BC, during the Scoping stage of the EIA process, a site sieve has been undertaken to include the following within the Cumulative Assessment:
- Development with planning permission that is not yet constructed
 - Any existing development that needs to be considered.
 - Phases of the Garden Suburb proposed for allocation in the emerging Local Plan expected to be delivered in parallel with the phasing and delivery of the Application proposals
- 9.10. A number of sites have subsequently been identified that are likely to be relevant for consideration as part of the Cumulative Impact Assessment (CIA) and these are included within the table and figure below (also included at **Appendix II**). The table also identifies those technical areas where there is a potential relationship between the Proposed Development and the cumulative development and which will therefore be considered further in the cumulative

assessment within the ES. Where there is not considered to be a link, a reason why this will not form part of the cumulative assessment within the ES is given.

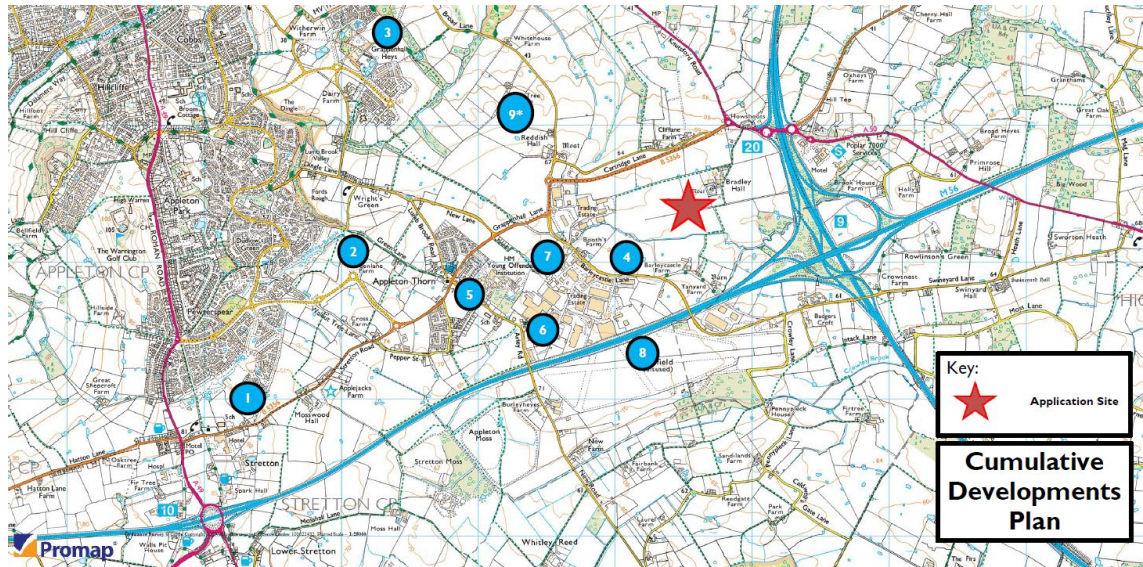


Figure 9.1: Cumulative Development Plans

	Possible Cumulative Development	Details	Status	Justification for Cumulative	To be considered in the CIA (Yes/No)
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 Applicant - HCA	Outline Planning Application for 180 dwellings.	Planning permission granted by WMBC 28-09-2017 (3 years to implement planning permission)	Potential relationship in terms of socio economic. It is a committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality. Not considered to be a link in respect of any of the other technical areas due to distance and detached nature from the site.	Yes – socio economic
2	Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant - HCA	Outline Planning Application for 370 dwellings	Planning permission granted by WMBC 22-01-2018 (3 years to implement planning permission)		
3	Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 Applicant - HCA	Outline Planning Application for 400 dwellings	Planning permission granted by WMBC 22-01-2018 (3 years to implement planning permission)		
4	Land North of Barleycastle Lane, Appleton, Warrington Liberty Properties Development Ltd & Eddie Stobart LPA Ref: 2017/31757	Full Planning application (Major) - Demolition of all existing on-site buildings and structures and construction of a National Distribution Centre building (Use Class B8) with ancillary office accommodation (Class BI(a)), vehicle maintenance unit, vehicle washing area, internal roads, gatehouse, parking areas, perimeter fencing, waste management area, sustainable urban drainage system, landscaping, highways improvements and other associated works. (Gross internal floor space of 56,197m ² , together with 1,858m ² of ancillary office)	Refused Planning Permission by WMBC 14-11-2018. <u>Decision subsequently appealed (Appeal reference: APP/M0655/W/19/3222603) and considered at Public Inquiry.</u> <u>New planning application submitted under Ref: 2019/34739 and resolution to grant planning permission at planning committee by WVC in July 2019. Referred to the SoS.</u> <u>On the 21st May 2020, the SoS confirmed that that the new application (Ref: 2019/34739) should be called in. The SoS states that as the appeal scheme and the new application scheme are</u>	Potential relationship in terms of geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise. Whilst the planning application has been refused it is still to form part of a sensitivity test for traffic and therefore included within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport; and in terms of traffic generation in respect of noise and vibration; and air quality.	Yes- geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise

			<p><u>effectively identical, they should be joined. As an inquiry has already been held into the appeal scheme, he does not consider that a further inquiry is necessary. The SoS has therefore invited representations on any material change in circumstances, fact or policy, that may have arisen since the inquiry.</u></p> <p><u>A decision on both these schemes is therefore pending.</u></p>		
5	<p>Land to the east of Stretton Road, north of Pepper Street, Stretton Road, Appleton Thorn, Warrington</p> <p>LPA Ref: 2017/31848</p>	<p>Full Planning Application for 71 dwellings</p>	<p>Planning permission granted by WMBC 24-10-2018 (3 years to implement planning permission)</p>	<p>Potential relationship in terms of socio economic.</p> <p>It is a committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality.</p> <p>Not considered to be a link in respect of any of the other technical areas due to distance and detached nature from the site.</p>	<p>Yes – socio economic</p>
6	<p>Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY</p> <p>LPA Ref: 2016/28994</p>	<p>Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping.</p> <p>(1,699m² new build, 180m² and 265m² extensions)</p>	<p>Planning permission granted by WMBC 17-02-2017 (3 years to implement planning permission)</p>	<p>Potential relationship in terms of geology and ground conditions; flood risk and drainage; socio economic; and waste.</p> <p>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.</p> <p>Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; and energy due to distance and detached nature from the site.</p>	<p>Yes - geology and ground conditions; flood risk and drainage; socio economic; and waste</p>
7	<p>Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN</p> <p>LPA Ref: 2015/25255</p> <p>Morley Estates</p>	<p>Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing</p>	<p>Planning permission granted by WMBC 16-10-2015</p>	<p>Potential relationship in terms of geology and ground conditions; flood risk and drainage; and socio economic.</p> <p>The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality.</p>	<p>Yes - geology and ground conditions; flood risk and drainage; and socio economic</p>

		and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building)		Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.	
8	Former Stretton Airfield, Warrington, WA4 4RG LPA Ref: 2014/2332 Hensmill Property	Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.	Planning permission granted 23-06-2015	Potential relationship in terms of landscape and visual impact; and socio economic. The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality. Not considered to be a link in respect of geology and ground conditions; flood risk and drainage; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.	Yes - landscape and visual impact; and socio economic
9*	Warrington Garden Suburb (as identified in the Council's Preferred Development Option Consultation Document (July 2017) and <u>Submission Version of the Local Plan (March 2019)</u>)	The Warrington Garden Suburb <u>was</u> identified as a Preferred Development Option <u>in the July 2017 Consultation Document</u> , which provides the potential development of around 7,000 new homes to be delivered over the full 20 years of the Plan, therefore we have assessed relevant phases within the Cumulative Assessment. <u>It should be noted that since the original ES was prepared and submitted the Council have published their Proposed Submission Version Local Plan (March 2019), which states that the Garden Suburb will deliver around 7,400 homes, with around only 5,100 of these homes to be delivered within the Plan Period, up to 2037. Policy MD2 of the Submission Version Local Plan does not identify a phasing or development trajectory, therefore this assessment remains based on the information contained in the Preferred Development Option Consultation Document (July 2017).</u> <u>On this basis, the cumulative assessment of 7000 homes over the plan period of 20 years undertaken as part of the original</u>		Potential relationship in terms of socio economic. The 1021 dwellings that form part of the Garden Suburb Phase 1 are already assessed as committed development (sites 1-3 above) and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality. The 15.7ha of employment land at Land North of Barley Castle Lane (Liberty Properties and Stobart) (site 4 above) and the additional 1,995 residential units expected to be delivered in Phase 2 of the Garden Suburb will be assessed in the Traffic and Transportation, Noise and Air Quality cumulative assessments based on traffic assessments and Warrington Council's Multi Model Highways Model produced for the emerging Local Plan, which takes account of additional Local Plan Growth in the area. The Cumulative Assessment will be based on the assumptions made within this model in terms of timing of delivery and distribution of traffic on the network.	Yes – socio economic

	<p><u>ES provides a robust assessment as the effects that are being tested exceed those that are reasonable and therefore a worse case is being assessed.</u></p> <p>Using the Development Trajectory (Table 20 Garden City Suburb Employment Land Trajectory of the Preferred Development Option Consultation Document) we have based the cumulative assessment ONLY on the quantum of development within the Garden Suburb expected to come forward in parallel with the delivery timeframe for the Six 56 Application Proposals.</p> <p>*Due to the limited information available in respect of the Garden Suburb, the Six 56 Warrington Cumulative Assessment will be a non-spatial assessment.</p>		<p>Agricultural Land and Socio Economic cumulative assessments will be based on the residual residential quantum of development (1995 dwellings) identified in the Garden Suburb Phase 2.</p> <p>There is not sufficient information available in terms of spatial delivery for cumulative assessments to be undertaken in respect of the other technical areas, which include Geology and Ground Conditions; Flood Risk and Drainage; Landscape and Visual Impact; Ecology and Nature Conservation; Cultural Heritage and Archaeology; Utilities; Waste; and Energy. As such it is not possible to undertake a cumulative assessment in respect of these technical areas.</p>	
Warrington Garden Suburb Phase	Uses and Quantum identified in Preferred Development Option (July 2017)	Uses and Quantum to be identified in Six 56 Cumulative Assessment		
Phase 1 0-5 years Assumed 2020-2025	<p>406 residential units (non- Green Belt sites)</p> <p>22ha employment (employment areas include Six 56 Warrington and Land around Barley Castle Lane)</p>	<p>Six 56 Proposals will be under construction, with part delivered within Phase 1 of the Garden Suburb.</p> <p>The following form part of the Garden Suburb Phase 1 and will be included within the Cumulative Assessment:</p> <ul style="list-style-type: none"> • HCA sites (950 dwellings)* • 71 dwellings associated with land to east of Stretton Road* • Land North of Barley Castle Lane (Liberty Properties and Stobart) (LPA Ref: 2017/31757) - 15.7ha* <p>*Note that these sites are already included as part of the Cumulative Assessment and already referenced as sites 1, 2, 3 and 4.</p>		
Phase 2 6-10 years Assumed 2026-2030	<p>2610 residential units (includes 496 non-Green Belt sites and 2,114 Green Belt sites)</p> <p>30.3 ha employment (employment areas include Six 56 Warrington and Land around Barley Castle Lane)</p>	<p>Six 56 Proposals will be completed during <u>2027/2028-2029.</u></p> <p>The following form part of the Garden Suburb Phase 2 and will be included within the Cumulative Assessment:</p>		

			<p>Garden City Suburb Phase 1 and 2 employment land equates to 52.3ha, beyond the 30 ha referenced in the Phase 1 and Phase 2 employment trajectory set out in the PDO.</p> <p>Six 56 Warrington developable area and planning application for Land North or Barley Castle Lane (LPA Ref: 2017/31757) already equates to 77.52 ha and is already included as part of the Cumulative Assessment.</p> <p>Garden Suburb Phase 1 and 2 residential units equates to a total of 3016 units. The Cumulative Assessment already includes 1,021 residential units.</p> <p>Therefore this Cumulative Assessments should include an additional 1995 residential units (i.e. the residual number of units identified in Preferred Development Option that not already included within Six 56 Cumulative Assessment)</p>		
Phase 3 11-15 years Assumed 2031-2035	2,144 ha residential units 45.9 ha employment		<p>The Six 56 Proposals will be fully operational</p> <p>Given this Phase of the Garden City Suburb will be beyond the delivery of Six 56 Proposals this phase will not to be included within the Six 56 Cumulative Assessment</p>		
Phase 4 16-20 years Assumed 2036-2040	2,144 residential units 18.6ha employment		<p>The Six 56 Proposals will be fully operational</p> <p>Given this Phase of the Garden City Suburb will be beyond the delivery of Six 56 Proposals this phase will not to be included within the Six 56 Cumulative Assessment</p>		

Table 9.1: Cumulative Developments

Description of Cumulative Activities

- 9.11. This Environmental Statement has sought to consider cumulative effects in a number of ways. The Technical Papers and their Addendums in Part 2 of the ES have considered the cumulative effects relating to the particular topic being discussed. The cumulative assessments are therefore set out in greater detail in Section 10 of each of the technical papers and their Addendums in Part 2 of the ES. This section however provides an overview of the cumulative assessments undertaken as part of the environmental assessment work.
- 9.12. In summary, the main potential for the cumulative effects are associated with the following sites:
- 9.13. Stobart's and Liberty Properties proposals for a National Distribution Centre on Barley Castle Lane. ~~Whilst this currently has no committed status following its refusal, a revised application and or appeal is expected to be submitted in Q2 of 2019.~~ A highways sensitivity test for traffic associated with this development has been undertaken as part of the Updated Transport Assessment appended to the Traffic and Transportation Addendum Technical Paper 2 in Part 2 of this ES given a decision on this is pending following approval of a re-submitted application at planning committee in June 2019 and the recent SoS Call In of this application confirmed in May 2020. ~~Therefore~~ This has not therefore been reconsidered in the cumulative assessment for traffic and transport; or in terms of the cumulative environmental effect of noise and vibration and air quality generated by this traffic. This section will summarise any cumulative impacts associated with this site in terms of geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; agricultural land and operational noise.
- 9.14. Other sites referenced include residential sites 1, 2, 3 and 5 granted outline planning permission referenced in **Table 9.1**. These sites are assessed as committed development within the Transport Assessment, therefore they have not been reconsidered in the cumulative assessment for traffic and transport, noise and vibration and air quality. Whilst there is a potential socio economic effect on the Proposed Development site, there is no link or cumulative effect in respect of any other technical areas due to the distance of these sites from the Proposed Development and the detached nature from the site.
- 9.15. In terms of the proposed industrial developments granted planning permission at sites 6, 7 and 8 referenced in **Table 9.1**, traffic generation is not considered to be significant and therefore there is not considered to be a cumulative impact or link in respect of traffic and transport;

noise and vibration; and air quality. This section will now summarise any cumulative impacts associated with these sites in terms of geology and ground conditions; flood risk and drainage; socio economic and waste.

- 9.16. The Warrington Garden Suburb is identified as a Preferred Development Option in the Council's Preferred Development Option Local Plan Consultation Document (July 2017) and the Proposed Submission Version of the Local Plan (~~April~~ March 2019). This provides the potential development of around ~~7,000-7,400~~ new homes, with 5,100 of these homes to be delivered alongside all the employment development in the Garden Suburb over the Plan Period. For the purposes of this Assessment we have used the Development Trajectory (Table 20 Garden City Suburb Employment Land Trajectory of the Preferred Development Option Consultation Document) and have based the cumulative assessment ONLY on the quantum of development within the Garden Suburb expected to come forward over Phase 1 and 2 of their trajectory in parallel with the delivery timeframe for the Application Proposals.
- 9.17. The Application Proposals will be under construction, with part delivered when Phase 1 of the Garden Suburb is expected to be delivered. This comprises Cumulative Sites 1, 2, 3 and 4 already referenced in Table 9.1 and assessed as committed development, therefore they have not been reconsidered in the cumulative assessment for traffic and transport, noise and vibration and air quality.
- 9.18. The Application Proposals are programmed for completion during ~~2027/2028-2029~~. This is in parallel with delivery of Phase 2 of the Garden Suburb, which proposes 2610 residential units and 30.3 ha employment land. This employment land identified in this Phase of the Local Plan includes the Application Proposals and Stobart's and Liberty Properties proposals for a National Distribution Centre on Barley Castle Lane, therefore these do not need to be considered as part of any cumulative assessment. As Cumulative Sites 1, 2, 3 and 4 have already been assessed as committed development in the cumulative assessment for traffic and transport, noise and vibration and air quality, the residual number of residential dwellings delivered within the Council's Phase 2 trajectory which will be assessed as part of this cumulative assessment is 1995 dwellings. It is not reasonable to assess the cumulative impact of later phases of the Garden Suburb as the Application Proposals will be completed, prior to delivery of these phases.
- 9.19. In addition to the traffic and transportation cumulative impacts assessed in the Addendum Traffic and Transportation Technical Paper 2 in Part 2 of this ES, this section will also summarise any cumulative impacts associated with the residual residential quantum of development (1995

dwelling) identified in the Garden Suburb Phase 2, in terms of agricultural land soils and socio economic.

- 9.20. There is not sufficient information available in terms of spatial delivery for cumulative assessments to be undertaken in respect of the other technical areas, which include geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; cultural heritage and archaeology; utilities; waste; and energy.
- 9.21. In respect of socio economic impacts, these have been considered over the short, medium and long term during both the construction and operational phases.
- 9.22. Each of the cumulative schemes would be expected to generate temporary short-term construction employment and an associated increase in economic output during their construction phases, which would represent a significant boost to the local economy. A quantitative assessment of each scheme has not been made, due to the limited information available in some cases but it is estimated that the cumulative schemes combined could support the creation of approximately 8,200 person years of construction employment, including additional training and apprenticeship opportunities. The total GVA impact of this could amount to around £278 million over the course of the construction period.
- 9.23. The cumulative schemes would, if implemented, bring forward new commercial floorspace. Although the data available about these schemes is limited, it is possible to make an estimate of the number of jobs that will arise from these schemes by using standard employment density benchmarks¹, or by drawing upon existing socio-economic impact assessments for specific schemes, where available. However, this is only presented at a gross level (i.e. without additionality adjustments for each cumulative scheme).
- 9.24. The cumulative schemes identified in **Table 9.1** that include an element of commercial floorspace could cumulatively support approximately 700 gross jobs. When considered in combination with the Proposed Development, the cumulative effects on employment creation would equate to over 4,800 gross jobs. This could generate approximately £270 million of gross GVA per annum, once the developments have all come forward and have been fully

occupied. On this basis, the scale of cumulative impacts is considered to be significant at the Warrington and wider impact area level of Cheshire and Warrington LEP..

- 9.25. The cumulative schemes that include an element of residential development would cumulatively generate up to 3,016 new residential housing units. On the basis that the average household size in Warrington is 2.4 (Source: Census 2011), this could mean an increase in population of some 7,328 people.
- 9.26. The new residential developments would both generate additional local household expenditure and Council Tax receipts for Warrington Council. The cumulative impact could amount to approximately £66 million of additional household expenditure, once all the dwellings are constructed and then occupied.
- 9.27. Although it will depend on when the cumulative schemes are brought forward, it has been assumed that its short-term cumulative impact will be generated by those residential schemes that hold planning permission and are expected to come forward within five years. These would collectively generate 698 gross jobs and 1,021 new housing units over the short-term.
- 9.28. It has been assumed that medium term cumulative impacts will be generated by those schemes that comprise of emerging site / strategic allocations that are yet to be brought forward and are likely to come forward within the next 6-10 years. This includes the Warrington Garden Suburb Phase 2 schemes that will provide 1,995 new housing units in parallel with the delivery of the Proposed Development. In summary, there will be significant beneficial cumulative impacts as a result of the various cumulative developments identified coming forward, in the short and medium term. This new housing will be in proximity to the jobs created by the Proposed Development which will allow for non-car borne modes to be utilized for journeys to work. This is a further beneficial cumulative impact.
- 9.29. In respect of ground conditions and contamination, as the cumulative developments will take place at differing times, and the identified negative impacts are restricted to the construction phase, the various phases of work will not create a cumulative impact. In summary there are no cumulative impacts associated with any of the cumulative development sites as current contaminated land legislation dictates that following development, a site must be suitable for use (i.e. not represent a plausible source of contamination to both human health and the wider environment), therefore, any development undertaken in isolation will have to prevent any

impact on other developments. Similarly, other committed developments will have to ensure the same.

- 9.30. In respect of flood risk and drainage, the construction and operational cumulative impacts of the Stobart's and Liberty Properties proposals for a National Distribution Centre (Site 4) and the industrial developments at Barley Castle Trading Estate (Site 6) and Barley Castle Lane (Site 7) on receiving waters and sewers have been studied and following agreement with the EA, LLFA and UU have confirmed that capacity exists in the proposed receiving waters (Bradley Brook and the foul sewer system in Appleton Thorn) to accept the Development Site flows, therefore the cumulative impacts are negligible and no greater than those assessed for the Proposed Development.
- 9.31. In terms of traffic generation and also the resulting effects of this in respect of noise and air quality, many of the developments considered in the cumulative assessment are already part of the baseline or future baseline as they have the benefit of planning permission and as such are committed development. These committed developments are not therefore considered again as part of the cumulative, as this would result in the double counting of the impacts of development. The cumulative developments being considered are therefore the Garden Suburb and the Liberty Properties and Stobart's proposals. These are all included in the Council's WMMTM to provide a high-level assessment of the impacts across the wider network.
- 9.32. The results detailed in the Traffic and Transportation Addendum Technical Paper 2 in Part 2 of this ES demonstrate that if the entire development came forward in 2021, impacts in the AM peak period would only be in excess of 5% at six locations. This includes the M6 J20 and Cliff Lane Roundabout to the east of the development which is to be expected given the proximity of the site to the motorway. The results demonstrate that if the entire development came forward in 2021, impacts in the PM peak period would also be in excess of 5% at six locations. This includes the M6 J20 and Cliff Lane Roundabout to the east of the development.
- 9.33. The 2021 assessment results assume full completion of the development. In reality the development is unlikely to be completed until 2028/2029 and on this basis attention should be focused on 2031.
- 9.34. The results for all scenarios appear to show a significant amount of HGV traffic arriving and departing from the west or north west via the Grappenhall Lane/Broad Lane roundabout. This

is counter intuitive given the location of the site adjacent to the M6 J20, and the fact that there are HGV restrictions to the west of the site.

- 9.35. Some of the HGV restrictions to the west of the site have not been included in this version of the WMMTM. The loading point (Access) for the Proposed Development is also located to the south of the Broad Lane roundabout on Barleycastle Lane. This is much further to the west than in reality with the actual access being located on Grappenhall Lane to the east of then Broad Lane roundabout; and the WMMTM model does not include consideration of any mitigation at the M6 J20.
- 9.36. Discussions with Highways Officers at WBC have indicated that flows to the west are likely to be lower than predicted in further iterations of the Local Plan modelling, particularly as a result of the mitigation proposed at the M6 J20.
- 9.37. In summary, it is recognised that there will be traffic and transport impacts during the operational phase resulting from both the committed development and cumulative development, associated with the Garden Suburb, however the highway mitigation for these cumulative development sites remain to be developed and hence this “pre-mitigation” situation is deemed worse case. However, with the highway mitigation measures proposed at the A50/Cliff Lane roundabout and M6 J20 roundabouts as part of the Proposed Development and other relevant highways mitigation schemes associated with future planning applications within the Garden Suburb being delivered, any cumulative impact will be reduced.
- 9.38. In air quality terms, there is the potential for cumulative impacts to arise if construction activities at other cumulative development sites take place within a distance of 700 m of the proposed development site boundary, during the same period as construction activities at the proposed development. Mitigation of construction phase dust through specific mitigation measures, controlled through a Construction Environmental Management Plan (CEMP) will result in a negligible impact and no significant cumulative effects would occur.
- 9.39. During the medium and long term operational phases of the Proposed Development, there is the potential for air quality impacts to occur from cumulative traffic, however based on the traffic data modelled which already includes cumulative development Sites 1 to 5 referenced in **Table 9.1**, the air quality cumulative effects are not considered to be significant.

- 9.40. In terms of noise and vibration, the cumulative impact assessment uses the traffic modelling data contained in the WMMTM. Two cumulative assessment scenarios have been considered at the future years of 2021 and 2029 with no mitigation consistent with the WMMTM. This represents a worst-case assessment of all known potential developments which are likely to influence the study area. This represents a worst case scenario and includes the Proposed Development Site and the ~~refused~~ Liberty Properties / Eddie Stobart development. No other cumulative developments have been considered as they are sufficiently far away from the development site.
- 9.41. Cumulative impacts associated with construction noise and vibration if both sites were built out with similar build programmes will be neutral to minor adverse at affected receptors.
- 9.42. It is assumed that (if ~~any~~ the new application is approved ~~or appeal allowed~~) the Liberty Properties and Stobart's will be designed to limit the cumulative impact of noise and vibration at sensitive receptors during both construction and operational phases as part of their own scheme of mitigation. Sensitive receptors expected to be affected by the cumulative impacts associated with both development are those to the southwest of the site, including Tan House Farm, Barleycastle Farm, Beehive Farm and Booths Farm. The possibility of cumulative noise impacts associated with receptors located elsewhere, is significantly reduced due to distance and acoustic screening afforded by the proposed industrial units. The cumulative assessment assumes a +3 dB increase at nearby receptors, which would represent a doubling in the number noise sources affecting the receptors (assuming the noise sources are identical) and is considered worst-case. This 3 dB increase in predicted noise levels at the receptors, would potentially increase noise magnitude at some receptors, but the significance of effect would be minor adverse at worst. Assuming the presence of highly sensitive receptors on all road links assessed in the locality of both sites, it is predicted that the significance of effect of cumulative traffic noise will be neutral to adverse minor.
- 9.43. In respect of landscape and visual impacts, the construction and operational phases of cumulative development sites have been assessed in the short, medium and long-term impact. In terms of cumulative development for Site 8 (the former Stretton Airfield development located on the southern side of the M56 motorway), there are no cumulative landscape or visual effects associated with this development either in the short or long term, due to the degree of visual separation that exists between the two developments.

- 9.44. With regards to the proposed Liberty Properties Developments and Eddie Stobart National Distribution Centre (Site 4) the assessment considers the cumulative effects of the development at completion years 1 and 10, despite this application being refused. The landscape assessment contained in the LVIA Addendum Technical Paper 4 in Part 2 of this ES has recorded moderate/major adverse effects at years 1 and 10 in relation to the Application Site Proposals. The construction of the Stobart's scheme will consolidate the presence of large-scale industrial development in this area and the resulting permanent change to local landscape character although this is mitigated to some degree by its closer proximity to existing, although generally smaller, industrial units. It is assessed, therefore, that the cumulative effects would not increase as a result of this development.
- 9.45. The greatest effects will be the visual impact views of the site with a number of viewpoints experiencing adverse visual effects associated with the Proposed Development and the Stobart's scheme. The location of Stobart's scheme has the potential to be visible from viewpoints and users of PROW and the local road infrastructure. Views from the north represented by viewpoints including viewpoint 7 and 8 are looking towards the Application Site Proposals and towards this development. Distance to view and topography suggest that it would not be visible and the construction of Units 5 and 6 on the updated Illustrative Masterplan would in any case prevent views towards it.
- 9.46. Viewpoint 24 is from a location west of both sites and Unit 4 has been assessed as being visible from this viewpoint. It is possible that the uppermost section of this development will also be visible although likely broken or filtered by existing vegetation. This is assessed as not having any significant cumulative effect from this viewpoint. Viewpoints to the south of the M56 such as viewpoints 15, 16, or 21 are also not assessed as incurring any change in view resulting from this development. Topography, existing vegetation and distance mean that the development is unlikely to be visible from these locations and, therefore there are no cumulative visual effects. Refer Receptors Plan in **Appendix 6** for plan showing viewpoint locations.
- 9.47. The greatest cumulative visual effect is likely to be for users of Barleycastle Lane. Currently the Stobarts site is agricultural fields and provides a greater depth of field and contrast to the surrounding industrial park to the south and north. This development will foreshorten views for users of the lane and would screen views towards the Application Site Proposals. The most obvious effect, however, will be a sequential one with travellers in either westerly or easterly directions experiencing closer and greater visibility of proposed development. In view of the

fact that the industrial park to the south of the lane extends virtually level with the proposed distribution centre site, the cumulative effects is not considered to significantly increase any adverse visual effects for users of the road.

- 9.48. Residential properties along Barleycastle Lane are also likely to experience adverse cumulative visual effects, particularly as this will bring visible development closer to them, in particular Barley Castle Farm which is closest to the Stobarts site, but also Birchels Gorse which lies further to the east. Adverse cumulative visual effects are considered greatest with the former due to its closer proximity although this is mitigated to some degree by the location of outbuildings and the orientation of windows being predominantly in a north south direction. The increased distance and similar orientation of window within Birchels Gorse provides similar mitigation to a small degree. Due to the significant adverse visual effects of the Proposed Development upon these properties, however, results in the assessment are not recording any significant cumulative visual effects.
- 9.49. In summary, there will be some significant landscape and visual effects when the Proposed Development Site is considered with the Stobart's scheme, due to the increased visibility to the surrounding landscape character and dominance of built form where there was previously none before. Mitigation in the form of significant landscaping, bunds and proposed screen planting will mature, soften and screen the proposed developments to soften the impact and views of both sites, which will benefit the receptors most affected by the development in particular, reducing this cumulative impact in the long term.
- 9.50. Whilst there is limited spatial information available at the time of this assessment, associated with the wider Garden Suburb proposed within the emerging Local Plan, any settlement expansion will have a significant cumulative landscape and visual effect on the character of the area. With respect to the Proposed Development Site, this would, over what is expected to be a medium to long time frame, serve to amalgamate the site into a new wider urban development. Should the Garden Suburb come forward, the long-term effect of the development is therefore anticipated to be reduced by its inclusion within a new and major extension to the settlement boundary.
- 9.51. Only the Cumulative ecological effects of the Liberty Properties and Eddie Stobart National Distribution Centre (Site 4) are expected to have any combined short, medium and long term impact through the loss of farmland habitats and a reduction in dispersal opportunities for some species, given the proximity of both development. However, mitigation proposals in respect of

other habitats and species on site with a safeguarded Ecological Mitigation Area and 15m buffer from Bradley Brook to the south of the Application site should ensure negligible impacts for other habitats and species in terms of habitat loss therefore significant cumulative effects in this respect are unlikely.

- 9.52. Cumulative ecological effects associated with other cumulative sites identified in **Table 9.1** are unlikely due to physical distance and separation by other existing developments. Small scale developments also means that habitat losses are unlikely to be significant for populations of species identified as ecological features of the site.
- 9.53. The cumulative impacts of the proposed development and the Garden Suburb on agricultural land has been considered. The long term effects of the Garden Suburb to the north of the Site will see the loss of a larger area of agricultural land than the Application Site, if this was to be allocated, approved and constructed. There has been no detailed land classification carried out on all the land to the north, however the Provisional ALC survey 1968-1972 carried out by MAFF showed the agricultural land occupied by the Garden Suburb consists mainly of grades 2, 3a, and 3b. It is not possible to accurately state how much of the 'best and most versatile' land would be lost however, if we assume that the split of land grades is similar to the Proposed Development site, then the potential combined land loss of the two proposals could see a loss of around 800 ha of agricultural land. 200 ha could be 'best and most versatile' land. In summary, in combination the developments could result in the loss of 'best and most versatile' agricultural land assessed as a regional receptor, therefore there is a long term adverse impact which cannot be mitigated.
- 9.54. Only the Liberty Properties and Eddie Stobart National Distribution Centre (Site 4) are expected to have any combined short, medium and long term cumulative heritage impact on the setting of Grade II* listed Tanyard Farm building and the Grade II listed Barley Castle Farmhouse that lie to the northwest of the Proposed Development Site. The cumulative impact will be no worse than the impacts of the Proposed Development and will have a minor adverse impact as a result of the visual intrusion of these proposed buildings on the listed buildings and loss of the post-medieval agricultural landscape. In the long term, these cumulative effects will reduce during operational phases of development as a result of mitigation in the form of maturing landscape and vegetation.
- 9.55. In terms of waste, the cumulative impacts associated with the Liberty Properties and Eddie Stobart scheme (Site 4) and the two industrial sites at Barleycastle Trading Estate (Site 6) and

Barley Castle Lane (Site 7) have been considered given the potential relationship during operation as similar waste streams may be generated therefore requiring similar waste management facilities.

- 9.56. The generation of construction and demolition waste by the Proposed Development Site would be temporary in nature and as such, the existing waste management infrastructure would be able to accommodate the construction of new developments as they arise. A cumulative effect on this waste stream may arise if a number of cumulative developments come forward at the same time, thereby putting pressure on existing infrastructure. However, construction impacts associated with the Proposed Development Site will only have minor adverse effects on the existing waste management infrastructure, therefore the cumulative effects of the Site in combination with other concurrent developments would still not be significant.
- 9.57. In the medium to long term, measures would be implemented during the operation of the Proposed Development Site to maximize the diversion of waste from landfill in accordance with the recommended policy in the Waste Local Plan and national waste policy. Where possible, waste would be managed through the Borough's treatment and recycling facilities. The Waste Arising's and Capacity Requirements Report (Warrington Borough Council, 2017) predicts that with the exception of non-hazardous and inert landfill, the existing and proposed facilities provide adequate capacity for at least the remaining period of the Local Plan period. On this basis, this will lead to a reduction in the reliance on landfill, therefore the cumulative impacts will not be significant.
- 9.58. There will be short and medium term cumulative impacts in respect of energy during construction phases associated with an increase in CO₂ levels, NO_x levels and associated Utility Services demand. This has however been considered within spare capacities in order to mitigate the effects of future development in regard to energy use, therefore the cumulative impacts would not be significant. In the long term, following opening and operation of the developments, there will be additional impact on carbon emissions. Any long term cumulative effect will be reduced by the implementation of specific technologies and low carbon design features which will be established at the detailed design stage of each building.
- 9.59. In terms of utilities, in the short term during construction there are no significant effects envisaged. In the long term, there are a number of cumulative development sites, therefore the timing of these developments may impact on the availability of utility supplies. To limit any availability of utilities, any proposed capacity applied for when seeking an electrical point of

connection, should incorporate the spare capacity for potential future requirements, therefore reducing any long term cumulative impact.

Summary

- 9.60. The overall assessment and impact of the Proposed Development Site when considered cumulatively with other cumulative sites in respect of ground and contamination, drainage and flood, ecology and nature conservation, air quality, utilities, energy and waste are not considered to be significant.
- 9.61. There are some significant adverse impacts arising as a result in the change to the landscape and the visual impact for some of the viewpoints closest to the site at both construction and operational phases. Each development will however mitigate these impacts as far as possible with bunding and/or landscape proposals to try and soften their appearance and help to screen their presence in the landscape.
- 9.62. In combination with other sites, there will be a permanent loss of an estimated 200 ha of 'best and most versatile' land, which is a significant long term adverse impact which cannot be mitigated.
- 9.63. There will be some minor adverse impacts on the setting of nearby listed buildings as a result of the visual intrusion of these proposed developments on the listed buildings and loss of the post-medieval agricultural landscape. In the long term, these cumulative effects will reduce as a result of mitigation in the form of maturing landscape and vegetation.
- 9.64. There are some minor adverse noise impacts as a result of the Proposed Development combined with the Liberty and Stobart's scheme (subject to its future delivery) and road noise on sensitive receptors, will be neutral to minor adverse.
- 9.65. There are some adverse impacts arising from the traffic generated during the operational phases of the development combined with committed and cumulative developments assessed as part of the WMMTM, although it is noted that this is an extreme worst case assessment and that each future scheme will need to assess the impacts of their own development and mitigate accordingly.
- 9.66. There will be significant socio economic cumulative benefits in terms of GVA and job creation, which will significantly boost the local economy and also the benefits of new housing being in

close proximity to the jobs created by the Proposed Development which will allow for non-car borne modes to be utilized for journeys to work. .

Synergistic Effects (In-Combination / Interaction of Effects)

9.67. This section considers how the various factors associated with the site will interact across both the construction and operational phases. There are two key areas of interactions which are likely to occur, these being:

- Interaction of construction effects – related impacts in terms of ground, agricultural land and soils and water; air, noise and traffic; landscape, ecology and drainage; ecology and noise; and ground and noise.
- Interaction of operational impacts – related impacts associated with those arising from the proposed land uses for the site focusing upon traffic and consequential noise and air implications; landscape, ecology and drainage; cultural heritage and landscape; and to a lesser degree, utilities and landscape.

9.68. The different types of receptors are categorised as follows:

- Humans- (a) long term human receptors- residents, business users; and (b) transient human receptors, including pedestrians, cyclists, drivers and public transport users, construction workers.
- Property- residencies and business uses.
- Ecological- habitats, including protected sites or species.
- Historic Environment– heritage assets
- Landscape - character areas
- Controlled waters- surface waters like water courses or groundwater (aquifers).
- The economy
- Local waste infrastructure i.e. landfills, recycle and recovery facilities

9.69. Where all individual residual effects associated with a single receptor group are neutral or negligible there is no requirement to consider in-combination effects as these effects would not be significant. Where at least one effect on a receptor, after mitigation measures are determined, is minor adverse, or greater, then all identified effects (including neutral or negligible) should be reviewed to determine whether there are likely to be in-combination effects upon this particular receptor.

9.70. These effects are considered in Section 11 of each of the Technical Papers in Part 2 of this ES and brought together and discussed in more detail, based on the construction and operational stages below.

Construction

9.71. The table overleaf identifies the worst case residual outcome for each of the technical assessments in respect of each of the receptor categories for the construction phase of the development. “A” refers to Adverse; “N” refers to Neutral / Negligible; and “B” refers to Beneficial as shown below:

A	Adverse effects
N	Neutral / Negligible effects
B	Beneficial effects

Receptor Category	Ground Conditions and Contamination	Traffic and Transport	Drainage and Flood Risk	Landscape and Visual Impact	Ecology and Nature Conservation	Socio Economic	Noise and Vibration	Air Quality and Dust	Cultural Heritage and Archaeology	Utilities	Waste	Energy	Agricultural Land & Soil	Synergistic Effect
Humans	N	A	N	A	-	B	A	N	-	N	-	A		Yes
Property	-	-	N	-	-	-	-	N	-	-	-	-	A	Yes
Ecology	-	-	-	-	A	-	-	-	-	-	-	-	-	No
Historic Environment	-	-	-	A	-	-	-	-	A	-	-	-	-	Yes
Landscape	-	-	-	A	-	-	-	-	-	-	-	-	-	No

Receptor Category	Ground Conditions and Contamination	Traffic and Transport	Drainage and Flood Risk	Landscape and Visual Impact	Ecology and Nature Conservation	Socio Economic	Noise and Vibration	Air Quality and Dust	Cultural Heritage and Archaeology	Utilities	Waste	Energy	Agricultural Land & Soil	Synergistic Effect
Controlled Water	N	-	N	-	-	-	-	-	-	-	-	-	-	No
Economy	-	-	-	-	-	B	-	-	-	-	-	-	A	No
Local Waste Infrastructure	-	-	-	-	-	-	-	-	-	-	A	-	-	No

Table 9.2: Possible Synergistic Effects during Construction

- 9.72. From the above tables it can be seen that for the construction phase, the human, property and historic environment receptors are most likely to be subject to synergistic effects.
- 9.73. The controlled water receptors are also vulnerable to synergistic effects, but as the assessment for the Proposed Development identified these effects as being no greater than negligible, it can be concluded that there will be no significant synergistic effects.
- 9.74. In respect of the likely impacts on human and properties (which includes residents and businesses), the impacts associated with traffic and transport, landscape and visual impact, socio economic, noise and vibration, loss of and agricultural land/business and energy (as a result of an increase in CO₂, NO_x emissions and water consumption) could combine to create a significant impact on humans, particularly those in close proximity to the site.
- 9.75. In respect of socio economic, the effects associated with job creation during the construction phase, increased GVA and training and apprenticeship opportunities have been assessed as being beneficial, however the effects of traffic and transportation associated with the increased construction traffic movement are minor adverse, The loss of an agricultural business comprising best and most versatile agricultural land (27% of the total Site area) and the impact

this loss has on the landscape character of the site will be moderate/minor adverse, given top soil will be kept and re-used on site as far as is possible.

- 9.76. In respect of ground conditions and contamination and air quality and dust, the effects associated with inhalation or ingestion of dust by site workers or adjacent residents have been assessed as being negligible. Noise associated with construction traffic and vibration from construction activities and dust arising from construction activities is assessed as having a neutral to minor adverse effect on residential receptors and site workers. The effects of utility disconnections and diversions are considered to be negligible.
- 9.77. These effects are therefore not considered to be significant when considered on their own and are unlikely to combine with other effects to become significant due to their negligible or neutral impacts.
- 9.78. These effects are therefore not considered to be significant on their own, however potential exists for these to be more significant when considered in combination with one another on a single receptor.
- 9.79. The visual impact in respect of residential receptors and from transport and PROW routes are considered to be adverse during construction, due to the change and disturbance that will occur to the landscape during this time, with an adverse impact on a number viewpoints during construction (plan of viewpoints can be found at **Appendix 6**).
- 9.80. There are a number of physical measures that will be in place as part of the inherent mitigation (such as the bunding that will be created as part of the earthworks at an early stage in the construction) and a commitment to other mitigation such as the implication of a CEMP to manage construction activities and help mitigate the effects of the construction phase. The CEMP will include measures to limit the hours of working, co-ordinate on-site construction movements; manage potential conflicts between construction activities and vehicle movements; promote car sharing for site workers; provide parking provision with the Site; notification of public and local businesses as to the works being carried out; and implement measures to prevent dirt and dust on the local roads. This will all help to manage and mitigate the impact on receptors as far as is possible, especially those effects that can combine to have a greater overall effect.

- 9.81. There are still however potential for adverse synergistic effects on some receptors in respect of visual, earthworks and construction traffic. The greatest effect will be on the nearest residential receptors (e.g. Bradley Hall Cottages and Bradley Hall View) who are likely to be affected by all or some of these impacts at some point during the construction phase.
- 9.82. The construction phase is temporary and different parts of the Site will be worked at different times, which aids the management of the combination of the likely impact on any one receptor. The phasing relates to site enabling and infrastructure works taking place in the first 6 months of construction, with the construction of buildings phased thereafter, over a period of 6.5 years, delivered on a plot by plot basis. After the initial earthworks, the bunds will have been created, which will help to minimise the impacts on residential receptors, particularly in respect of construction noise, dust and visual impacts. Landscaping will also be planted as early as possible to help soften the impacts of the Proposed Development and enable it to start establishing as soon as possible.
- 9.83. For the human and property receptors at closer range to the Site, such as residential properties at Bradley Hall View and Bradley Hall Cottages, the in-combination effects have the potential to be significant, but will be managed as identified above to minimise the effects so they are no greater than those assessed individually within the ES.
- 9.84. In respect of the historic environment receptors, the likely in-combination effects are associated with visual impact and impacts on the heritage assets, which in this case is indirect on the setting of the assets (Scheduled Ancient Monument of Bradley Hall moated site, Locally Listed Bradley Hall, Grade II* Listed Tan House Farm, and Grade II Listed Beehive Farmhouse and Barley Castle Farmhouse).
- 9.85. The in combination effects of the Proposed Development on the setting and visual impact have been assessed as moderate/major adverse during construction. The visual impact generally on landscape character is considered to be significant. In combination the effects on these heritage assets are assessed as moderate/minor adverse and have the potential to be significant. However, as identified above for the human and property receptors, mitigation will be put in place to manage and limit the individual and synergistic effects on these receptors through activities such as the creation of bunds and early landscape planting and with the implementation of a CEMP to control and manage the construction activities and their impact on receptors. The synergistic effects on the heritage receptors are therefore not considered to be any greater than those assessed individually within the ES.

Operation

9.86. The table overleaf identifies the worst residual outcome for each of the technical assessments in respect of each of the receptor categories for the operation phase of the development. “A” refers to Adverse, “N” refers to Neutral / Negligible, and “B” refers to Beneficial.

A	Adverse effects
N	Neutral / Negligible effects
B	Beneficial effects

Receptor Category	Ground Conditions and Contamination	Traffic and Transport	Drainage and Flood Risk	Landscape and Visual Impact	Ecology and Nature Conservation	Socio Economic	Noise and Vibration	Air Quality and Dust	Cultural Heritage and Archaeology	Utilities	Waste	Energy	Agricultural Land & Soil	Synergistic Effect
Humans	N	A	B	A	-	B	A	N	-	N	-	A	-	Yes
Property	-	-	B	-	-	B	-	N	-	N	-	N	N	No
Ecology	-	-	-	-	N	-	-	-	-	-	-	-	-	No
Historic Environment	-	-	-	A	-	-	-	-	A	-	-	-	-	Yes

Receptor Category	Ground Conditions and Contamination	Traffic and Transport	Drainage and Flood Risk	Landscape and Visual Impact	Ecology and Nature Conservation	Socio Economic	Noise and Vibration	Air Quality and Dust	Cultural Heritage and Archaeology	Utilities	Waste	Energy	Agricultural Land & Soil	Synergistic Effect
Landscape	N	-	-	A	-	-	-	-	-	-	-	-	-	No
Controlled Water	N	-	B	-	-	-	-	-	-	-	-	-	-	No
Economy	-	-	-	-	-	B	-	-	-	-	-	-	-	No
Local Waste Infrastructure	-	-	-	-	-	-	-	-	-	-	A	-	-	No

Table 9.3: Possible Synergistic Effects during Operation

- 9.87. From the table above it can be seen that for the operation phase, the human, property and historic environment are the most likely to be subject to synergistic effects.
- 9.88. Taking the likely impacts on human and properties (which includes residents and businesses) first, the impacts associated with flood risk and drainage are assessed as beneficial, as the drainage strategy proposed incorporates SUDs, swales and attenuation ponds with a control of flows from the site, therefore there is a benefit to the human and property receptors in respect of drainage and flood risk. As such the interaction of these effects can only be beneficial to the human and property receptors. The effects on air quality in respect of traffic movements are assessed as negligible and therefore not significant.
- 9.89. Effects in respect of socio economic are all beneficial (creation of long-term employment and effect on the labour market, increase in GVA and training and apprenticeship opportunities), Operational effects in respect of utilities and energy are assessed as negligible, given the utilities are installed at construction stage.

- 9.90. The increase in traffic and the resulting effects on driver delay and amenity and severance for pedestrians and cyclists on the local highway network is assessed as negligible to minor adverse. The operational noise from the Site and effects on property and human is assessed as minor to moderate adverse, however the in-combination effects of noise on humans resulting from the increase from traffic on the local road network is assessed as negligible to minor adverse. There are a number of physical measures that will be in place as part of the inherent mitigation such as the bunding that will be created as part of the earthworks and acoustic barriers that will mitigate these impacts.
- 9.91. The visual impact of the proposed Development in respect of residential views and from transport and PROW routes are considered to be adverse during operation, due to the change that will occur to the landscape during this time. In particular, the Proposed Development is assessed as having an adverse impact on certain viewpoints during operation.
- 9.92. There are a number of physical measures that will be in place as part of the inherent mitigation such as the bunding that will have been created as part of the earthworks early in the construction phase that will also mitigate the operational phase; and significant landscape planting and screening which will establish and mature over time and be managed and maintained with long term management plans. There is also a commitment to other mitigation such as Travel Plan(s) to reduce the reliance on the private car and to reduce, manage and minimise vehicle movements; parameters to manage noise through detailed scheme design by such things as limiting the noisier activities such as service areas and loading bays close to sensitive boundaries with residential receptors; off-site junction improvements will help to manage and in some cases improve driver delay and pedestrian and cycle severance and amenities. These measures will all help to manage and mitigate the effects of the Proposed Development on receptors as well as the synergistic effects that could occur.
- 9.93. There is still however potential for adverse synergistic effects on some receptors in respect of visual, traffic generation and operational noise from the Proposed Development. The greatest effect will be on the nearest residential receptors (e.g. Bradley Hall Cottages and Bradley Hall View) who are likely to be affected by all or some of these impacts at some point during the operational phase. With the mitigation and measures in the form of bunds to attenuate noise and acoustic barrier screening at carefully considered locations adjacent to Bradley Hall Cottages, it is anticipated that these synergistic effects will be reduced and be no greater than those assessed individually. In the short term there is potential for adverse synergistic effects

associated with visual, traffic generated and noise. These effects are not however considered significant in the longer term as the Site's boundary planting matures and the scheme assimilates into the landscape.

- 9.94. For the human and property receptors at close range to the Site, such as residential properties at Bradley Hall View and Bradley Hall Cottages, the in-combination effects have the potential to be significant, but will be managed as identified above to minimise the effects so they are no greater than those assessed individually within the ES.
- 9.95. In respect of the historic environment receptors, the likely in-combination effects are associated with visual impact and impacts on the heritage assets, which in this case is indirect on the setting of the assets (Scheduled Ancient Monument of Bradley Hall moated site, Locally Listed Bradley Hall, Grade II* Listed Tan House Farm, and Grade II Listed Beehive Farmhouse and Barley Castle Farmhouse).
- 9.96. The effects of the Proposed Development on the setting of these heritage assets have been assessed as moderate/major adverse during the operational phase. The visual impact generally on landscape character is considered to be significant. In combination the effects on these heritage assets are assessed as moderate/minor adverse and has the potential to be significant. However, as identified above for the human and property receptors, mitigation will be put in place to manage and limit the individual and synergistic effects on these receptors through activities such as the creation of bunds and early landscape planting which will have a long term management plan and a 30m buffer around the SAM which will make provision for a wildflower meadowland in the centre of the site, creating a sense of openness around the SAM to reduce the level harm to the setting of the monument and allow an appreciation of the monument. Building heights, massing, orientation and proximity to the SAM have also been considered to alleviate the impact on the setting of the monument. The synergistic effects on the heritage receptors are therefore not considered to be any greater than those assessed individually within the ES.

Summary

- 9.97. Synergistic effects have been considered throughout the evolution of the development proposals across all the technical areas and scheme design. These will be minimised and

managed through the implementation of mitigation, much of which is multi-functional to address synergistic effects.

- 9.98. The adverse interaction of impacts in and around the site will occur at their greatest during the short term period (construction). It is however considered that the mitigation proposed during both the construction and operational phases as part of the Environmental Assessment (summarised in Section 8) is sufficient to deal with these impacts which will be controlled by way of planning conditions and a S106 as necessary and as such the majority of impacts will be no worse than minor adverse and negligible and some being beneficial.

Decommissioning

- 9.99. Decommissioning of the Proposed Development is not relevant to this project, given the proposed end use for the site.

10. Conclusion

10.1. This ES Part I Addendum Report presents a detailed project description of the Development Proposals for the application Site (Section 2), which are controlled by a series of parameters detailed on parameter plans (**Appendix 5**). It sets out the methodology which the Study Team has followed, the alternatives which were considered and the legislative/planning context. Section 7 and the Summary tables set out an overview of the environmental impacts on a topic by topic basis. Section 8 sets out the key mitigation measures. An overview of the additive/cumulative effects and the synergistic/interaction of effects is included in Section 9. A non-technical summary is provided in a separately bound document.

10.2. The Technical Papers and their Addendum's in Part 2 of the ES provide more detail of this impact of the development during the construction and operational phases against a range of topics as follows:-

- Paper 1 - Geology and Ground Conditions
- Paper 2 - Traffic and Transportation
- Paper 3 - Flood Risk and Drainage
- Paper 4 - Landscape and Visual Impact
- Paper 5 - Ecology and Nature Conservation
- Paper 6 - Socio Economic
- Paper 7 - Noise and Vibration
- Paper 8 - Air Quality and Dust
- Paper 9 - Cultural Heritage and Archaeology
- Paper 10 – Utilities
- Paper 11 – Energy
- Paper 12 - Waste
- Paper 13 – Agricultural Land & Soils

10.3. These separate topic papers contain the detailed analysis of impacts and mitigation and should be referred to for the complete assessment of impact. This ES Part I Addendum report aims to provide an overview of the predicted effects and how it is proposed to mitigate the impacts. It should be noted that the information submitted for this planning application is extensive given the nature of the site, however, the detailed mitigation strategies will be controlled via the use of planning conditions and the Section 106 Agreement. The proposed S106 heads of terms will

be referenced in the Replacement Planning and Regeneration Statement which will accompany this outline planning application. A variety of mitigation measures are proposed to control, manage and reduce the effects of the Proposed Development. Further mitigation of environmental effects is also inherent in the design of the Proposals. All of the mitigation is devised to either mitigate individual effects or it is multi-functional to mitigate a number of effects.

- 10.4. As a whole, the majority of the potential environmental impacts and their effects (with mitigation incorporated) are assessed as neutral, negligible or minor adverse at both construction and operational phases and as such are not significant. This is in relation to ground conditions and contamination, traffic and transport, drainage and flood risk, ecology and nature conservation, socio economic, air quality and dust, utilities, waste, energy and agricultural land and soils as well as some effects associated with cultural heritage, noise and vibration landscape and visual impact.
- 10.5. There are a number of environmental impacts and their effects that are assessed as beneficial and these relate to the operational phase with the drainage and flood risk through a managed drainage strategy. Socio economic effects are significantly beneficial in respect of job creation, GVA and the opportunities for training and apprenticeships at both construction and operational phases, which has a benefit for the immediate locality as well as the wider Sub-region and the Borough.
- 10.6. The loss of some best and versatile agricultural land (based on 27% of the site being classified as Grade 3a) will result in a moderate adverse impact, given the land is a finite resource and as such cannot ultimately be replaced.
- 10.7. There are, however some adverse effects on some receptors in respect of operational noise from the Proposed Development. The greatest effect will be on the nearest residential receptors (e.g. Bradley Hall Cottages and Bradley Hall View) who are likely to be affected by all or some of these impacts at some point during the operational phase. With the mitigation and measures in the form of bunds to attenuate noise and acoustic barrier screening at carefully considered locations adjacent to Bradley Hall Cottages, it is anticipated that these effects will be reduced. Changes to the Parameters associated with the Proposed Development as part of the ES Addendum have led to a reduced impact from operational noise on these receptors.

- 10.8. It should also be noted that the current noise assessment can be considered an absolute worst-case assessment. Exact noise levels can only be determined and assessed in detail once specific end user operators come forward with reserved matters applications. At this point, detailed mitigation measure requirements can be determined and implemented.
- 10.9. There are also some significant adverse impacts associated with the effect on the setting of the SAM and adjacent Grade II and Grade II* Listed Buildings which will experience indirect moderate adverse impacts on their setting at construction and operational phases due to their proximity to the Site. This will however be managed and limited as far as possible through the creation of bunds, retention of existing vegetation and openness with provision of a 30m buffer and wildflower meadow around the SAM location in addition to significant mitigation planting that is proposed.
- 10.10. Other significant effects are in respect of landscape character and visual amenity as a result of the change and disturbance that will occur with the Site's redevelopment. At the construction phase this is in respect of views into the site from Bradley Hall Cottages and Bradley Hall View. The effects of the Proposed Development will however be managed as far as possible with the early establishment of bunding to the Site's perimeter and early landscape planting where possible as well as the implementation of a CEMP. At the operational phase, the significant adverse effects are also in respect of those receptors closest to the Site at Bradley Hall Cottages and Bradley Hall View which will experience moderate adverse and high adverse effects respectively at year 1. Whilst the significant mitigation planting will mature over time to soften the appearance of the Proposed Development in the landscape and ensure the longer term effects on these views are reduced so as not to be considered significant, the assessment of effects remain as significant at these receptors.
- 10.11. The ES Addendum Part I also assesses the potential for the synergistic/interaction of effects and concludes that in the main these are not considered to be significant with the multi-functional mitigation that is proposed. The synergistic/interaction of effects which have the potential to be significant are as a result of the significant effects of visual impact, cultural heritage combined with the effects of traffic and transport and noise.
- 10.12. Cumulative impacts are assessed and take account of a number of developments in the area that either have permission or are likely to come forward in a similar timeframe to the Proposed Development. This includes the emerging Local Plan allocation for a mixed use urban extension referred to as the Garden Suburb. The main cumulative site considered and that are relevant

to all the technical topics is the adjacent Liberty Properties and Eddie Stobart site for a National Distribution Centre, ~~which currently has no committed status following its recent refusal of planning permission~~ and the Garden Suburb. The cumulative impacts of the Garden Suburb have only been assessed in terms of traffic and transportation, socio economic and agricultural land. The cumulative impacts are not considered to be any more significant than those effects assessed as part of the main Environmental Assessment of the Proposed Development Site. This is except for those assessed during the operational phase for traffic and transport. However the assessment undertaken is based on data available which is based on an unmitigated highway network and as such shows an extreme worst case scenario. The cumulative developments will each need to determine any appropriate mitigation as they come forward.

- 10.13. There are therefore not considered to be any potential environmental impacts that cannot be suitably mitigated and which would prevent the proposals from being granted planning permission. Those effects that are assessed as significant in environmental terms are limited to visual impact, noise and vibration impact on the adjacent Cottages and indirect effects on the SAM and Grade II Listed Buildings. These significant effects are however considered to be outweighed by the significant benefits that the Proposed Development will bring to the area, particularly in respect of socio economic (job creation and GVA).

II. ES Part I Appendices

Appendix 1 – Location Plan (National, Regional, Local Context)

Appendix 2 – Redline Plan

Appendix 3 – Updated Means of Access Plan

Appendix 4 – Updated Illustrative Masterplan and Superseded Illustrative Masterplan

Appendix 5 – Updated Proposed Parameter Plans including site sections to show height and location of bunds

Appendix 6 – Key Receptor Plans

Appendix 7 – Updated Topographical Survey Plan and Cut and Fill Finished Levels Contour Plan

Appendix 8 – Constraints and Opportunities Plans

Appendix 9 - Construction Management Plan Framework

Appendix 10 – Alternative Sites Assessment

Appendix 11 – Cumulative Development Plan

Appendix 12 - Applicant's Scoping Request

Appendix 13 – Council's Screening Opinion

Appendix 14 – Glossary and Abbreviations

Appendix 15 – Statement for Competent Experts

Appendix 16 – Updated Lighting Assessment

Appendix 17 - Correspondence with Warrington Council confirming approach to cumulative impacts associated with Garden Suburb

Appendix 18 – Consultant Letters Confirming No Updates to Technical Papers Required

Appendix 19 - Log of Text Deleted from Original ES Part I and Technical Papers

II. ES Part I Appendices

Appendix 1 – Location Plan (National, Regional, Local Context)

Appendix 2 – Redline Plan

Appendix 3 – Means of Access Plan (Updated to include changes to the proposals)

Appendix 4 – Illustrative Masterplan (Updated to include changes to the proposals)

Appendix 5 – Proposed Parameter Plans (Updated to include changes to the proposals)

Appendix 6 – Key Receptor Plans

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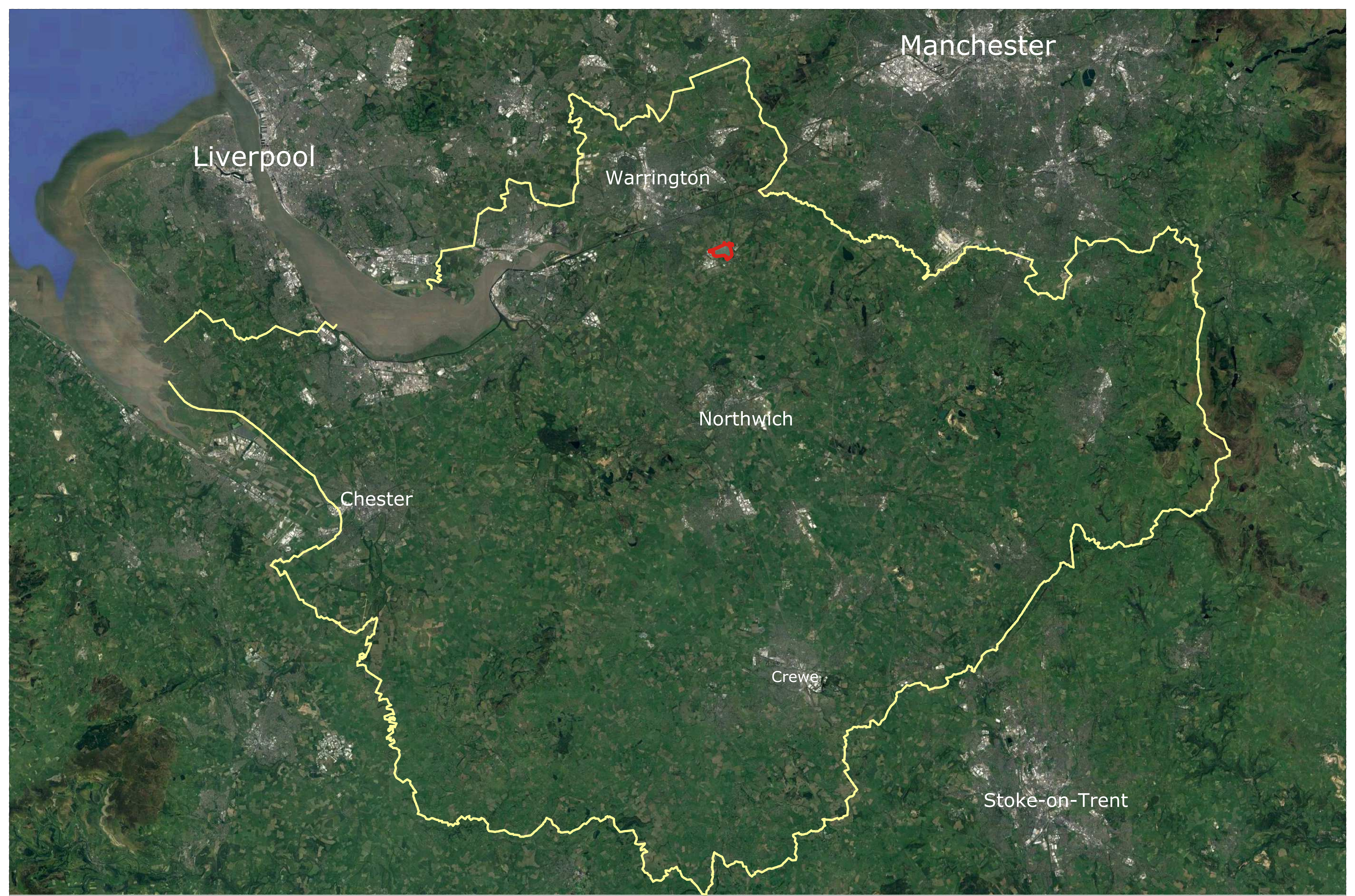
Appendix 16 – Updated Lighting Assessment

Appendix 17 - Correspondence with Warrington Council confirming approach to cumulative impacts associated with Garden Suburb

Appendix 18 – Consultant Letters Confirming No Updates to Technical Papers Required

Appendix 19 - Log of Text Deleted from Original ES Part I and Technical Papers

ES Part I Appendix I



Liverpool

Manchester

Warrington

Northwich

Chester

Crewe

Stoke-on-Trent

Rev: 04/16

— Planning Boundary — Cheshire County

Langtree

PGIM

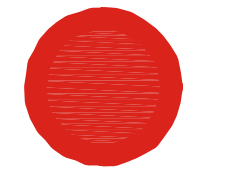
FIRST INDUSTRIAL

Stephen George + Partners LLP Architects + Masterplanners 170 London Road, Leicester LE2 1ND T: +44 (0)116 247 5557 www.stephengeorge.co.uk

Cliff Lane, Warrington Regional Plan
Drawing Status: Sketch
Date: 17/09/16
Project No: 16-184
Dwg No: K006
Rev: -



Rev: Date By: Description



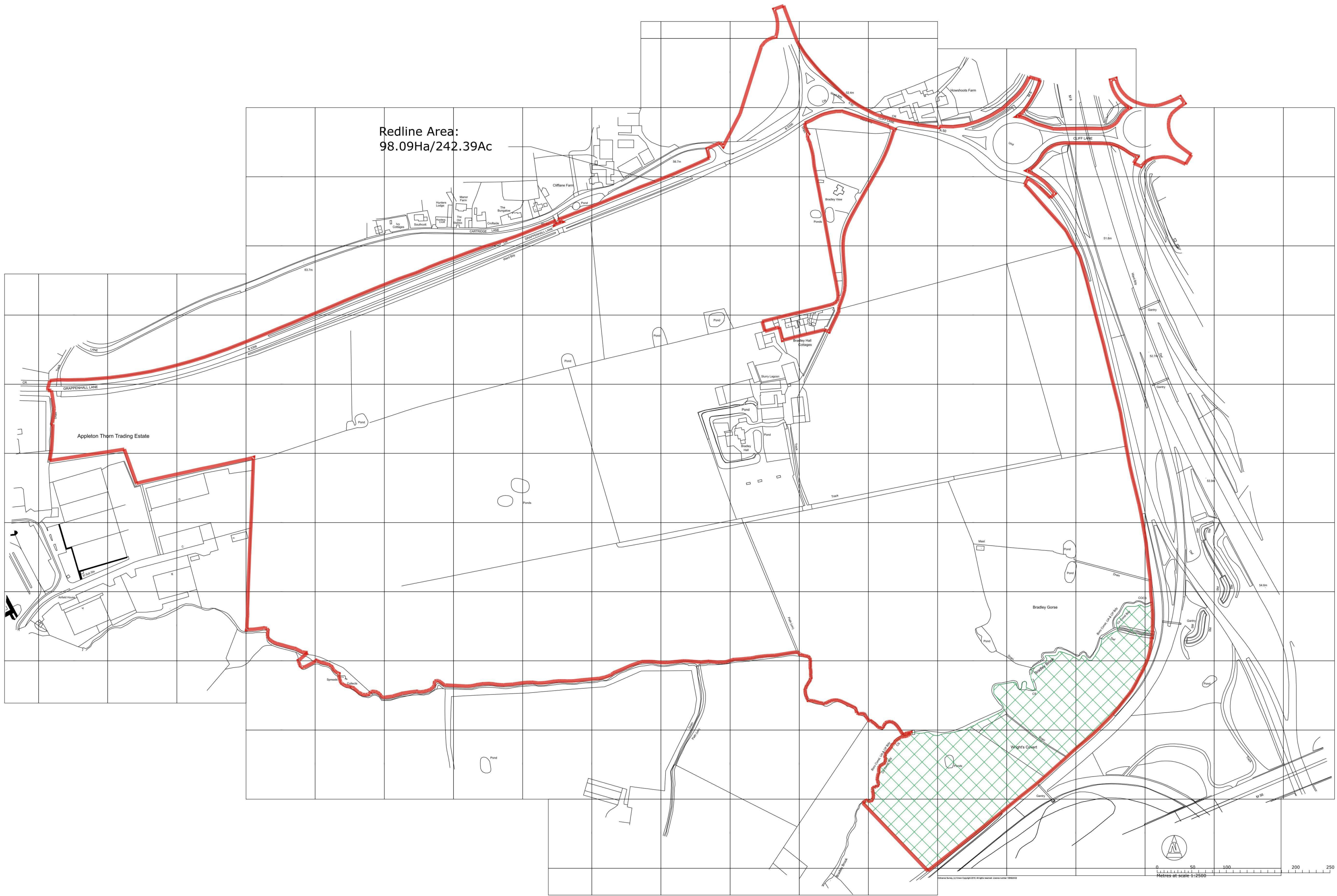
The Site




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Cliff Lane, Warrington
National Plan
Drawn: JB Date: 07/05/2016 Scale: 1:50,000
Checked: JG Date: 08/05/2016 Scale: 1:50,000
Project No: 16-184 Dwg No: K007 Rev: -

ES Part I Appendix 2



Rev	Date	By	Description
J	11.01.19	MMS	Redline revised

 Area within the Cheshire East Council Administrative boundary

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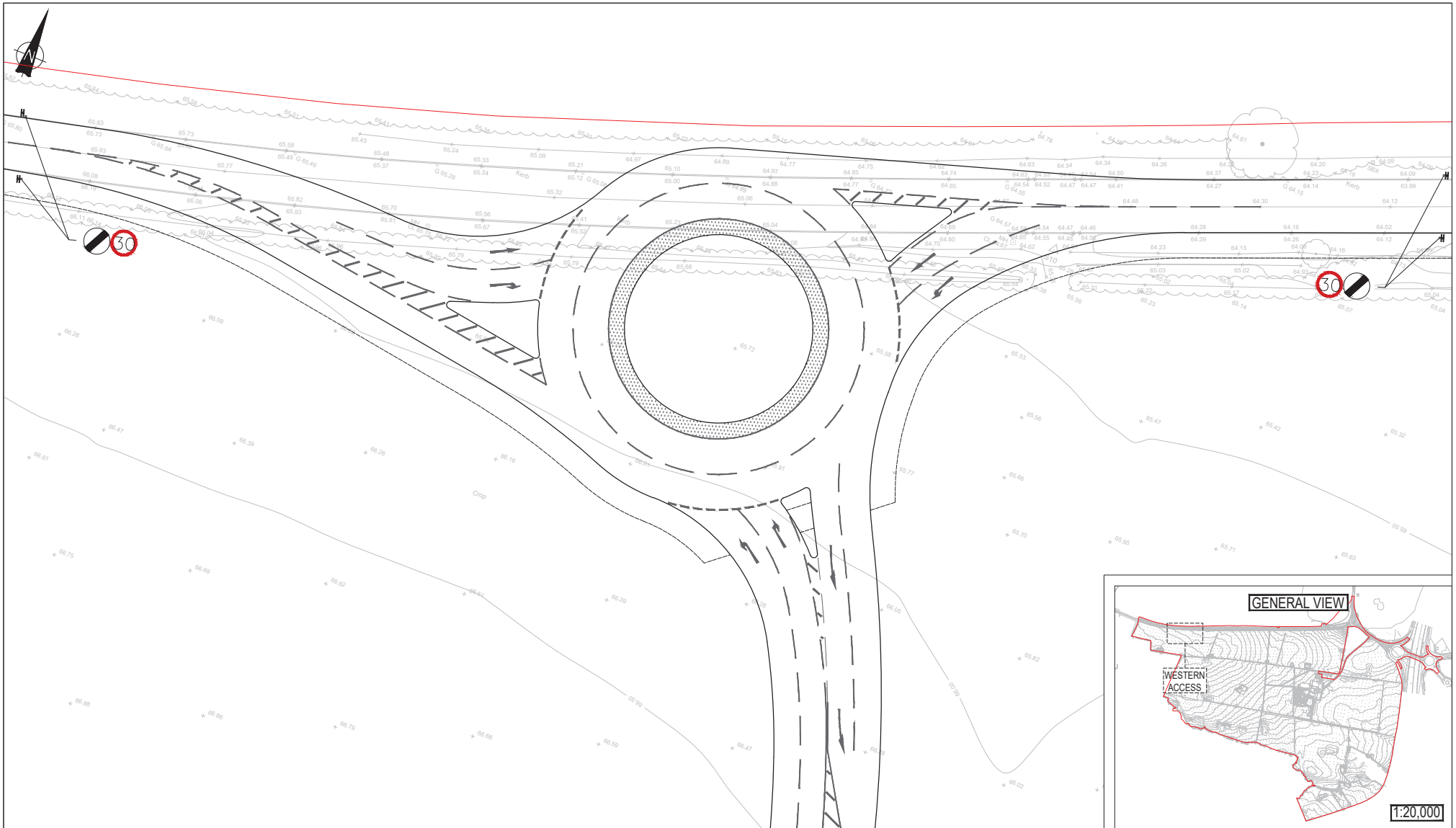
Six 56 Warrington
Location Plan

CDE Reference

Drawn: MMS	Drawing Status: Planning
Team: MMS	CAD Reference: 16-184-P002
Scale: 1:2500 @ A1	Date: 09/2018

Project No: 16-184
Dwg No: P002
Rev: J

ES Part I Appendix 3



KEY:		INDICATIVE SITE BOUNDARY
		PROPOSED KERB LINE
		PROPOSED FOOTWAY/CYCLEWAY
		PROPOSED ROAD MARKINGS
		PROPOSED OVERRUNNING AREA
GENERAL NOTES:		

P02	Roundabout updated	08/01/19	DD
Rev:	Description:	Date:	By:

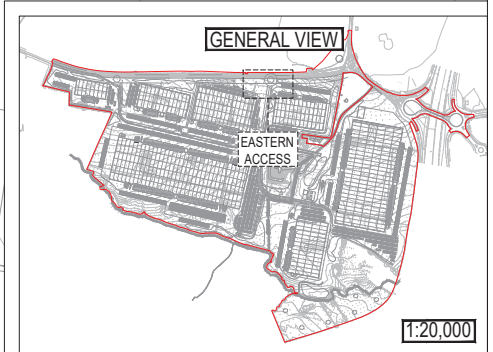
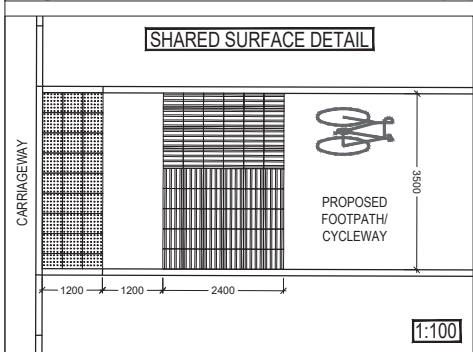
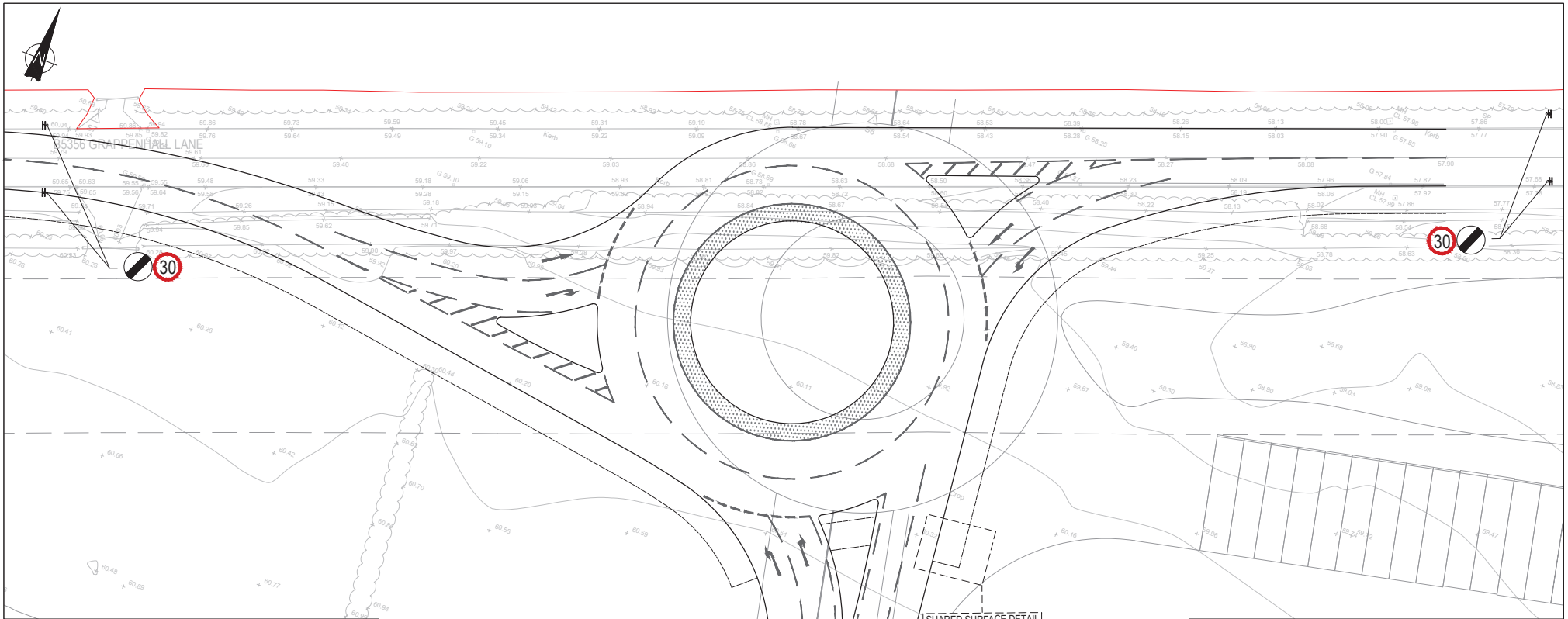

 Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
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 manchester@curtins.com
 www.curtins.com

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Project:		WARRINGTON INTERCHANGE	
Drg Title:		POTENTIAL WESTERN ACCESS ROUNDABOUT	
Project No:	Originator:	Zone:	Level:
64076 - CUR - 00 - XX - DR - TP -			

Status:		PRELIMINARY	
Drawn By:	DD	Checked By:	LK
Designed By:	DD	Date:	06/07/18
Scale: AS INDICATED			
Discipline:		Category / Number:	
75002		-P02	

\mats6\2\Projects\064001 - 065000\064076 - Warrington Interchange TPMAE - Drawings\2-DWG\G15



KEY:

- INDICATIVE SITE BOUNDARY
- PROPOSED KERB LINE
- - - PROPOSED FOOTWAY/CYCLEWAY
- - - - PROPOSED ROAD MARKINGS
- PROPOSED OVERRUNNING AREA

GENERAL NOTES:

P03	Location updated	04/11/19	DD
P02	Roundabout updated	08/01/19	DD
Rev:	Description:	Date:	By:

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Project: **WARRINGTON INTERCHANGE**

Drg Title: **POTENTIAL EASTERN ACCESS ROUNDABOUT**

Project No: Originator: Zone: Level: Type: Discipline: Category / Number: Rev:

64076 - CUR - 00 - XX - DR - TP - 75001 -P03

Status: **PRELIMINARY**

Drawn By: DD Checked By: LK

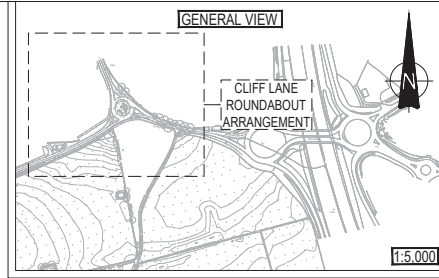
Designed By: DD Date: 06/07/18

Scale: AS INDICATED

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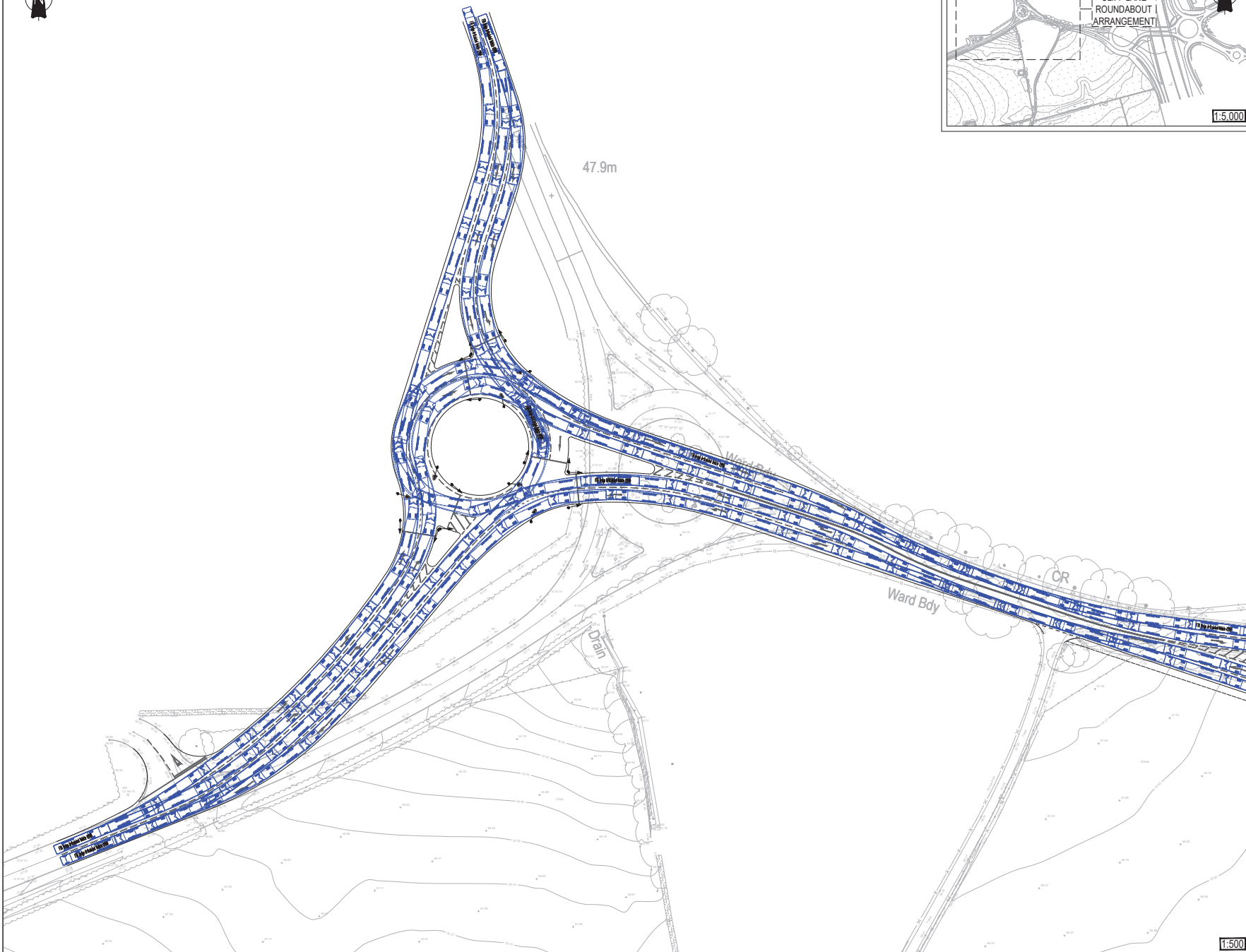
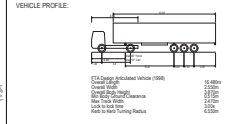


CLIFF LANE ROUNDABOUT ARRANGEMENT



GENERAL NOTES:

- KEY:
- PROPOSED KERB LINE
 - PROPOSED FOOTWAY
 - PROPOSED ROAD MARKINGS



Rev	Description	Date	By	Chkd
P02	Layout updated	12/09/19	DD	FF



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Cliff & Stockton - Transport Planning - Environmental - Infrastructure - Geotechnical - Construction & Heritage - Physical Design
 Birmingham Street - Congleton - Crewe - Chester - Darlington - Doncaster - Glasgow - Harrogate - Leeds - Liverpool - London - Manchester - Nottingham

Status: PRELIMINARY

Project: WARRINGTON INTERCHANGE

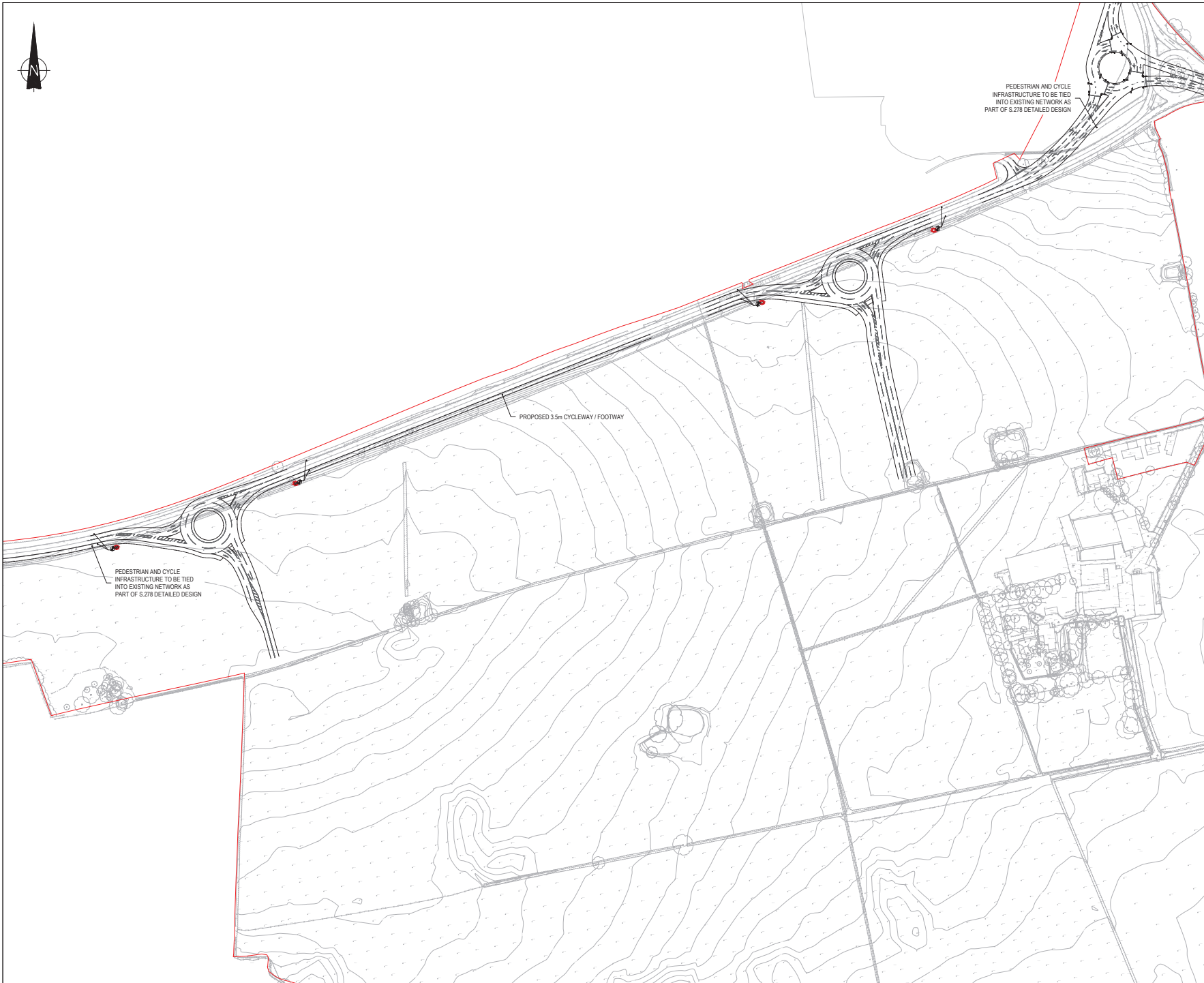
Dwg Title: CLIFF LANE ROUNDABOUT PROPOSED IMPROVEMENTS SWEPT PATH ANALYSIS 16.5m ARTICULATED HGV

Size	Date	Drawn By	Designed By	Checked By
A1	22/10/18	DD	DD	AV

Scale	AS STATED
Project No.	64076 - CUR - 00 - XX - DR - TP - 05002 - P02

1:5000

manchester@curtins.com | 0161 275 2204 | Warrington Interchange Phase 2, 20/10/18



GENERAL NOTES:

- KEY:
- INDICATIVE RED LINE
 - PROPOSED KERB LINE
 - - - - PROPOSED 3.5m CYCLEWAY / FOOTWAY
 - PROPOSED ROAD MARKINGS

PEDESTRIAN AND CYCLE INFRASTRUCTURE TO BE TIED INTO EXISTING NETWORK AS PART OF S.278 DETAILED DESIGN

PROPOSED 3.5m CYCLEWAY / FOOTWAY

PEDESTRIAN AND CYCLE INFRASTRUCTURE TO BE TIED INTO EXISTING NETWORK AS PART OF S.278 DETAILED DESIGN

PO2	Location of eastern roundabout updated	03/02/20	LL	AV
-----	--	----------	----	----

Rev	Description	Date	By	Check
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Status: **PRELIMINARY**

Project: **WARRINGTON SIX 56**

Dwg Title: **PEDESTRIAN AND CYCLE IMPROVEMENTS**

Size	Date	Drawn By	Designed By	Checked By
A1	08/01/19	DD	DD	AV

Scale	Project No.	Operator	Volume	Level	Type	Rate	Category/Number	Rev
1:1,500	64076	CUR	00	XX	DR	TP	75014	PO2

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ES Part I Appendix 4



Rev. Date By Description

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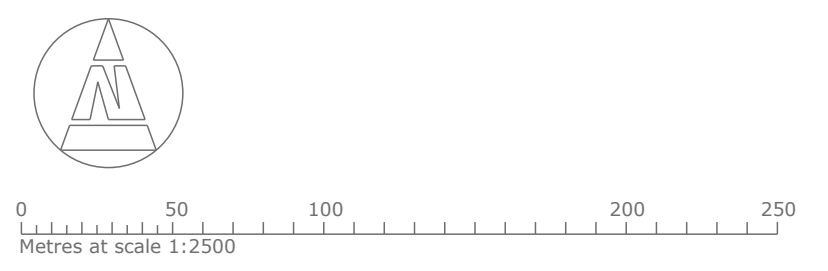
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Six 56 Warrington
Illustrative Masterplan

CDI Reference
Drawn: mjm
Team: MMS
Scale: 1:2500 @ A1
Date: 09/2018
Drawing Status: Preliminary
CAD Reference: 16-184-F013-001
Date: 09/2018
Project No: 16-184-F013 001
Dwg No: 001
Rev: AG

ES Part I Appendix 5





OVERALL SUMMARY:

Redline Area:
98.09 Ha / 242.39 Ac

Proposed Use:
B8 with ancillary B1(a)

Total Developable Area:
62.9 Ha / 155.43 Ac

Total Floorspace:
287,909m² (3,099,025 ft²) GJA

-  **Planning Boundary**
-  **Development Zone Boundary. Only new buildings will be located within the development zones.**



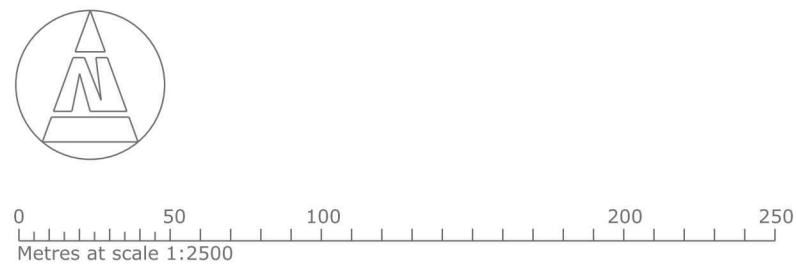
Six 56, Warrington
Development Cells Parameters Plan
CDE Reference

Drawn: HR
Team: MMS
Scale: 1:2500 @ A1
Project No: 16-184

Drawn Status: Planning
CAD Reference: 16-184-P110
Date: 03/20
Dwg No: P110
Rev: G

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Landscaping to proposed road improvements shown indicatively.



- Planning Boundary**
- Existing Trees To be Retained**
- Watercourse**
- South-North Open Green Corridor**
- Watercourse 15m stand off zone**
- Mitigation Area (Details to be agreed)**
- Proposed Indicative Estate Road. (Any estate road traversing the green corridor east to west should be constructed & built into levels to minimise impact on views and setting of the SAM - Details to be agreed)**
- Proposed Infrastructure Trees. (Refer to Layer Landscape Strategy)**

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PANATTONI

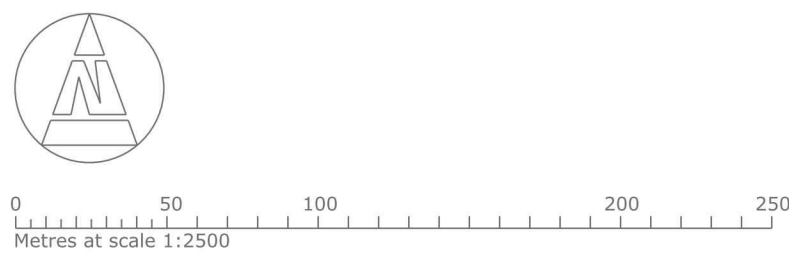
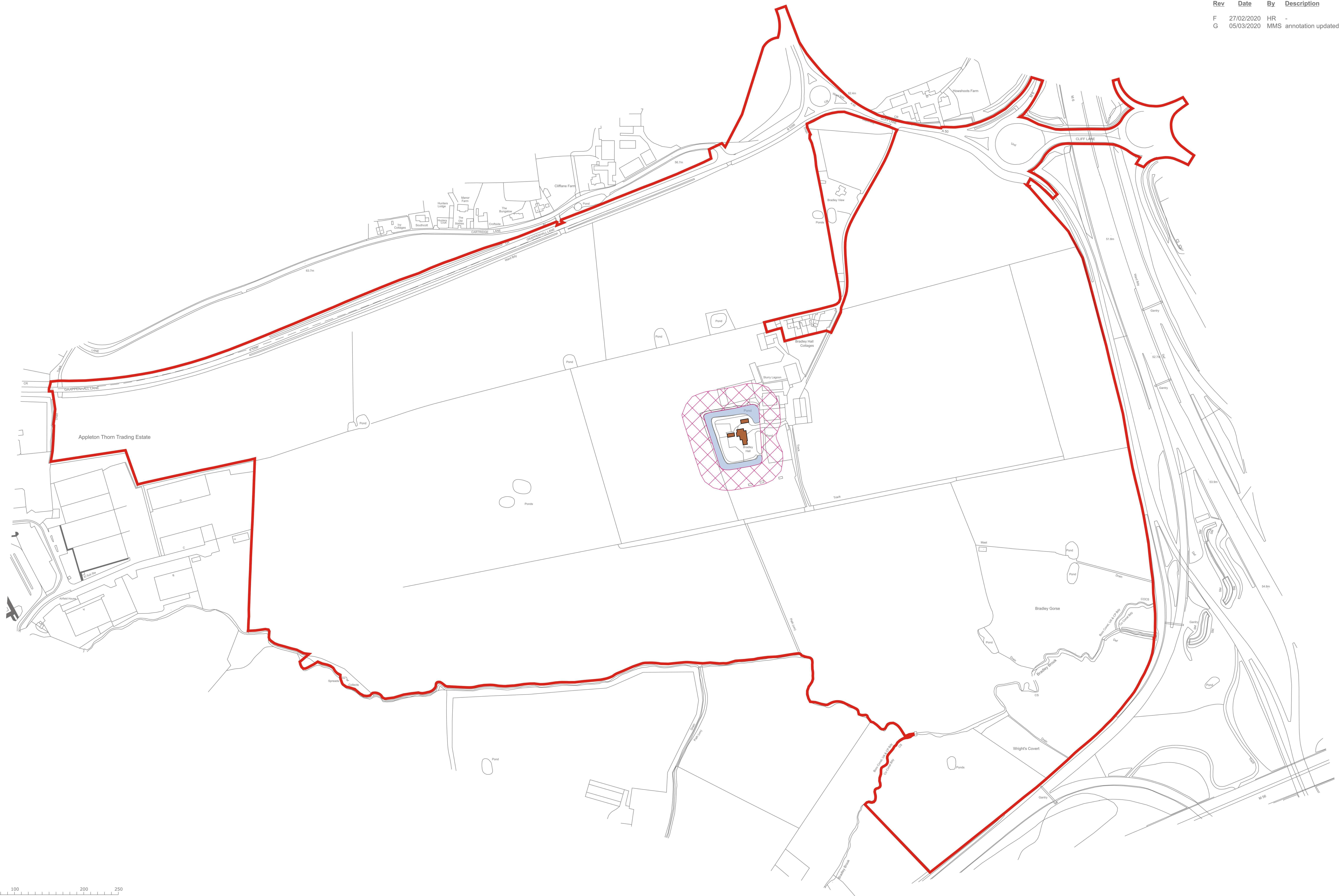
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www.stephengorge.co.uk

Six 56, Warrington
Green Infrastructure Parameters Plan
CDE Reference

Drawn: HR	Check: MMS	Drawn Status: Planning
Team: MMS	Scale: 1:2500 @ A1	CAD Reference: 16-184-P111
Date: 03/20		

Project No: 16-184
Dwg No: P111
Rev: I



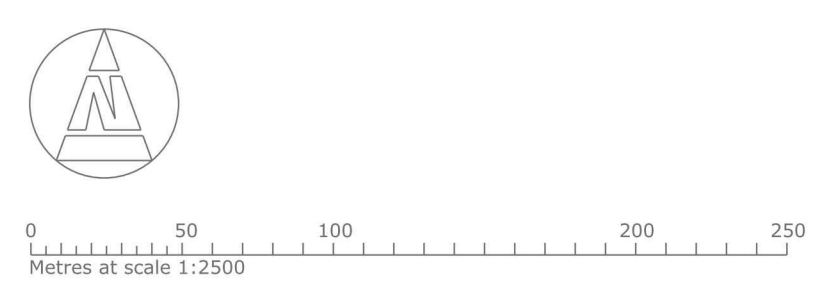
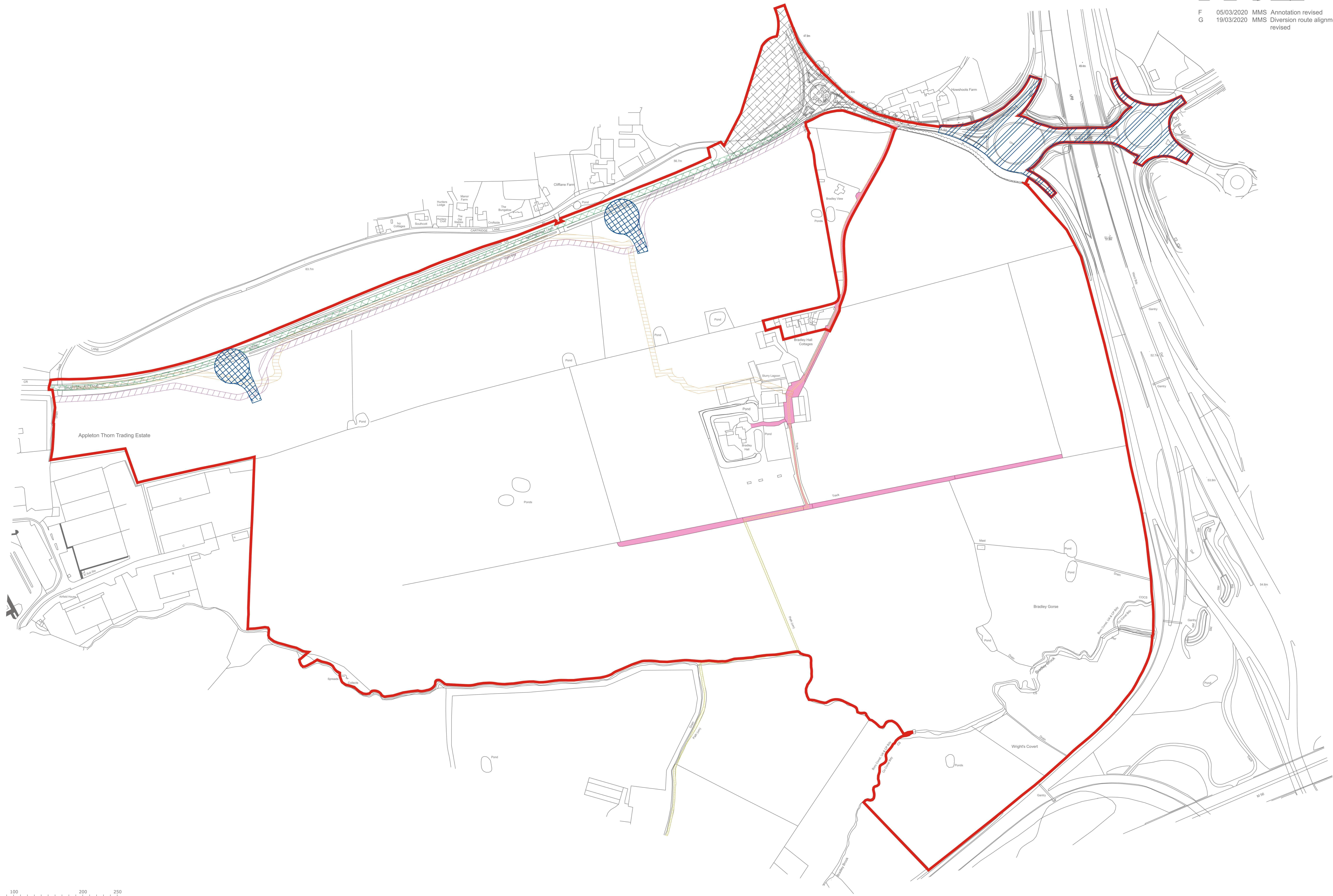
- Planning Boundary**
- SAM 30m Buffer Zone. No new buildings to be built or encroach into this zone.**
- Scheduled Ancient Monument (SAM)**
- Existing building to be retained (subject to separate change of use application)**



Six 56, Warrington
 Heritage Parameters Plan
 CDE Reference
 Drawn: HR
 Team: MMS
 Scale: 1:2500 @ A1
 Project No: 16-184
 Dwg No: P112
 Rev: G

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Rev	Date	By	Description
F	05/03/2020	MMS	Annotation revised
G	19/03/2020	MMS	Diversion route alignment revised



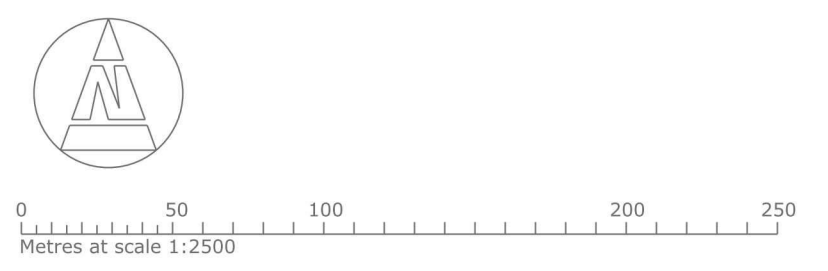
-  **Planning Boundary**
-  **Existing Access road/track**
-  **Diverted PRow**
-  **25m Safeguarded Area (for potential highway improvements / road widening)**
-  **Highways England/ Highway improvements.**
-  **Access to the Site**
-  **Existing PRow**
-  **Proposed Cycle Way (3.5m wide shared footway/cycleway - details to be agreed)**
-  **Highway improvements including realignment of roundabout**

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Six 56, Warrington
 Access and Circulation Parameters Plan
 CDE Reference

Drawn: HR	Drawn Status: Planning
Team: MMS	CAD Reference: 16-184-P113
Scale: 1:2500 @ A1	Date: 02/20
Project No: 16-184	Dwg No: P113
	Rev: G



OVERALL SUMMARY:


Redline Area:
98.09 Ha / 242.39 Ac

Proposed Use:
B8 with ancillary B1(a)

Total Developable Area:
62.9Ha / 155.43 Ac

Total Floorspace:
287,909m² (3,099,025 ft²) GIA



 No loading bays shall be orientated towards noise sensitive receptors along the development cell boundary (identified with orange arrows) unless it can be demonstrated that mitigation measures can be put in place to avoid significant adverse effects at noise sensitive receptors (refer to Cundall noise receptor plan for receptor locations)

Note. bund embankments are a 1 in 3 gradient



Six 56, Warrington
Acoustic Considerations Parameters
CDE Reference

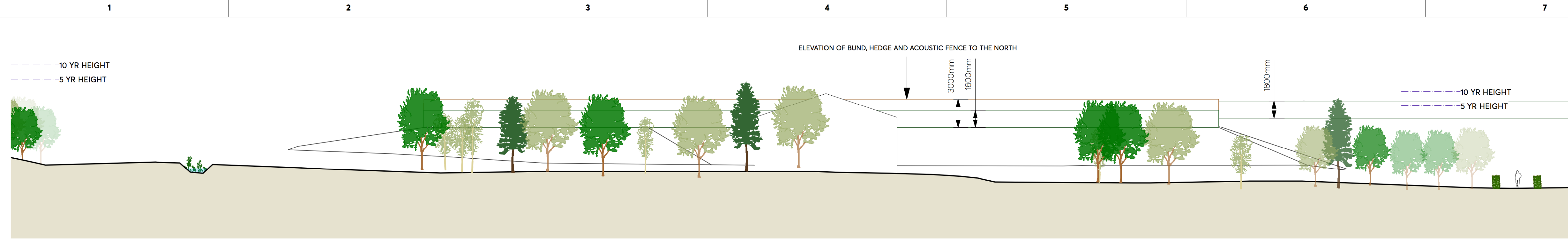
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Team: MMS
Scale: 1:2500 @ A1

Project No: 16-184
Dwg No: P114
Rev: L

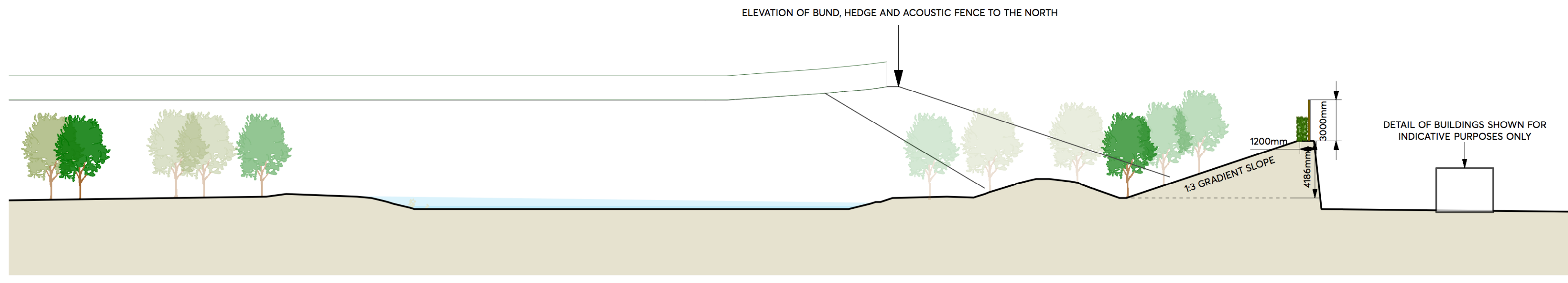
Drawn Status: Planning
CAD Reference: 16-184-P114
Date: 03/20

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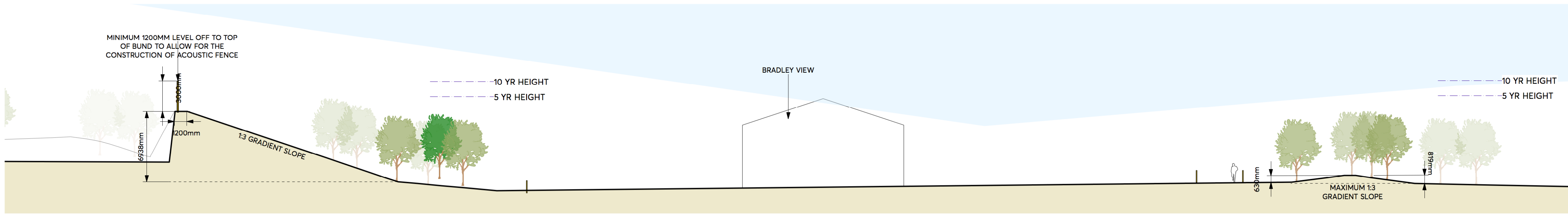
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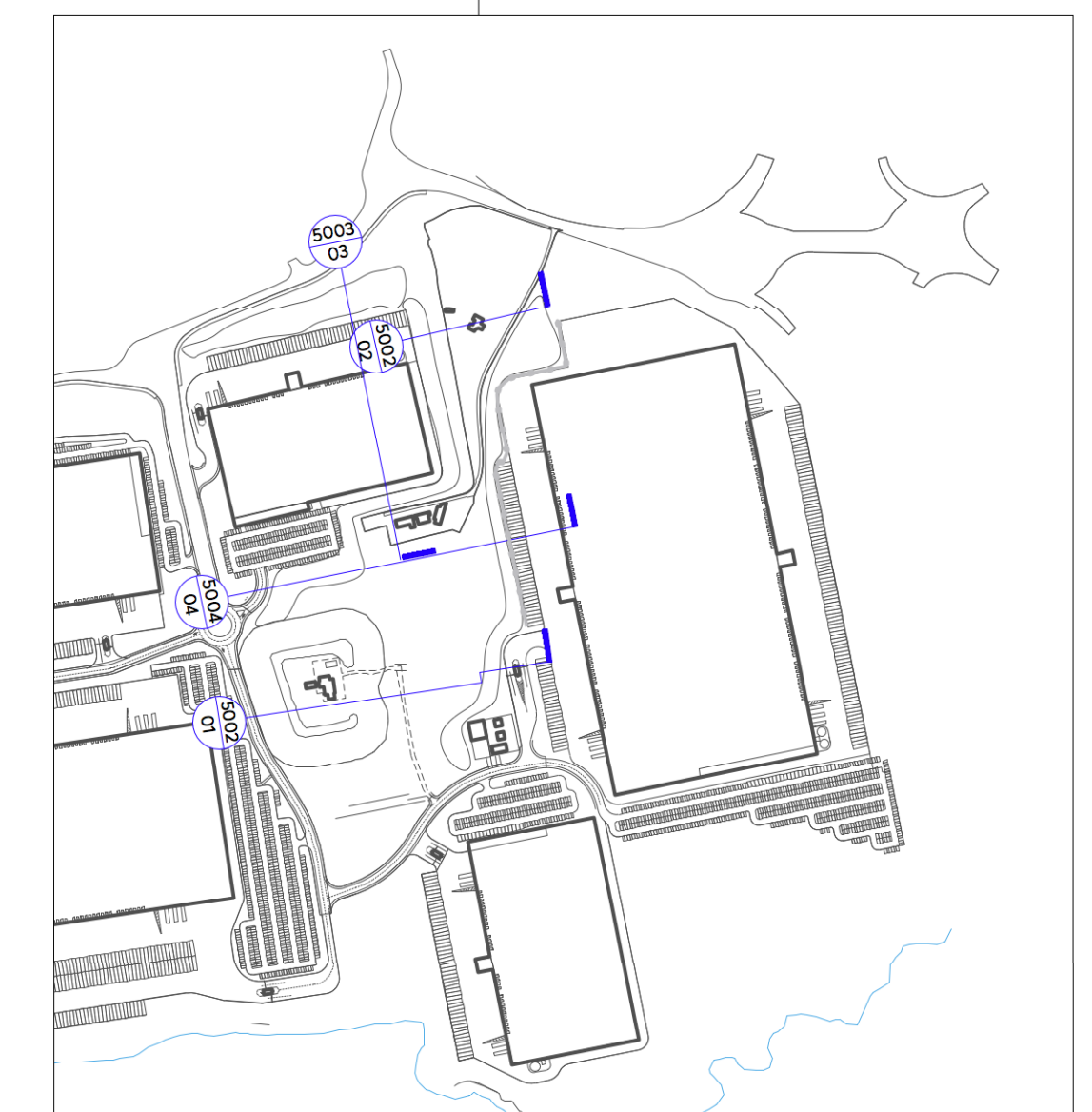
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Scale 1:250 @ A1



5002 / SECTION 1 CONTINUED
Scale 1:250 @ A1



5002 / SECTION 2
Scale 1:250 @ A1



5002 / SITE PLAN
Scale 1:7000 @ A1

NOTES:
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THIS DRAWING WAS PLOTTED ON:
15/10/20

REVISION HISTORY			
DATE	REV	ZONE	DESCRIPTION
14/10/20	1		Updated following client comments
15/10/20	2		Updated following comments from Spawforths

KEY

--- PROPOSED TREE PLANTING HEIGHTS IN 5 YEARS & 10 YEARS

ORIGINATOR
LAYER LANDSCAPE ARCHITECTURE
 E hello@layer-ing.com
 W www.layer-ing.com
 T +44 (0)1625 623 157

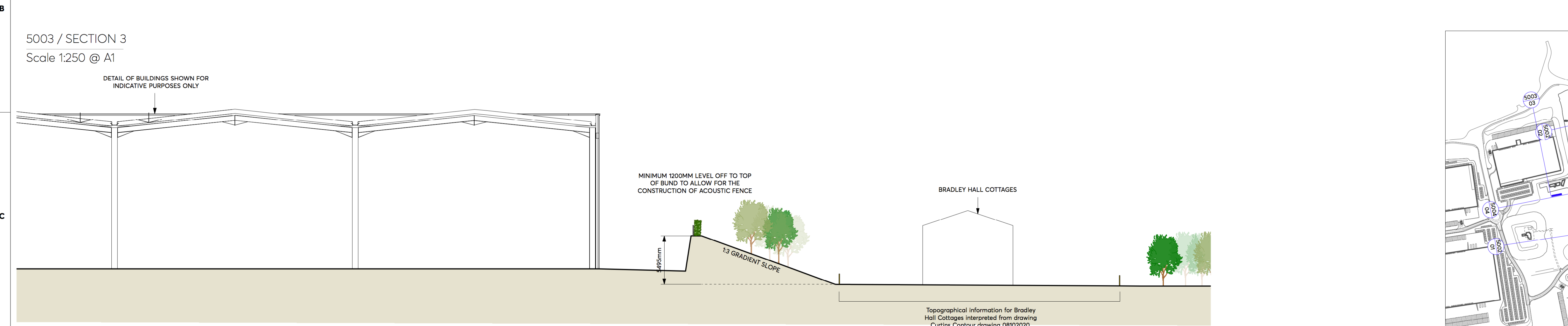
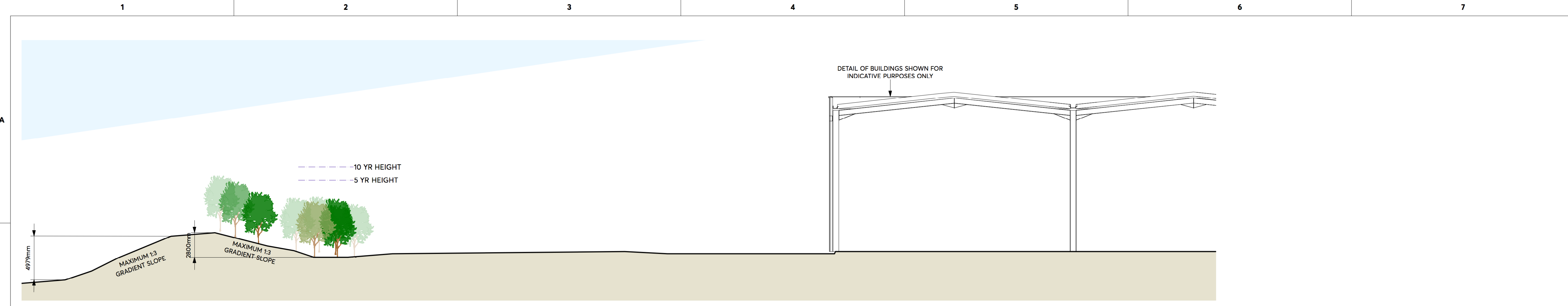
CLIENT
LANGTREE PROPERTY PARTNERS

PROJECT
SIX56, WARRINGTON

DRAWING TITLE
BUND SECTIONS TO SHOW NOISE MITIGATION 01

DRAWING NUMBER	REV	STATUS
133-LYR-XX-XX-DWG-L-5002	2	PLANNING

SCALE	CREATED BY	CHECKED BY
VARIOUS	O KINGSHOTT	S TUBGY



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 3. THIS DRAWING MUST BE READ WITH THE RELEVANT SPECIFICATION DOCUMENTS AND DETAIL DRAWINGS. ANY DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR IMMEDIATELY.
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 15/10/20

REVISION HISTORY				
DATE	REV	ZONE	DESCRIPTION	CHK
15/10/20	1		Updated following comments from Spawforths	ST

KEY

--- PROPOSED TREE PLANTING HEIGHTS IN 5 YEARS & 10 YEARS

ORIGINATOR
LAYER LANDSCAPE ARCHITECTURE
 E hello@layer-ing.com
 W www.layer-ing.com
 T +44 (0)1625 623 157

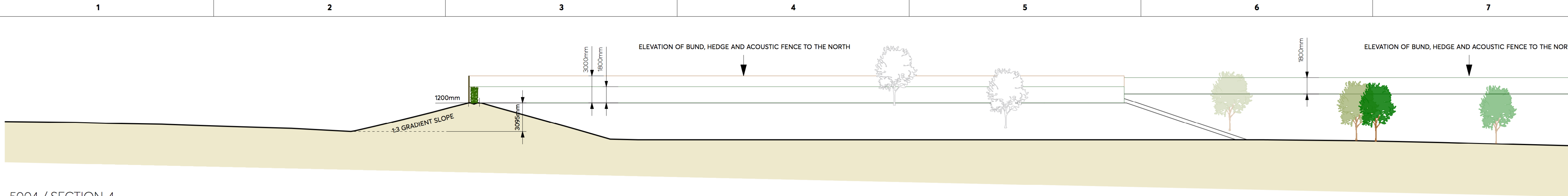
CLIENT
LANGTREE PROPERTY PARTNERS

PROJECT
SIX56, WARRINGTON

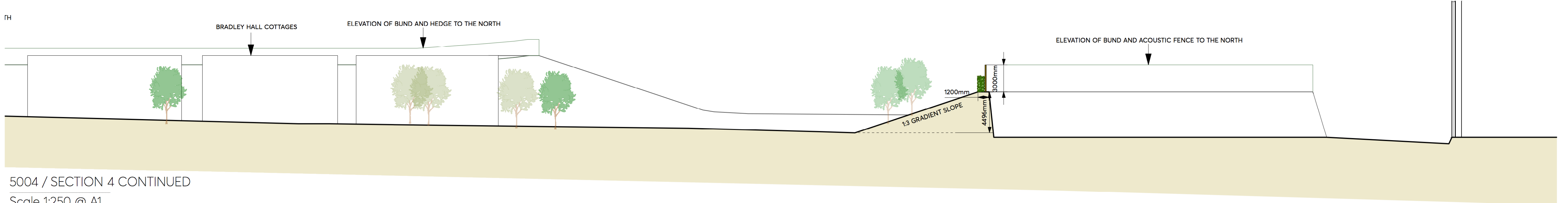
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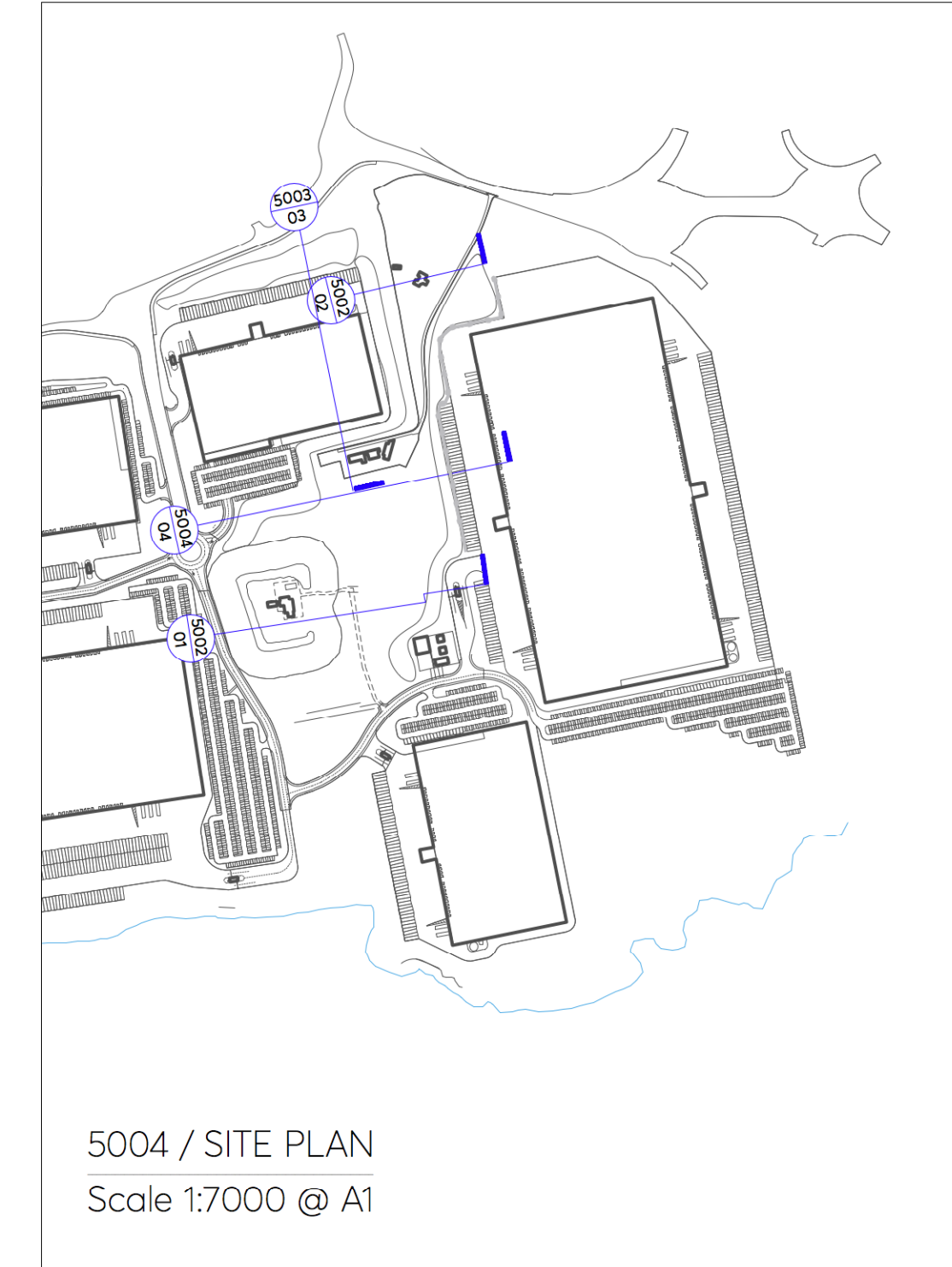
SCALE	CREATED BY	CHECKED BY
VARIOUS	O KINGSHOTT	S TUBGY



5004 / SECTION 4
Scale 1:250 @ A1



5004 / SECTION 4 CONTINUED
Scale 1:250 @ A1



- NOTES:**
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 - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

THIS DRAWING WAS PLOTTED ON:
15/10/20

REVISION HISTORY				
DATE	REV	ZONE	DESCRIPTION	CHK
15/10/20	1		Updated following comments from Spawforths	ST

KEY

--- PROPOSED TREE PLANTING HEIGHTS IN 5 YEARS & 10 YEARS

ORIGINATOR
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CLIENT
LANGTREE PROPERTY PARTNERS

PROJECT
SIX56, WARRINGTON

DRAWING TITLE
BUND SECTIONS TO SHOW NOISE MITIGATION 03

DRAWING NUMBER	REV	STATUS
133-LYR-XX-XX-DWG-L-5004	1	PLANNING

SCALE	CREATED BY	CHECKED BY
VARIOUS	O KINGSHOTT	S TUBGY

Rev	Date	By	Description
F	02/03/2020	HR	Indicative Road Revised & Zones B1 & C Revised
G	05/03/2020	MMS	Annotation revised



- Planning Boundary
- Existing building to be retained and re-used for conversion (subject to separate change of use application)
- Indicative Building Height: 12.5m Clear Internal 16m to ridge
- Indicative Building Height: 15m Clear Internal 18.5m to ridge
- Indicative Building Height: 21m Clear Internal 24.5m to ridge
- Indicative Building Height: 40m Clear Internal 43.5m to ridge

Langtree
PANATTONI

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Six 56, Warrington
Heights Parameters Plan
CDE Reference
Drawn: HR
Team: MMS
Scale: 1:2500 @ A1
Project No: 16-184
Date: 03/20
Drawing Status: Planning
CAD Reference: 16-184-P115
Date: 03/20
Dwg No: P115
Rev: G

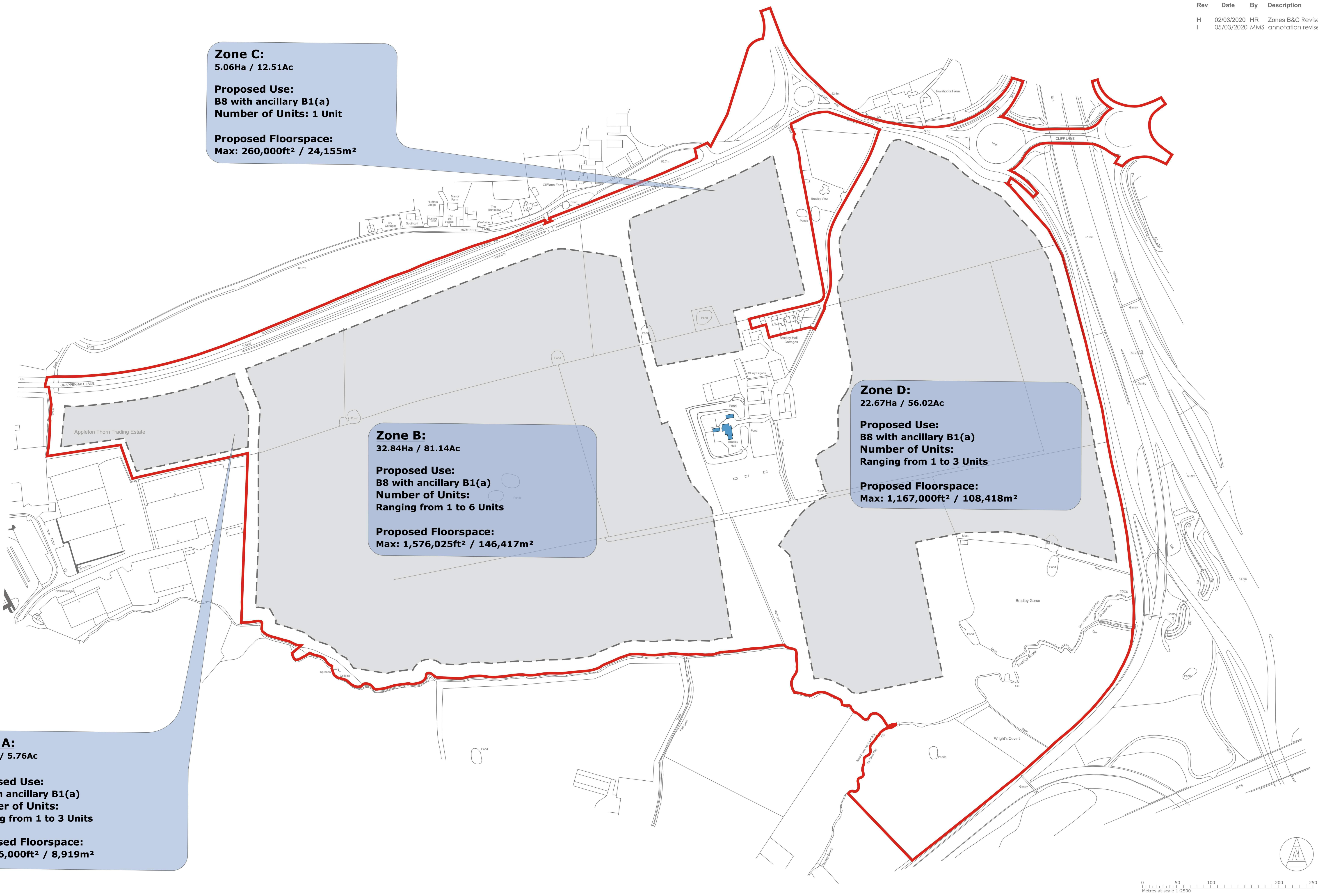
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Zone C:
 5.06Ha / 12.51Ac
Proposed Use:
 B8 with ancillary B1(a)
Number of Units: 1 Unit
Proposed Floorspace:
 Max: 260,000ft² / 24,155m²

Zone B:
 32.84Ha / 81.14Ac
Proposed Use:
 B8 with ancillary B1(a)
Number of Units:
 Ranging from 1 to 6 Units
Proposed Floorspace:
 Max: 1,576,025ft² / 146,417m²

Zone D:
 22.67Ha / 56.02Ac
Proposed Use:
 B8 with ancillary B1(a)
Number of Units:
 Ranging from 1 to 3 Units
Proposed Floorspace:
 Max: 1,167,000ft² / 108,418m²

Zone A:
 2.33Ha / 5.76Ac
Proposed Use:
 B8 with ancillary B1(a)
Number of Units:
 Ranging from 1 to 3 Units
Proposed Floorspace:
 Max: 96,000ft² / 8,919m²



OVERALL SUMMARY:

Redline Area:
 98.09 Ha / 242.39 Ac
Total Developable Area:
 62.9 Ha / 155.43 Ac

Proposed Use:
 B8 with ancillary B1(a)
Total Floorspace:
 287,909m² (3,099,025 ft²) GIA

Car Parking Provision:
 Compliant with Council's parking standards for B8 use - 1/120m²

Existing Buildings within SAM:
 352m² (3,783ft²) GIA

- Planning Boundary
- Development Zone Boundary. Only new buildings will be located within the development zones.

Existing building to be retained. Residential Use will cease prior to occupation of proposed industrial uses on the site. Conversion of these buildings to be subject of separate change of use application



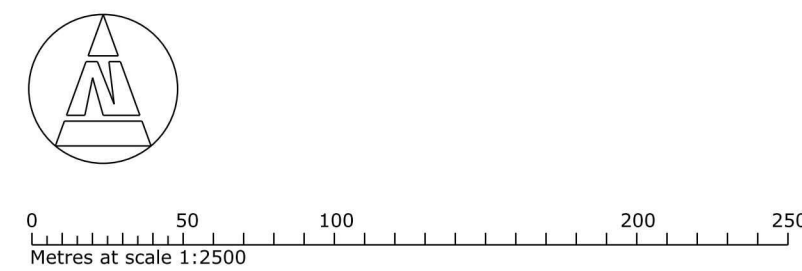
Six 56, Warrington
 Disposition Parameters Plan
 CDE Reference








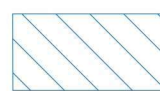


Drawn: HR
 Team: MMS
 Scale: 1:2500 @ A1
 Project No: 16-184

Drawing Status: Planning
 CAD Reference: 16-184-P116
 Date: 03/20
 Dwg No: P116
 Rev: I

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Rev	Date	By	Description
G	05/03/2020	MMS	Trees removed from development plots ornamentation updated
H	18/03/2020	MMS	drainage configuration revised adjacent to SAM

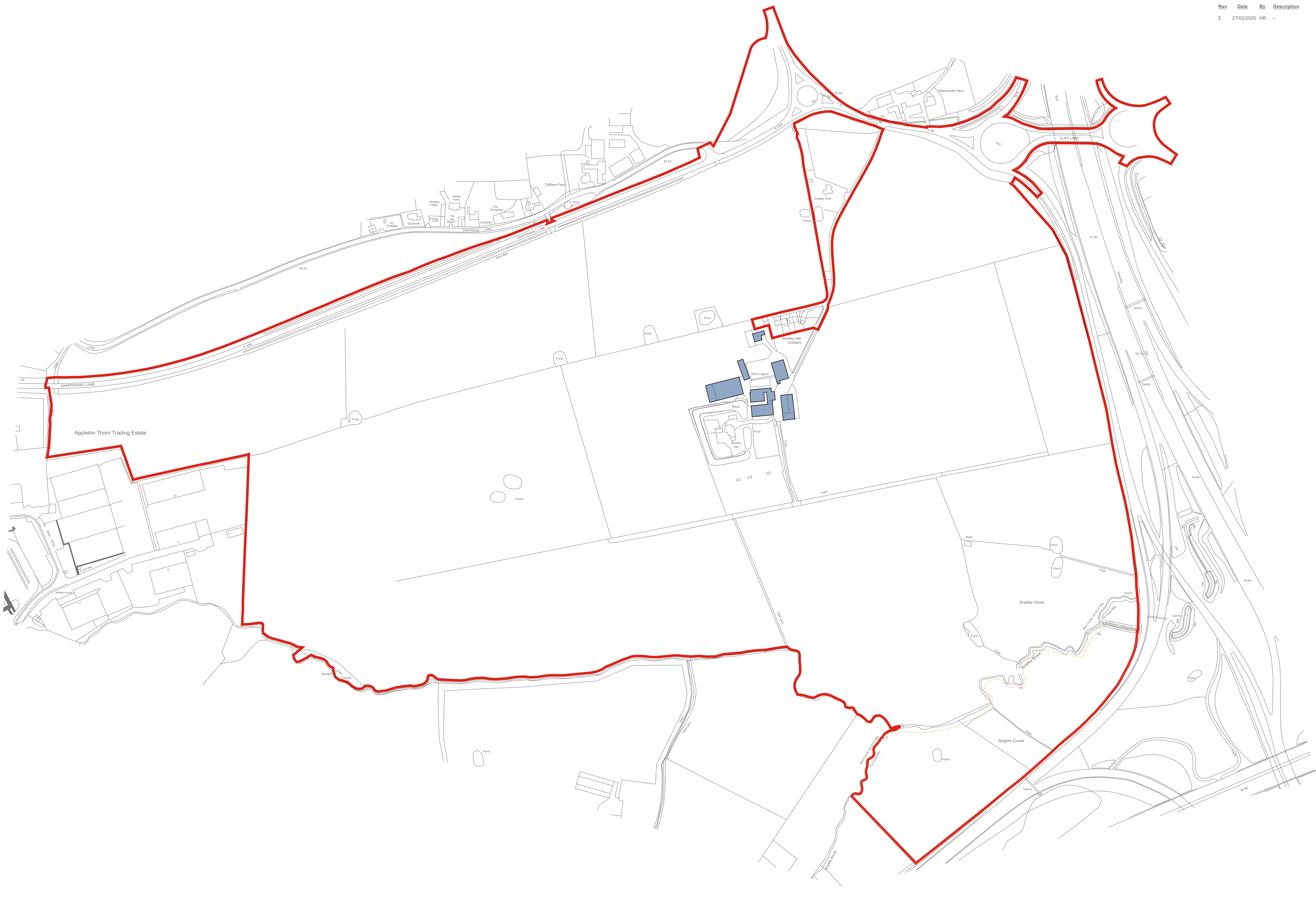


-  **Planning Boundary**
-  **Existing Trees To be Retained**
-  **South-North Open Green Corridor**
-  **Mitigation Area (Details to be agreed)**
-  **Proposed zones for detention basins and outfalls (permanent ponds to provide habitats for variety of wildlife - details to be agreed)**
-  **Strategic Landscaping**
-  **Watercourse**
-  **Watercourse 15m stand off zone**
-  **Proposed Infrastructure Trees. (Refer to Layer Landscape Strategy)**
-  **Proposed Indicative Estate Road. (Any estate road traversing the green corridor east to west should be constructed & built into the levels to minimise impact on views and setting of the SAM - Details to be agreed.)**



Six 56, Warrington
 Drainage Parameters Plan
 CDE Reference
 Drawn: HR
 Team: MMS
 Scale: 1:2500 @ A1
 Project No: 16-184
 Date: 03/20
 Drawing Status: Planning
 CAD Reference: 16-184-P117
 Date: 03/20
 Rev: P117
 H

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Planning Boundary

Buildings to be demolished as part of the proposed development

Langtree
 PANATTONI

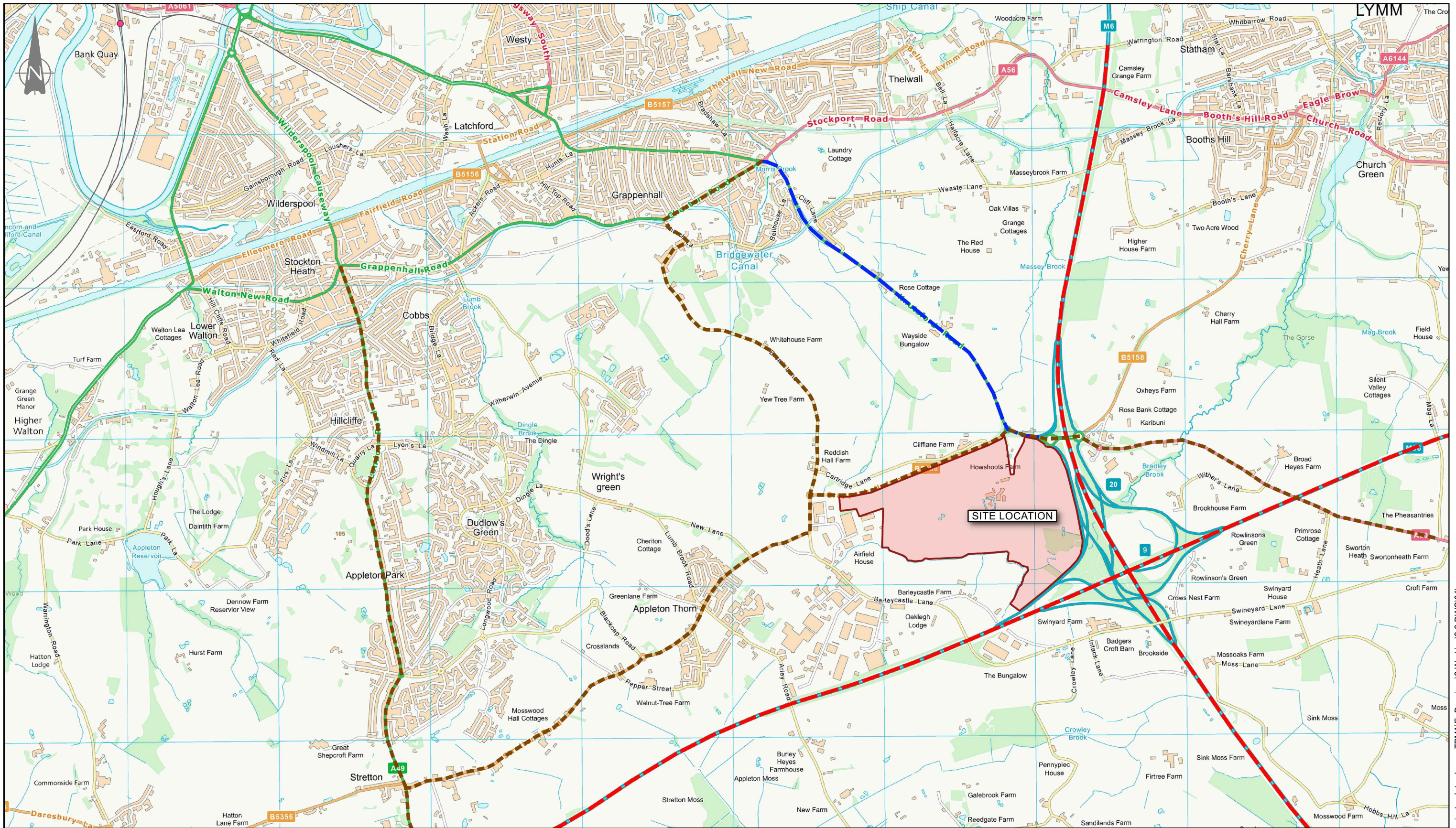
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Six 56, Warrington
 Demolition Parameters Plan
 CDE Reference

Drawn: HR	Drawing Status: Planning
Team: MMS	CAD Reference: 16-184-P118
Scale: 1:2500 @ A1	Date: 02/20
Project No: 16-184	Dwg No: P118
	Rev: E

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ES Part I Appendix 6



- KEY:**
- Site
 - County Road
 - National Road
 - Borough / District / Local Neighborhood



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Project:	6 56 WARRINGTON	Status:	PRELIMINARY	
Drg Title:	ES RECEPTOR PLAN	Drawn By:	JM	Checked By: AV
		Designed By:	JM	Date: 16/11/17
		Scale:	NTS	

Project No:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:
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64076 - CUR - XX - 00 - DR - TP - 04001 -P02

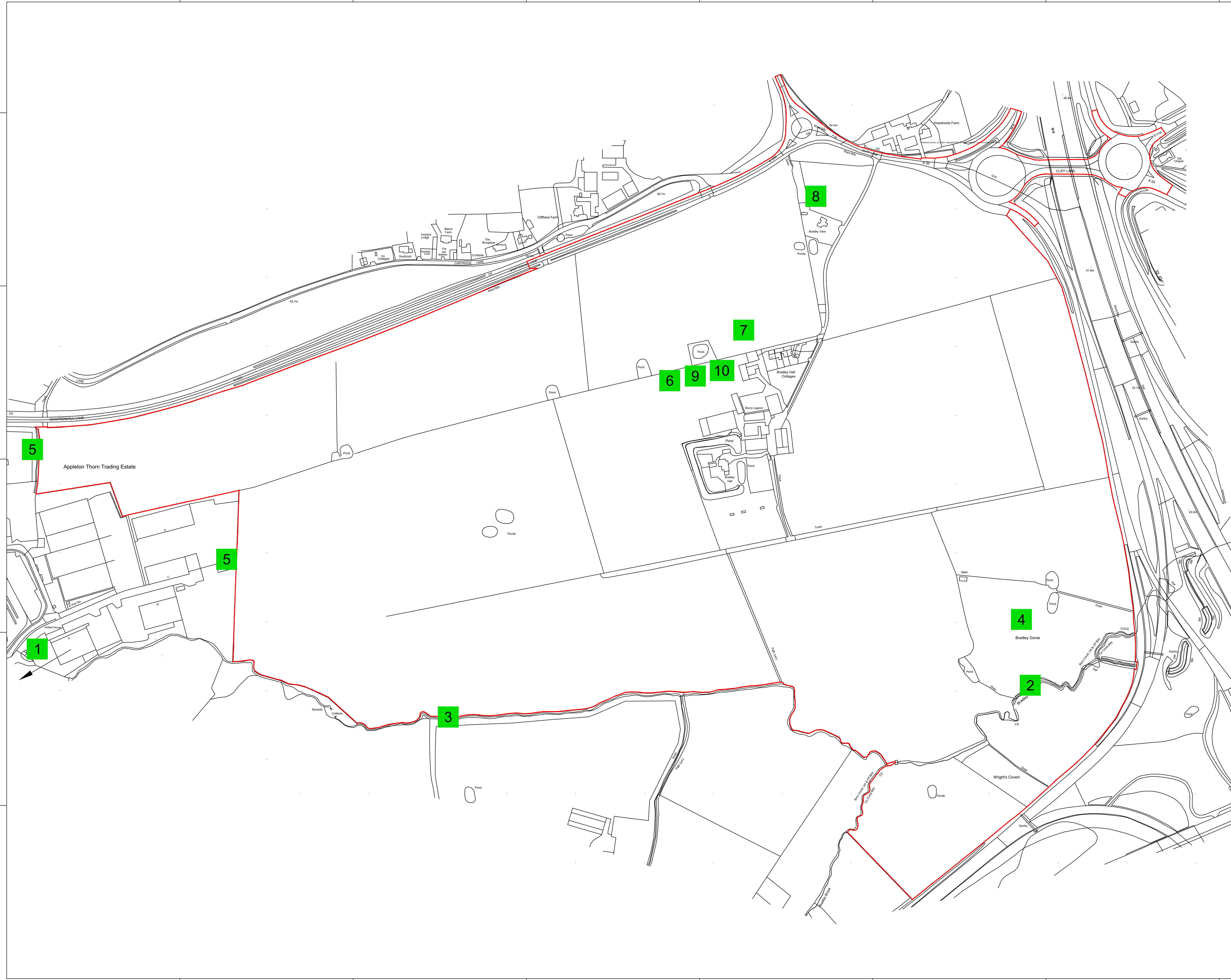
P02	Road classification updated	16/01/19	DD
Rev:	Description:	Date:	By:

GENERAL NOTES:

Based on:	Rev
Architects Dwg No.	Rev
Structural Dwg No.	Rev
Survey Dwg No.	Rev
Other Dwg No.	Rev
Other Dwg No.	Rev

Notes

ID	RECEPTOR
1	UNITED UTILITIES SEWERS
2	BRADLEY BROOK
3	BRADLEY BROOK TRIBUTARY
4	BRADLEY GORSE
5	ADJACENT SITE
6	GROUNDWATER
7	BRADLEY HALL COTTAGES
8	BRADLEY VIEW
9	SITE USERS
10	CONSTRUCTION WORKER



-	27/11/17	RED LINE UPDATED	JA	LF	LF
Issue	Date	Description	By	Chkd	Verfd

Project
SIX:56 WARRINGTON

Client
LANGTREE / FIRST INDUSTRIAL

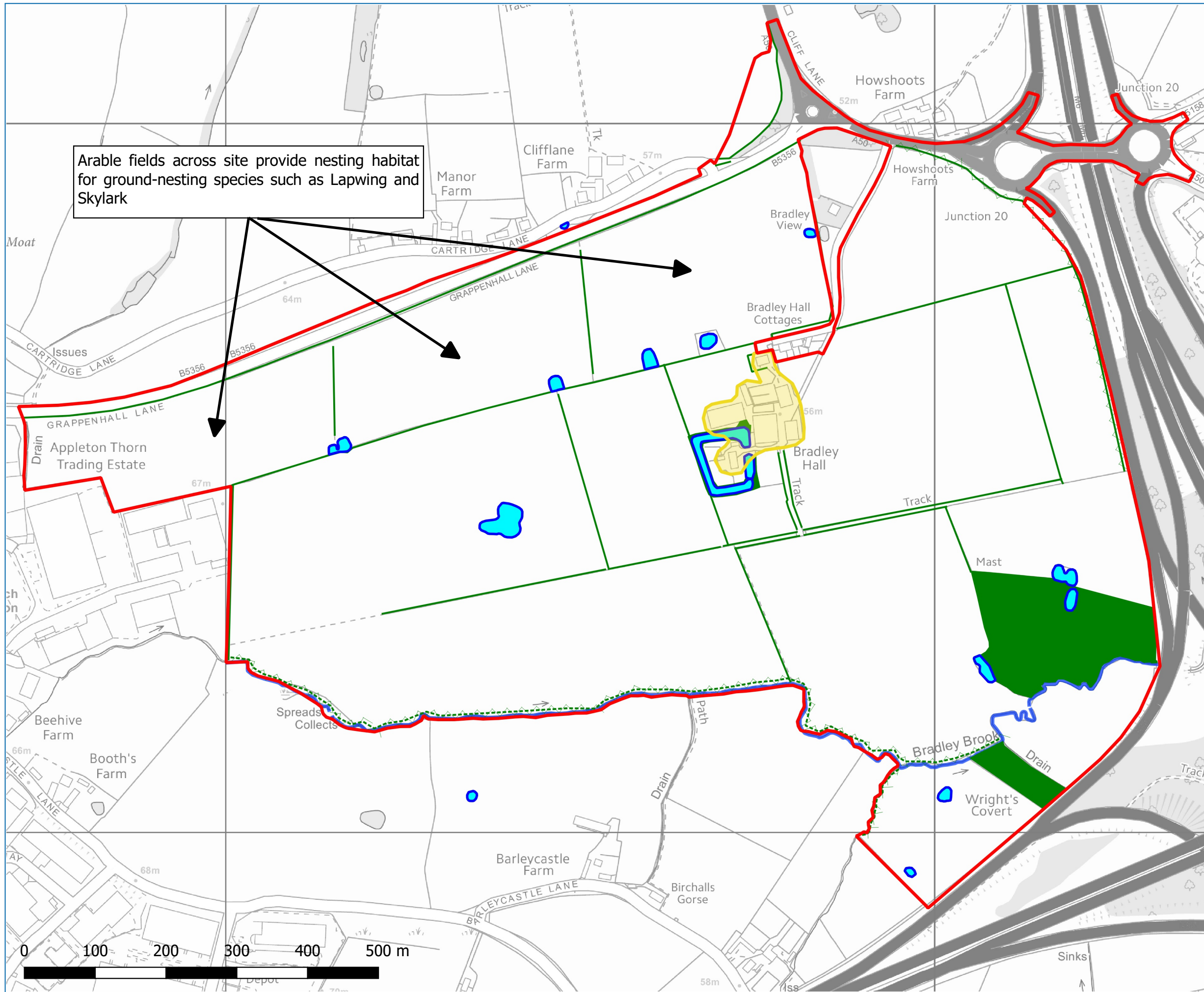
Architect
STEPHEN GEORGE PARTNERS

Title
DRAINAGE AND FLOOD RISK RECEPTOR PLAN

Drawing No.	CLXX(52)0001	Drawing Status	INFORMATION
Job No.	1015524	Scale	NTS

CUNDALL

4th Floor, Partnership House
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- Site Boundary
- Buildings with Bat and Barn Owl Potential
- Habitats of Local Importance**
- Ponds
- Hedgerow species poor intact
- Hedgerow species rich (intact)
- Hedgerow species rich defunct
- Semi-natural broad-leaved woodland
- Flowing water



Project Six56 Warrington

Drawing Title Key Ecological Receptor Plan

Scale As Shown (Approximate)

Drawing No. 10682/P12

Date February 2019

Checked JD/LJD



Socio Economic Receptor Plan



Based on:	Rev
Architects Drg No.	Rev
Structural Drg No.	Rev
Survey Drg No.	Rev
Other Drg No.	Rev

Notes

ID	RECEPTOR
1	GRAPPENHALL LODGE
2	DWELLINGS ON CARTRIDGE LANE: -IVY COTTAGES -SOUTHOTT -HUNTERS LODGE AND HUNTERS CROFT -MANOR FARM WITH THE OLD STABLES -CROFTSIDE -THE BUNGALOW -5 CARTRIDGE LANE -7 CARTRIDGE LANE
3	BRADLEY VIEW COTTAGE
4	HOWSHOOTS FARM
5	TAN HOUSE FARM
6	BARLEYCASTLE FARM
7	BRADLEY HALL COTTAGES
8	BEEHIVE FARM
9	BOOTH'S FARM

KEY:

- NEAREST NOISE SENSITIVE RECEPTOR
- NOISE MONITORING POSITIONS

-	27/11/17	RECEPTORS AND RED LINE UPDATED	JA	LF	LF
Issue	Date	Description	By	Chkd	Verfd

Project
SIX: 56 WARRINGTON

Client
LANGTREE / FIRST INDUSTRIAL

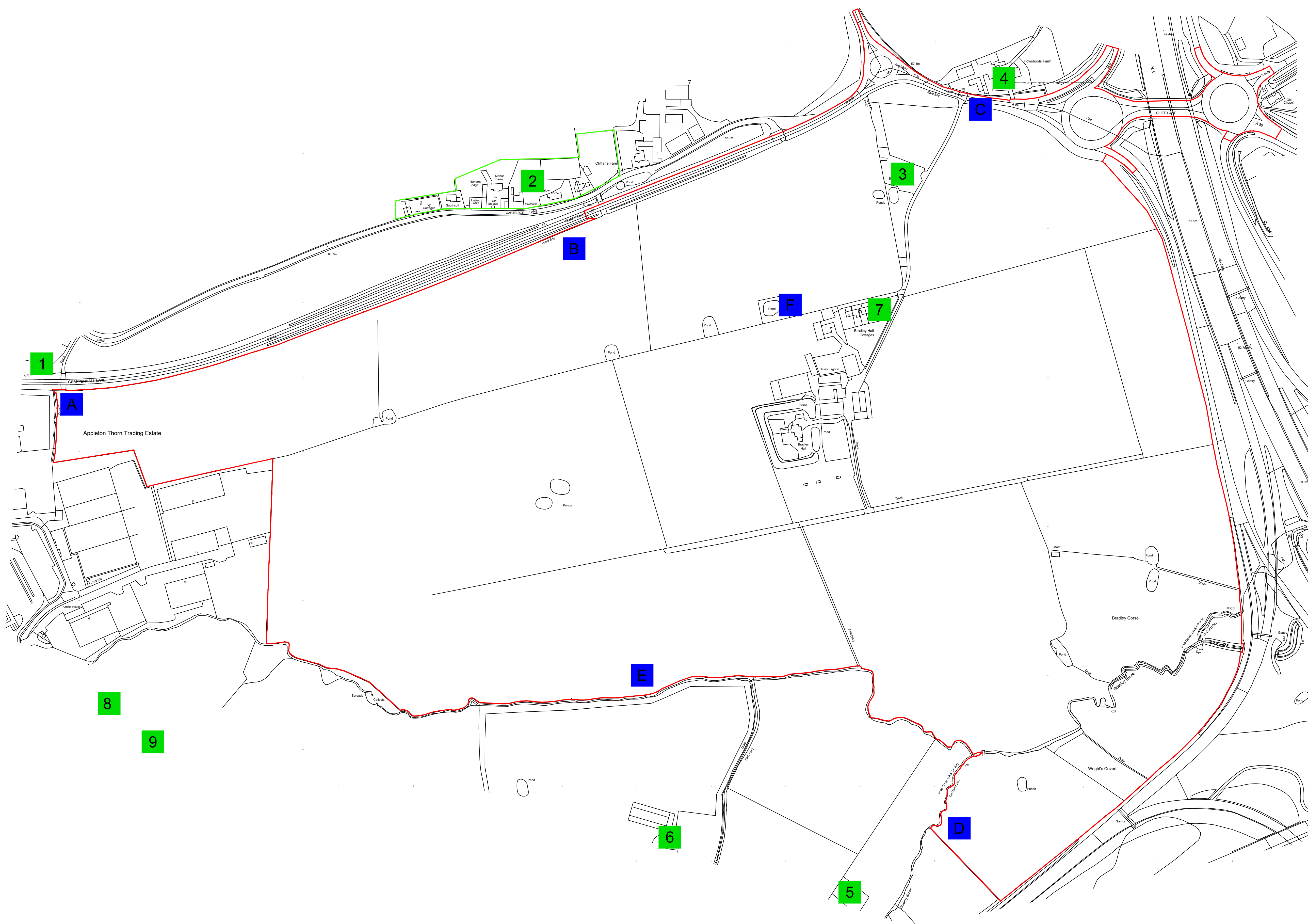
Architect
STEPHEN GEORGE PARTNERS

Title
NOISE RECEPTOR PLAN

Drawing No.	CLXX(52)0002	Drawing Status	INFORMATION
Job No.	1015524	Scale	NTS

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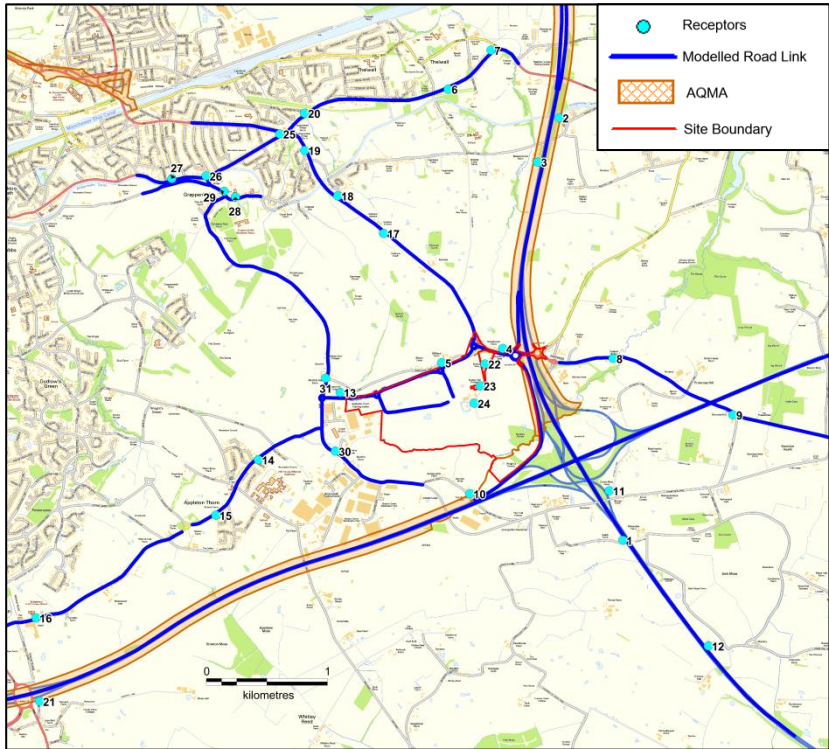
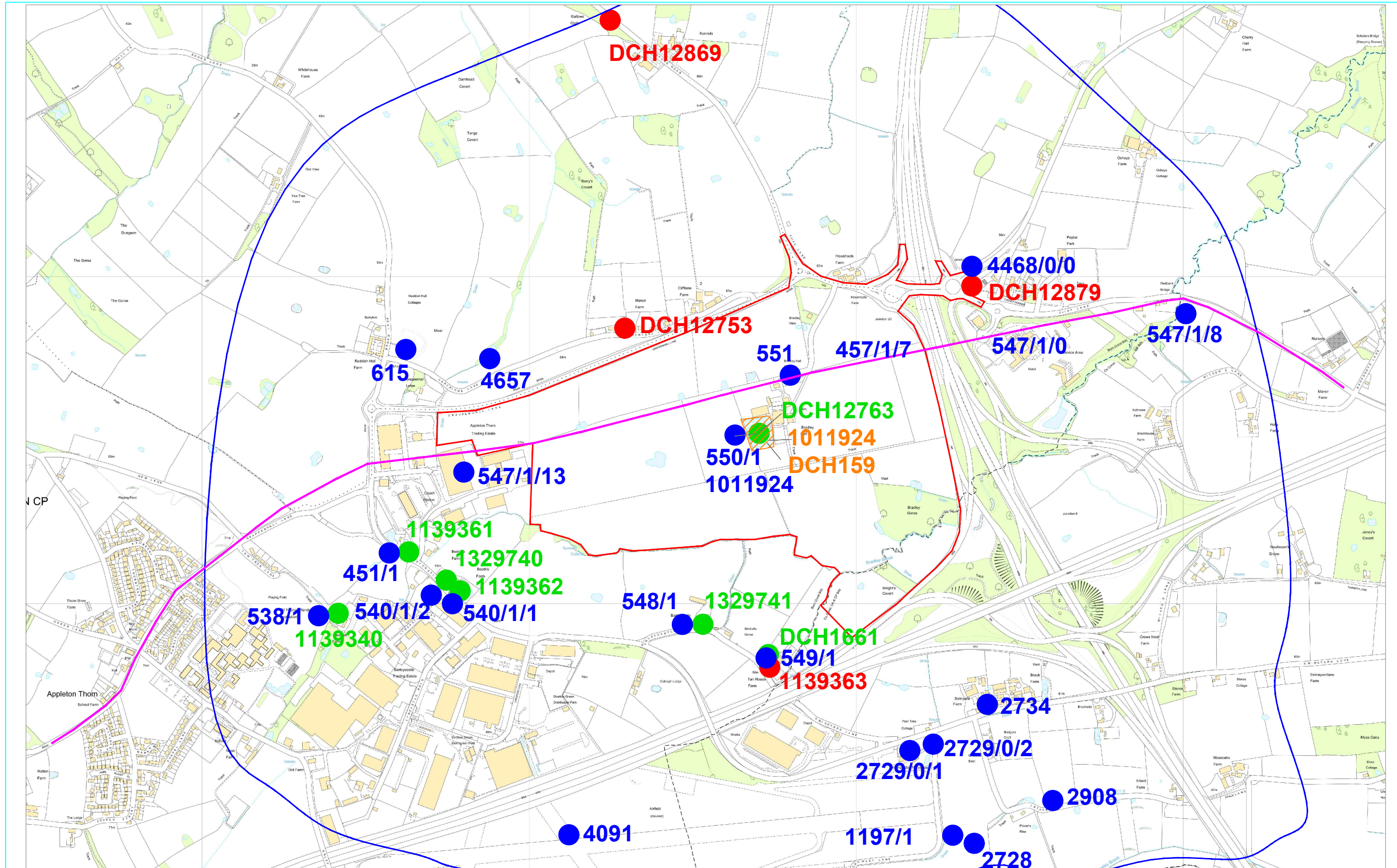


Figure 1 Air Quality - Receptor Plan

Receptor ID	Receptor Name	x	Y
1	Intack Farm	367001	383414
2	Massey Avenue	366476	386920
3	Masseybrook Farm	366297	386553
4	Howshoots Farm	366009	385005
5	Cartridge Lane	365506	384888
6	Stockport Road 1	365559	387158
7	Stockport Road 2	365913	387481

Receptor ID	Receptor Name	x	Y
8	Cliff Lane	366919	384923
9	Primrose Hill	367908	384455
10	Tan House Farm	365738	383800
11	Crows Nest Farm	366888	383825
12	Mill Farm	367706	382537
13	Grappenhall Lodge	364669	384641
14	Crofton Close	363994	384082
15	Hatchery Close	363643	383622
16	St Matthews CofE Primary School	362159	382770
17	Knutsford Road	365028	385960
18	Cliff Lane	364649	386272
19	Gilwell Close	364376	386650
20	Westminster Close	364374	386957
21	Summit Close	362189	382078
22	Bradley View	365862	384877
23	Bradley Hall Cottages	365824	384695
24	Bradley Hall	365775	384551
25	Chester Road 1	364169	386786
26	Chester Road 2	363563	386438
27	Chester Road 3	363280	386414
28	Church Lane 1	363804	386262
29	Church Lane 2	363710	386309
30	Barleycastle Lane	364627	384154
31	Broad Lane	364549	384759

Table 1 Air Quality - Sensitive Receptors



NOTES

- DO NOT SCALE THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/ VERIFIED ON SITE. IF IN DOUBT ASK.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
- ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY	
	Study area
	Proposed development site
	Roman Roads
	Listed building
	Archaeological Monuments
	Scheduled Monuments
	Locally listed buildings

ISSUES & REVISIONS				
Rev	Date	Details of issue / revision	Drw	Rev
P1	15.10.17	PRELIMINARY ISSUE	KW	XX
P1	28.11.17	FINAL ISSUE	KW	

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Client	Six56, Warrington		
Scale	1:11000	Drawn	KM
Size	A3	Reviewed	JMQ

Project Title	Six56, Warrington
Drawing Title	Location of Heritage Assets
Drawing Status	FINAL

Drawing No.	ABC/123/100	Revision	P2
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The following details those assets recorded on the plan showing the Cultural Heritage Assets.

HER Reference	Site Name	Grid Reference	Significance	Description
DCH1638 538/1	Yew Tree Farmhouse Grade II Listed Building I139340	SJ 6442 8396	High	Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.
DCH1659 541/1	Beehive Farmhouse Grade II Listed Building I139361	SJ 6463 8415	High	Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.
DCH1660 540/1/1	Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I139362	SJ 6475 8406	High	Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.
DCH1661 549/1	Tanyard Farm, Farm Building Grade II* Listed Building I139363	SJ 6573 8384	High	Grade II* listed Threshing Barn. It dates from the late 16th century and is oak framed on a sandstone plinth. It has been altered and partly converted into a Shippon (cow house) there is also an 18th century or early 19th-century cartshed and stable here.
DCH1934	Booths Farm Farmhouse Grade II Listed Building I329740	SJ 6477 8404	High	Farmhouse, late C17, altered. Brick rendered mid-C20, with gable copings, cyma kneelers and some dressings of sandstone; graded grey slate roof. Interior C17 open-well newel stair with plain flat (replacement) balusters between ground and first floor and original splat balusters to upper flights and top landing.
DCH1935 548/1	Barleycastle Farmhouse Grade II Listed Building I329741	SJ 6553 8393	High	Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebble-dashed exterior over the original oak framing.
DCH159	Bradley Hall Moated Site, Scheduled Monument, I011924	SJ 6570 8452	High	<p>The monument comprises a moated site, the island of which is partially occupied by a modernised farmhouse and garden but which was formerly occupied by the manor house of Bradley Hall.</p> <p>The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge.</p>
Locally Listed Building				
DCH12753	Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building	SJ 6529 8484	Medium	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.

DCH12763	Bradley Hall and barn, Cliff Lane, Appleton	SJ 6571 8453	Medium	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
DCH12869	Milepost at Gallows Croft, Knutsford Road, Lymm	SJ 6524 8578	Medium	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
DCH12879	Old Chapel, Old Cherry Lane, Lymm Locally Listed Building	SJ 6635 8497	Medium	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
DCH13677	Tan House Farm, Barleycastle Lane, Appleton	SJ 6573 8381	Medium	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
Events				
ECH3541	M6 Motorway Widening Scheme, Junctions 16-20. Archaeological Recording of Test Pits.	SJ 723 679	Low	Geological monitoring of test pits 3m by 1m. No significant below ground, archaeological deposits were identified. However given the location of the test pits was chosen on geological and not archaeological grounds.
ECH3554	Greater Manchester Western and Northern Relief Road (M56-M6 link): Archaeological Assessment Report	SJ 703 908	Low	Archaeological assessment, produced in 1993, of three alternative routes proposed for the Greater Manchester Western & Northern Relief Road (M56-M62 Link).
ECH3566	M6 Junctions 16-20 Widening: Archaeological Desk-Top Survey	SJ 755 637	Low	A programme of archaeological assessment undertaken between October 1992 and June 1993 to assess implications of the proposed road widening of the M6 motorway between junctions 16 and 20, and to recommend further measures for recording of affected sites
ECH3652	M6 widening: Junctions 16- 20: Report on Geophysical Survey	SJ 755 637	Low	The results of the geophysical surveys were reported in report SCH4295. Five sites were identified for geophysical survey, of these, two were the location of possible brick kilns, two possibly contained lengths of King Street Roman road and one was potentially the site of salt works. However, the majority of survey areas produced very few anomalies of archaeological interest and most of the data sets were dominated by ferrous responses, predominantly the result of buried pipes and other modern ferrous material. No brick kilns were positively identified.
ECH3653	M6 Widening: Junctions 16- 20. Report on Earthwork Survey	SJ 755 637	Low	A total of 9 sites, totalling an area of 15.67ha, was subject to topographic survey. Most of the sites surveyed were of ridge and furrow earthworks, but they also included a leat relating to Lower Roughwood Mill, and a potential building platform close to Bostock Hall.

ECH3654	M6 Widening: Junctions 16- 20, Cheshire. Cultural Heritage, Stage 3 Assessment Report Text	SJ 755 637	Low	-
ECH4557	Report on Northwest Telent Techmac Design and Consultancy Services Framework Provision of Variable Message Signs on the M56 Between Junctions J9 -16	SJ 520 781	Low	An appraisal or assessment of cultural heritage along the M56 between junctions J9 and J16. Identified listed buildings and sites from which the proposed signs would be visible. These include a moated site, fishpond and connecting channel at Elton, a heavy anti aircraft gun site 400m west of Sutton Fields Farm and two sections of Roman Road between Appleton and Stretton.
ECH4559	Bradley Hall Appleton, The Moated Site and Survey and Research Report	SJ 657 845	Low	The resistivity survey indicated a damp area, running from the house to the oat edge. This was not thought to be drains by the owner. There were dry areas on the South West of the survey. This could confirm the existence of large greenhouses that stood on the site some years ago. The dry areas suggest the presence of buried foundations. Survey also picked up a possible track to the north of the site, potentially Roman
ECH4566	An Archaeological Watching Brief at Bradley Hall Moat, Appleton, Warrington. Final Report	SJ 657 845	Low	Watching brief carried out during the excavation of foundations for a replacement extension to the farmhouse at Bradley Hall Farm, Appleton, Warrington. The moat is a scheduled ancient monument. The foundations were shallow and built on clay which overlay an uneven spread of cobbles which in turn lay over a buried soil. The latter produced the base of a 14th-15th century jar. Industrial waste was recovered that had apparently been used to make paths and other surfaces. The numbers of finds was relatively small but, the conclusions suggest, this is not unusual for sites such as this.
ECH5845	Stretton Airfield, Design Access Statement	SJ 652 835	Low	A design and access statement prepared by Jeffery Bell Architects on behalf of Hensmill Property to support an application for planning permission for a below ground car storage and display facility and an above ground ancillary office.
Monuments				
1197/1	Kings Brook Mill Site of Watermill Industrial Site, Mill, Watermill	SJ 6 8	Low	Place name evidence for a watermill site at High Legh.
2728	Unnamed Site in High Legh Parish Site of 19th century cottage House	SJ 663 832	Low	A single cottage and garden in Crawley Lane is shown on High Legh tithe map in 1849. It is now demolished.
2729/0/1	Swineyard Lane Site of a 19th century house	SJ 661 835	Low	A house with outbuildings, yard and garden in Swineyard Lane shown on the High Legh tithe map in 1848. It has now been demolished.

2729/0/2	Swineyard Lane Site of 19th Century Building House	SJ 662 835 (point)	Low	High Legh tithe map shows a single building and garden now demolished.
2734	Swineyard Farm Prehistoric axe Findspot	SJ 6640 8370	Low	Dark, fine grained stone shaft-hole axe, now in Warrington museum.
2908	Badger's Croft Farm I Cropmark Enclosure. Ditched Enclosure	SJ 66 83	Low	Elliptical shaped cropmark, purpose unknown. 40 to 50 metres in diameter lying on the western end of the High Legh Ridge. Cropmarks are visible changes in the growth of vegetation that may indicate a buried feature.
4091	RNAS Stretton/HMS Blackcap Airfield WW2 Airfield Military Airfield	Centred SJ 652 835	Low	World War 2 military airfield opened in 1942 and run as Royal Navy HMS Blackcap from December 1944.
4468/0/0	Strict Baptist Chapel, Cherry Lane Strict Baptist Chapel Strict Baptist Chapel	Centred SJ 663 849	Low	Strict Baptist Chapel built in 1819 from brick with round arched windows. A porch was added and the interior was refitted in 1889.
4657	Pond, North of Cartridge Lane, Grappenhall. Pond shown on OS 1st Edition Maps of Cheshire	SJ 648 847	Low	Pond with sluice at north end shown on the 1st edition Ordnance Survey maps. The 6" 1st edition map was surveyed 1873-6 and was published in 1882. Now a water-filled hollow, with a low bank along the field boundary to the west. Heavily overgrown by trees. Sluice not identified.
538/1 (DCH1638)	Yew Tree Farmhouse 17th century farmhouse Farm, Farmstead,	SJ 644 839	High	Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.
540/1/1 DCH1660	Booth's Farm Farmhouse Post Medieval farmhouse Farm, Farmstead	SJ 647 840	Low	Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.
540/1/2	Shippon, Booth's Farm Timber framed barn Cow House, Farm, Farmstead, Barn	SJ 647 840	Low	Grade II listed timber framed barn. It has an oak frame and a grey slate roof dating to the post-medieval period (17th century).
541/1 (DCH1659)	Beehive Farmhouse Post Medieval farmhouse Farm, Farmstead, Timber Framed Building,	SJ 646 841	High	Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.
547/1/0	North Cheshire Ridge Roman Road	SJ 66 83	Low	Roman Road, The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north. The road surface was observed in excavation (547/1/1). Unusually for Roman roads in Cheshire there were drainage ditches along each side of the road structure, some 2m wide and 0.6m deep. The agger apparently had a rough

				curb on each side to retain the structure. There is good evidence that the road continued as a route in medieval times.
547/1/13	North Cheshire Ridge Roman Road – Stretton Airfield Section of Roman Road	SJ 648 844	Low	Section through North Cheshire Ridge Roman road at Stretton Airfield. The road surface here was 13.5 metres wide. Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.
547/1/7	The North Cheshire Ridge Roman Road Section of Roman road	SJ 658 846	Low	Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.
547/1/8	The North Cheshire Ridge Roman Road Section of Roman road	SJ 67 84	Low	Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.
548/1	Barley castle Farmhouse Post Medieval farmhouse Farm,	SJ 655 839	High	Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebbledashed exterior over the original oak framing.
549/1 DCH1661	Tanyard Farm Farm-building 16th century barn Cow House, Farm, Stable	SJ 657 838	High	Grade II* listed Threshing Barn. It dates from the late 16th century and is oak framed on a sandstone plinth. It has been altered and partly converted into a Shippon (cow house) there is also an 18th century or early 19th-century cartshed and stable here.
550/1	Bradley Hall moated site Medieval moated site Manor, Manor House, Moat, Gate Centred	SJ 656 845	High	The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge.
551	Bradley Cross Site of medieval cross	SJ 6 8	Low	"Crux de Braddelegh" is mentioned in documents dated 1386. The cross that once marked the point where Grappenhall, Lymm and Appleton met is now lost.
615	Reddish Hall Medieval moated site Moat	SJ 646 847	Medium	Site of Reddish Hall, a medieval moated hall. The hall is no longer standing and the three sides of the moat are now spread by ploughing.

The following details those assets recorded on the plan showing the Cultural Heritage Assets.

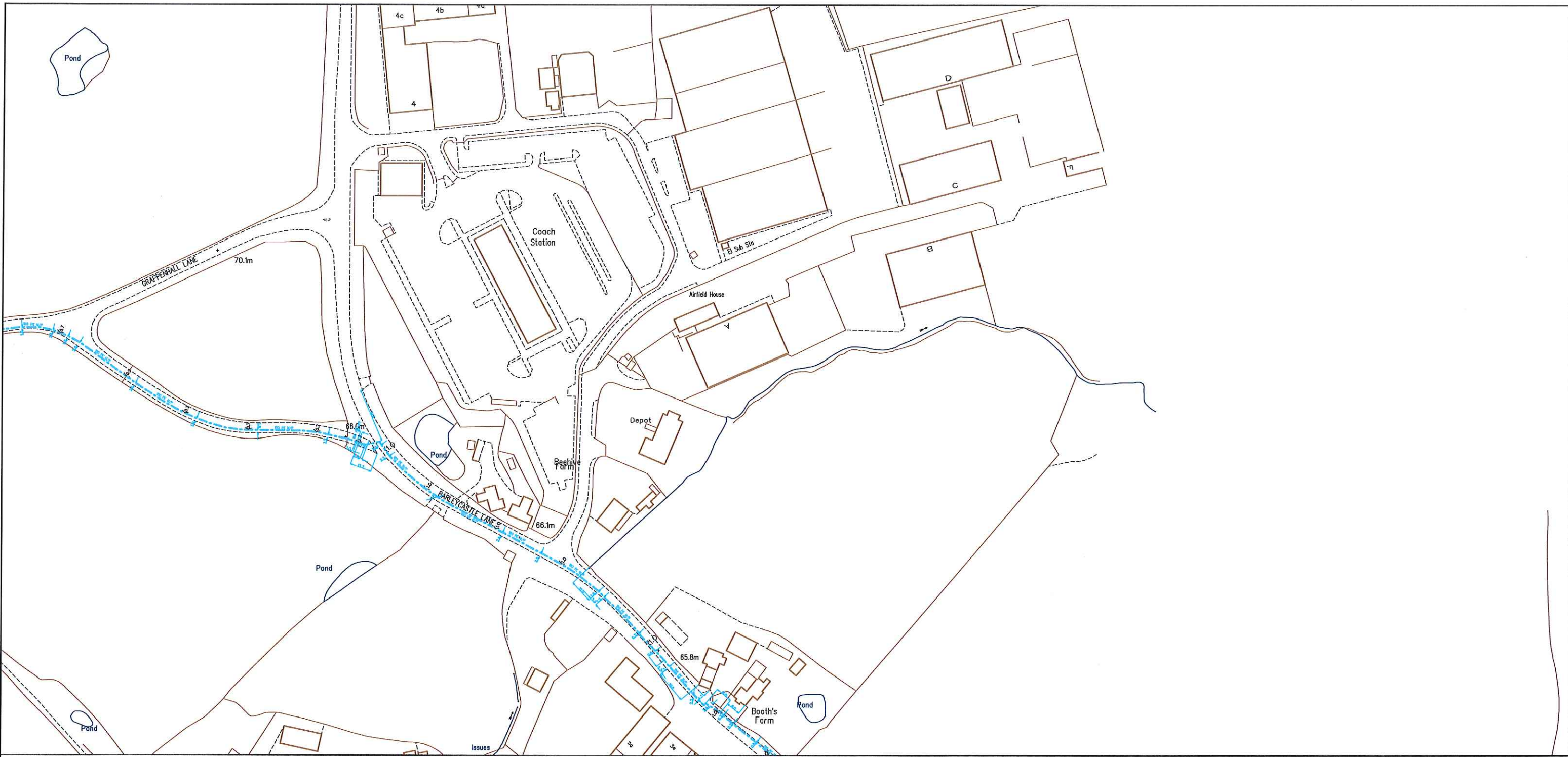
HER Reference	Site Name	Grid Reference	Description
<i>Designated Assets</i>			
DCH1638 538/1	Yew Tree Farmhouse Grade II Listed Building I 139340	SJ 6442 8396	Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.
DCH1659 541/1	Beehive Farmhouse Grade II Listed Building I 139361	SJ 6463 8415	Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.
DCH1660 540/1/1	Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I 139362	SJ 6475 8406	Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.
DCH1661 549/1	Tanyard Farm, Farm Building Grade II* Listed Building I 139363	SJ 6573 8384	Grade II* listed Threshing Barn. It dates from the late 16th century and is oak framed on a sandstone plinth. It has been altered and partly converted into a Shippon (cow house) there is also an 18th century or early 19th-century cartshed and stable here.
DCH1934	Booths Farm Farmhouse Grade II Listed Building I 329740	SJ 6477 8404	Farmhouse, late C17, altered. Brick rendered mid-C20, with gable copings, cyma kneelers and some dressings of sandstone; graded grey slate roof. Interior C17 open-well newel stair with plain flat (replacement) balusters between ground and first floor and original splat balusters to upper flights and top landing.
DCH1935 548/1	Barleycastle Farmhouse Grade II Listed Building I 329741	SJ 6553 8393	Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebble-dashed exterior over the original oak framing.
DCH159	Bradley Hall Moated Site, Scheduled Monument, I 011924	SJ 6570 8452	The monument comprises a moated site, the island of which is partially occupied by a modernised farmhouse and garden but which was formerly occupied by the manor house of Bradley Hall. The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge.
<i>Locally Listed Assets</i>			
DCH12753	Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building	SJ 6529 8484	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
DCH12763	Bradley Hall and barn, Cliff Lane, Appleton	SJ 6571 8453	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.

DCH12869	Milepost at Gallows Croft, Knutsford Road, Lymm	SJ 6524 8578	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
DCH12879	Old Chapel, Old Cherry Lane, Lymm Locally Listed Building	SJ 6635 8497	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
DCH13677	Tan House Farm, Barleycastle Lane, Appleton	SJ 6573 8381	Warrington Borough Council Executive Board Report: List of Locally Important Buildings and Structures of Architectural or Historic Interest.
<i>Events</i>			
ECH3541	M6 Motorway Widening Scheme, Junctions 16-20. Archaeological Recording of Test Pits.	SJ 723 679	Geological monitoring of test pits 3m by 1m. No significant below ground, archaeological deposits were identified. However given the location of the test pits was chosen on geological and not archaeological grounds.
ECH3554	Greater Manchester Western and Northern Relief Road (M56-M6 link): Archaeological Assessment Report	SJ 703 908	Archaeological assessment, produced in 1993, of three alternative routes proposed for the Greater Manchester Western & Northern Relief Road (M56-M62 Link).
ECH3566	M6 Junctions 16-20 Widening: Archaeological Desk-Top Survey	SJ 755 637	A programme of archaeological assessment undertaken between October 1992 and June 1993 to assess implications of the proposed road widening of the M6 motorway between junctions 16 and 20, and to recommend further measures for recording of affected sites
ECH3652	M6 widening: Junctions 16- 20: Report on Geophysical Survey	SJ 755 637	The results of the geophysical surveys were reported in report SCH4295. Five sites were identified for geophysical survey, of these, two were the location of possible brick kilns, two possibly contained lengths of King Street Roman road and one was potentially the site of salt works. However, the majority of survey areas produced very few anomalies of archaeological interest and most of the data sets were dominated by ferrous responses, predominantly the result of buried pipes and other modern ferrous material. No brick kilns were positively identified.
ECH3653	M6 Widening: Junctions 16- 20. Report on Earthwork Survey	SJ 755 637	A total of 9 sites, totalling an area of 15.67ha, was subject to topographic survey. Most of the sites surveyed were of ridge and furrow earthworks, but they also included a leat relating to Lower Roughwood Mill, and a potential building platform close to Bostock Hall.
ECH3654	M6 Widening: Junctions 16- 20, Cheshire. Cultural Heritage, Stage 3 Assessment Report Text	SJ 755 637	-
ECH4557	Report on Northwest Telent Techmac Design and Consultancy Services Framework Provision of	SJ 520 781	An appraisal or assessment of cultural heritage along the M56 between junctions J9 and J16. Identified listed buildings and sites from which the proposed signs would be visible. These include a moated site, fishpond and connecting channel at

	Variable Message Signs on the M56 Between Junctions J9 -16		Elton, a heavy anti aircraft gun site 400m west of Sutton Fields Farm and two sections of Roman Road between Appleton and Stretton.
ECH4559	Bradley Hall Appleton, The Moated Site and Survey and Research Report	SJ 657 845	The resistivity survey indicated a damp area, running from the house to the oat edge. This was not thought to be drains by the owner. There were dry areas on the South West of the survey. This could confirm the existence of large greenhouses that stood on the site some years ago. The dry areas suggest the presence of buried foundations. Survey also picked up a possible track to the north of the site, potentially Roman
ECH4566	An Archaeological Watching Brief at Bradley Hall Moat, Appleton, Warrington. Final Report	SJ 657 845	Watching brief carried out during the excavation of foundations for a replacement extension to the farmhouse at Bradley Hall Farm, Appleton, Warrington. The moat is a scheduled ancient monument. The foundations were shallow and built on clay which overlay an uneven spread of cobbles which in turn lay over a buried soil. The latter produced the base of a 14th-15th century jar. Industrial waste was recovered that had apparently been used to make paths and other surfaces. The numbers of finds was relatively small but, the conclusions suggest, this is not unusual for sites such as this.
ECH5845	Stretton Airfield, Design Access Statement	SJ 652 835	A design and access statement prepared by Jeffery Bell Architects on behalf of Hensmill Property to support an application for planning permission for a below ground car storage and display facility and an above ground ancillary office.
<i>Monuments</i>			
1197/1	Kings Brook Mill Site of Watermill Industrial Site, Mill, Watermill	SJ 6 8	Place name evidence for a watermill site at High Legh.
2728	Unnamed Site in High Legh Parish Site of 19th century cottage House	SJ 663 832	A single cottage and garden in Crawley Lane is shown on High Legh tithe map in 1849. It is now demolished.
2729/0/1	Swineyard Lane Site of a 19th century house	SJ 661 835	A house with outbuildings, yard and garden in Swineyard Lane shown on the High Legh tithe map in 1848. It has now been demolished.
2729/0/2	Swineyard Lane Site of 19th Century Building House	SJ 662 835 (point)	High Legh tithe map shows a single building and garden now demolished.
2734	Swineyard Farm Prehistoric axe Findspot	SJ 6640 8370	Dark, fine grained stone shaft-hole axe, now in Warrington museum.
2908	Badger's Croft Farm I Cropmark Enclosure. Ditched Enclosure	SJ 66 83	Elliptical shaped cropmark, purpose unknown. 40 to 50 metres in diameter lying on the western end of the High Legh Ridge. Cropmarks are visible changes in the growth of vegetation that may indicate a buried feature.
4091	RNAS Stretton/HMS Blackcap Airfield WW2 Airfield Military Airfield	Centred SJ 652 835	World War 2 military airfield opened in 1942 and run as Royal Navy HMS Blackcap from December 1944.

4468/0/0	Strict Baptist Chapel, Cherry Lane Strict Baptist Chapel Strict Baptist Chapel	Centred SJ 663 849	Strict Baptist Chapel built in 1819 from brick with round arched windows. A porch was added and the interior was refitted in 1889.
4657	Pond, North of Cartridge Lane, Grappenhall. Pond shown on OS 1st Edition Maps of Cheshire	SJ 648 847	Pond with sluice at north end shown on the 1st edition Ordnance Survey maps. The 6" 1st edition map was surveyed 1873-6 and was published in 1882. Now a water-filled hollow, with a low bank along the field boundary to the west. Heavily overgrown by trees. Sluice not identified.
538/1 (DCH1638)	Yew Tree Farmhouse 17th century farmhouse Farm, Farmstead,	SJ 644 839	Yew Tree Farmhouse is Grade II listed. It has oak framing cased in brick with a grey slate roof. It was probably built around 1800 and later altered.
540/1/1 DCH1660	Booth's Farm Farmhouse Post Medieval farmhouse Farm, Farmstead	SJ 647 840	Grade II listed farmhouse built in the late 17th century. It has a 20th-century rendered brick exterior.
540/1/2	Shippon, Booth's Farm Timber framed barn Cow House, Farm, Farmstead, Barn	SJ 647 840	Grade II listed timber framed barn. It has an oak frame and a grey slate roof dating to the post-medieval period (17th century).
541/1 (DCH1659)	Beehive Farmhouse Post Medieval farmhouse Farm, Farmstead, Timber Framed Building,	SJ 646 841	Grade II listed farmhouse, probably built in the 17th century and later altered. It is timber framed with brick infill and was formerly thatched.
547/1/0	North Cheshire Ridge Roman Road	SJ 66 83	Roman Road, The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north. The road surface was observed in excavation (547/1/1). Unusually for Roman roads in Cheshire there were drainage ditches along each side of the road structure, some 2m wide and 0.6m deep. The agger apparently had a rough curb on each side to retain the structure. There is good evidence that the road continued as a route in medieval times.
547/1/13	North Cheshire Ridge Roman Road – Stretton Airfield Section of Roman Road	SJ 648 844	Section through North Cheshire Ridge Roman road at Stretton Airfield. The road surface here was 13.5 metres wide. Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.
547/1/7	The North Cheshire Ridge Roman Road Section of Roman road	SJ 658 846	Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.
547/1/8	The North Cheshire Ridge Roman Road Section of Roman road	SJ 67 84	Roman Road traced for around 12km. The alignment is dictated by the crest-line of the escarpment of New Red Sandstone overlooking the Mersey valley to the north.
548/1	Barley castle Farmhouse Post Medieval farmhouse Farm,	SJ 655 839	Barleycastle Farmhouse is Grade II listed and was built in the 17th century or earlier. It has 19th-century alterations including a pebbledashed exterior over the original oak framing.

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550/1	Bradley Hall moated site Medieval moated site Manor, Manor House, Moat, Gate Centred	SJ 656 845	The site of Bradley Hall, a moated Manor House is a Scheduled Monument. It was built in 1460 though some parts may have been earlier. The moat is water-filled up to a depth of 2.5m and the platform is now partially occupied by a modernised farmhouse and garden. A causeway on the east side replaces the original drawbridge.
551	Bradley Cross Site of medieval cross	SJ 6 8	"Crux de Braddelegh" is mentioned in documents dated 1386. The cross that once marked the point where Grappenhall, Lymm and Appleton met is now lost.
615	Reddish Hall Medieval moated site Moat	SJ 646 847	Site of Reddish Hall, a medieval moated hall. The hall is no longer standing and the three sides of the moat are now spread by ploughing.



SCALE: Not to scale
 USER ID: mmattatia
 DATE: 15/08/2017
 EXTRACT DATE: 05/06/2017
 MAP REF: SJ6484
 CENTRE: 364802, 384242

LP MAINS	
MP MAINS	
IP MAINS	
LHP MAINS	
NHP MAINS	

Some examples of Plant Items:

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This plan shows those pipes owned by National Grid Gas plc in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by National Grid Gas plc or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue. Further information on all DR4s can be determined by calling the DR4 hotline on 01455 892426 (9am-5pm) A DR4 is where a potential error has been identified within the asset record and a process is currently underway to investigate and resolve the error as appropriate.

MAPS Viewer Version 5.7.0.0

Local Machine

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The position and depths of underground and overhead apparatus as indicated on this plan are approximate and are intended for guidance only. The depths may have changed if the land surface levels have altered. You are also informed that the plan may not show, or may inaccurately show, individual property services and services to street lighting installations. The onus of locating the apparatus precisely before commencing any excavations or other works in the immediate vicinity therefore rests entirely upon the person undertaking or responsible for those works. Before any such works are undertaken the precise location of the apparatus and cables should therefore be ascertained by suitable means. In the event of an emergency or for further assistance please contact 0800-092-9290 (ScottishPower area) or 0800-001-5400 (SP Manweb area).



SP Manweb plc
Registered Office: c/o PowerSystems
3 Prenton Way, Prenton, CH43 3ET
Registered in England and Wales No 2366937

OVERHEAD LINE	---
UNDERGROUND CABLES	---
In Use	---
Out of Use	---
Assumed route	---
VOLTAGE COLOUR KEY	
EHV	132kV BLUE
HV	33kV GREEN
LV	RED BROWN

Where cables have been laid SINCE 1 OCTOBER 1988, the following depths in mm apply (to the tops of cables or ducts) UNLESS OTHERWISE SHOWN, but see comments. (TO TOP OF CABLE, ADD 75mm FOR BOTTOM OF TRENCH)

	EHV	HV	LV
IN FOOTPATHS :	775	600	450
ACROSS ROADS :	775	700	600
ALONG ROADS :	775	700	600
AGRICULTURAL :	910	910	910

Your attention is drawn to the Health and Safety Executive Booklet HSG47, available from HSE.

DATE: 14/08/2017

SCALE: 1 : 6,546

MAP REFERENCE: 365,512 384,470

0 20 40 80 120 160 Metres

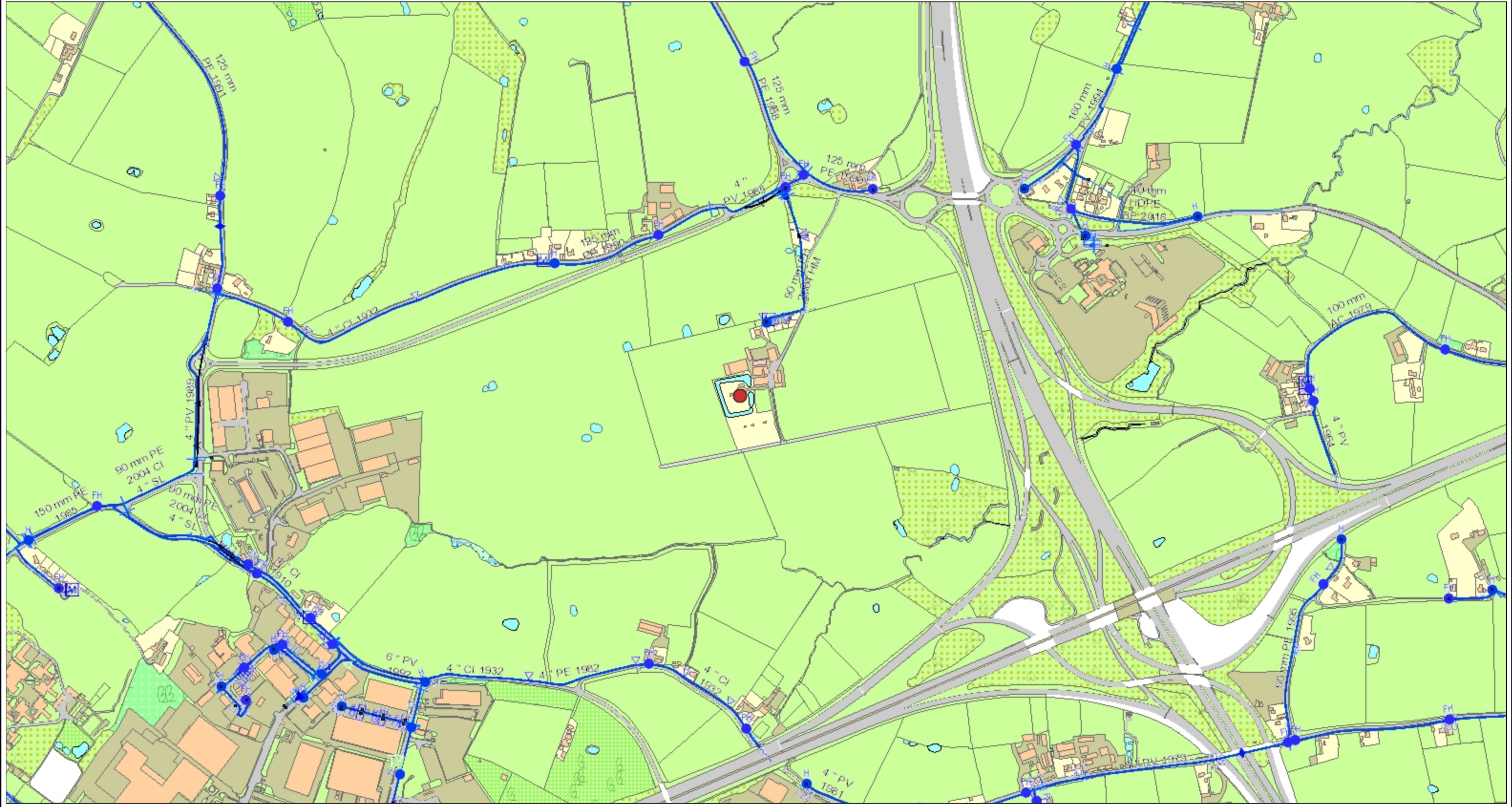
This map image may not be used for planning application use

UU Maps for Safe Dig

Centre : X : 365750 Y : 384510

Date : 16/08/2017 17:19:23

Scale Approx : 8000

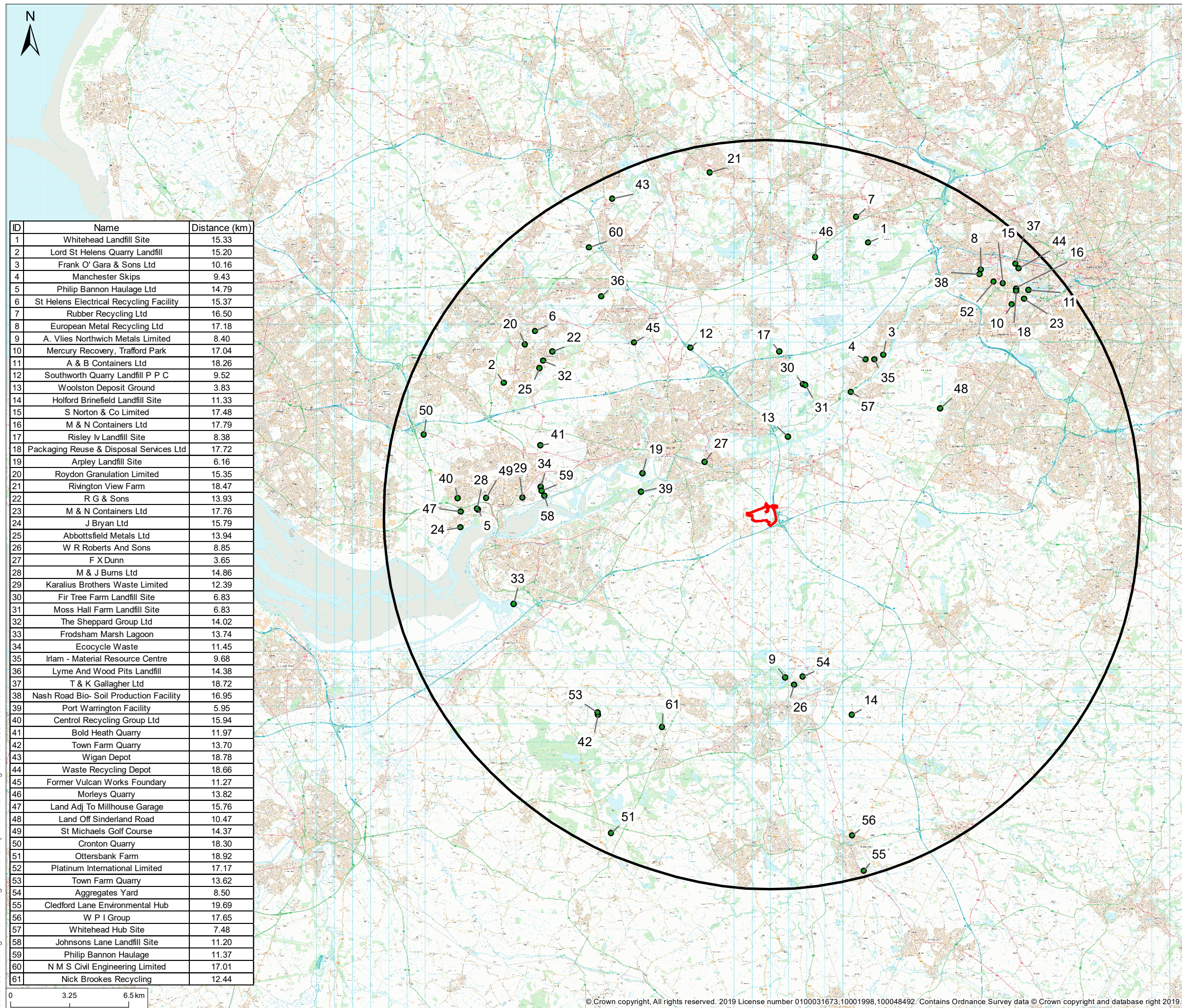


Extract from maps of United Utilities' Underground Assets

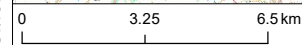
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private service pipes may be shown by a blue broken line. United Utilities Water will not accept liability for any damage caused by the actual position being different from those shown.

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ID	Name	Distance (km)
1	Whitehead Landfill Site	15.33
2	Lord St Helens Quarry Landfill	15.20
3	Frank O' Gara & Sons Ltd	10.16
4	Manchester Skips	9.43
5	Philip Bannon Haulage Ltd	14.79
6	St Helens Electrical Recycling Facility	15.37
7	Rubber Recycling Ltd	16.50
8	European Metal Recycling Ltd	17.18
9	A. Vlies Northwich Metals Limited	8.40
10	Mercury Recovery, Trafford Park	17.04
11	A & B Containers Ltd	18.26
12	Southworth Quarry Landfill P P C	9.52
13	Woolston Deposit Ground	3.83
14	Holford Brinefield Landfill Site	11.33
15	S Norton & Co Limited	17.48
16	M & N Containers Ltd	17.79
17	Risley Iv Landfill Site	8.38
18	Packaging Reuse & Disposal Services Ltd	17.72
19	Arpley Landfill Site	6.16
20	Roydon Granulation Limited	15.35
21	Rivington View Farm	18.47
22	R G & Sons	13.93
23	M & N Containers Ltd	17.76
24	J Bryan Ltd	15.79
25	Abbottsfield Metals Ltd	13.94
26	W R Roberts And Sons	8.85
27	F X Dunn	3.65
28	M & J Burns Ltd	14.86
29	Karalius Brothers Waste Limited	12.39
30	Fir Tree Farm Landfill Site	6.83
31	Moss Hall Farm Landfill Site	6.83
32	The Sheppard Group Ltd	14.02
33	Frodsham Marsh Lagoon	13.74
34	Ecocycle Waste	11.45
35	Irlam - Material Resource Centre	9.68
36	Lyme And Wood Pits Landfill	14.38
37	T & K Gallagher Ltd	18.72
38	Nash Road Bio- Soil Production Facility	16.95
39	Port Warrington Facility	5.95
40	Central Recycling Group Ltd	15.94
41	Bold Heath Quarry	11.97
42	Town Farm Quarry	13.70
43	Wigan Depot	18.78
44	Waste Recycling Depot	18.66
45	Former Vulcan Works Foundary	11.27
46	Morleys Quarry	13.82
47	Land Adj To Millhouse Garage	15.76
48	Land Off Sinderland Road	10.47
49	St Michaels Golf Course	14.37
50	Cronton Quarry	18.30
51	Ottersbank Farm	18.92
52	Platinum International Limited	17.17
53	Town Farm Quarry	13.62
54	Aggregates Yard	8.50
55	Cledford Lane Environmental Hub	19.69
56	W P I Group	17.65
57	Whitehead Hub Site	7.48
58	Johnsons Lane Landfill Site	11.20
59	Philip Bannon Haulage	11.37
60	N M S Civil Engineering Limited	17.01
61	Nick Brookes Recycling	12.44



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 2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.

Legend
 Site location
 Waste Sites
 20km Buffer

Rev	Description	By	CB	Date



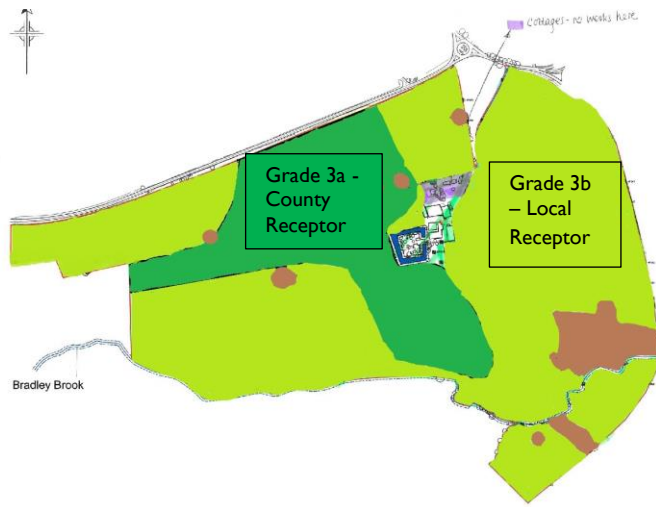
20 Western Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4SH
 T: +44(0)1235 821 888 E: rps@rpsgroup.com

Client **Langtree and First Panattoni**
 Project **Six 56 Warrington**
 Title **Waste Receptor Plan**

Status **DRAFT** Drawn By **BG** PM/Checked By **CR**
 Project Number **OXF10756** Scale @ A3 **1:200,000** Date Created **FEB 2019**
 Figure Number **1** Rev **-**

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O:\10765 Warrington Interchange Waste Chapter\Tech\Drawings\10765-0007-03.mxd



Key

	3a	County Receptor
	3b	Local Receptor
	Non Agricultural	None

Agricultural Land and Soils Receptor Plan

ES Part I Appendix 7

Based on:	Rev
Architects Dwg No.	Rev
Structural Dwg No.	Rev
Survey Dwg No.	Rev
Other Dwg No.	Rev

DO NOT SCALE FROM THIS DRAWING

Notes

- NET FIGURES ASSUMED EXCAVATED MATERIAL IS SUITABLE TO BE REUSED AS FILL MATERIAL. TESTING WILL BE REQUIRED TO CONFIRM THIS.
- FOR PROPOSED FINISHED LEVEL INFORMATION PLEASE REFER TO DRAWING CLXX(52)4003
- ALL REDUCED LEVEL INFORMATION IS BASED ON AN ASSUMED CBR VALUE OF 3% (TO BE CONFIRMED).
- THE ESTIMATION OF C&F VOLUME EXCLUDES ANY ARISING FROM FOUNDATIONS, DRAINAGE AND SUNDRY INSTALLATIONS
- BULKING FACTORS HAVE NOT BEEN CONSIDERED.

SITE STRIP

- TOPSOIL SITE STRIP CUT = 291770m³ BASED ON 300mm SITE STRIP/TOPSOIL DEPTH.

FORMATION DEPTHS

THE VOLUMETRIC ANALYSIS IS BASED ON THE FORMATION LEVELS FROM THE AREAS AS BELOW:

- 600mm FOR ROADS
- 600mm FOR PLOTS
- 500mm FOR CAR PARKS
- 300mm FOR LANDSCAPE

OVERALL VOLUMETRIC ANALYSIS

SUMMARY OF OVERALL VOLUMETRIC VOLUMES:

- CUT = 493464.077m³
- FILL = 451718.437m³
- NET CUT = 41745.639m³ (CUT)**

BUND VOLUMES

APPROX VOLUME OF 59500 m³ REQUIRED TO FORM BUNDS (ACOUSTIC BUND NOT DISPLAYED.)

TOTAL SURPLUS MATERIAL

APPROX 300MM TOP SOIL STRIP = 291770m³ (CUT)
 APPROX TOTAL VOLUME FOR SITE = 41745m³ (CUT)
 APPROX TOTAL VOLUME FOR BUND = 59500 m³ (FILL)
 APPROX REINSTATED LANDSCAPE = 76255 m³ (FILL)

TOTAL VOLUME OF SURPLUS TOP SOIL TO BE EXPORTED FROM SITE = 197760 m³

P#	Date	Description	By	Chkd	Verfd
P4	09.10.20	REVISED PLOT 1 BUND	MH	RT	BW
P3	20.03.20	REVISED LAYOUT	AW	RB	MH
P2	13.03.20	GABION WALL ADDED	AW	RB	MH
P1	25.02.20	REVISED LAYOUT	AW	RB	MH
-	-	FIRST ISSUE	JS	AF	LF

Project
 SIX: 56 WARRINGTON

Client
 LANGTREE / FIRST INDUSTRIAL

Architect
 STEPHEN GEORGE PARTNERS

Title
 EARTHWORKS CUT AND FILL ANALYSIS

Drawing No.
 CLXX(52)4001

Drawing Status
 INFORMATION

Job No.
 1015524

Scale
 1:2500

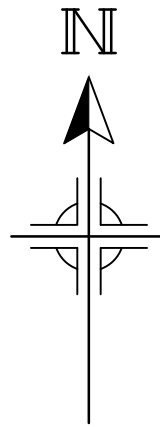
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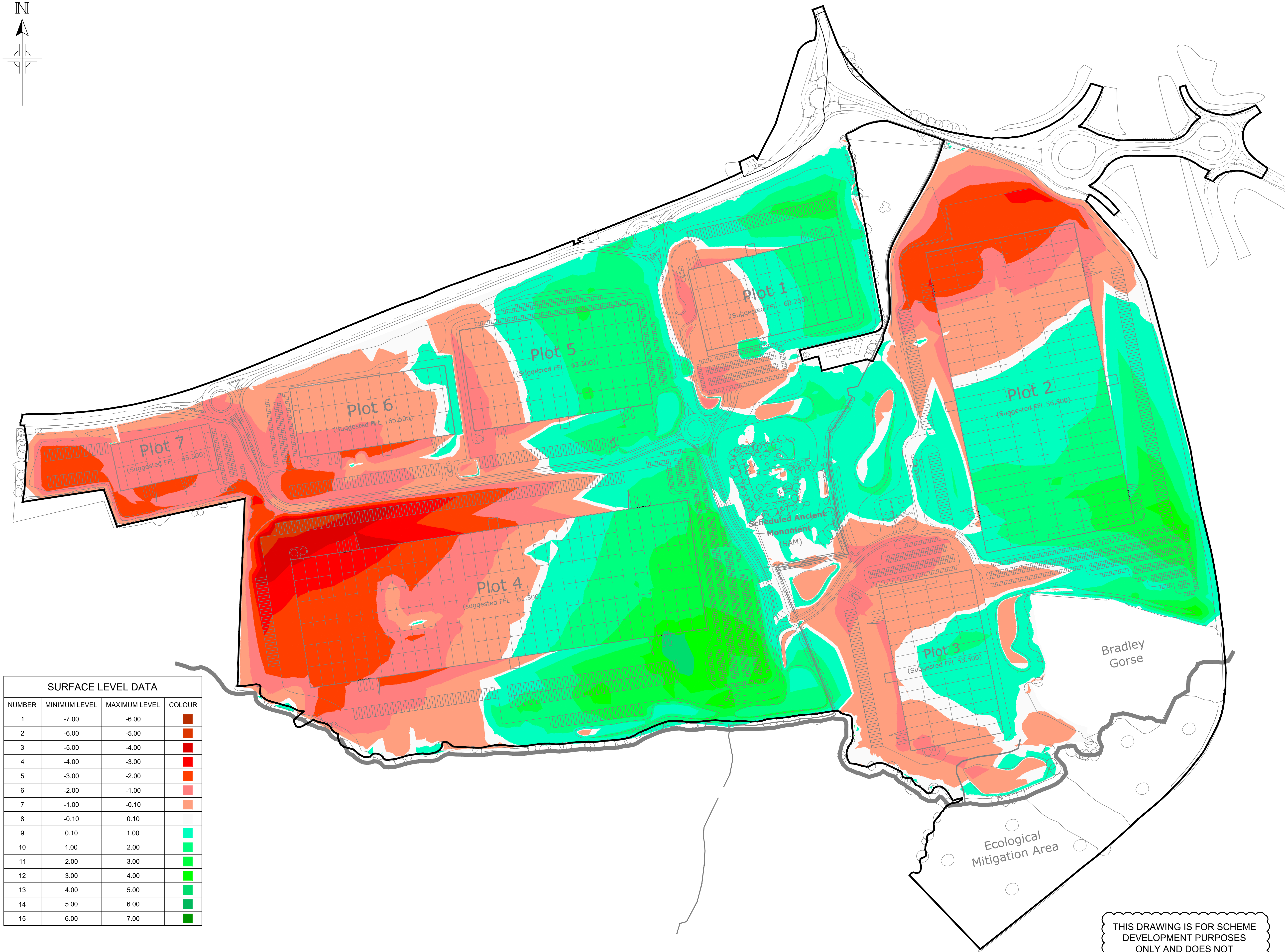
Verified
 LF

Issue
 -

4th Floor, Partnership House
 Regent Farm Road,
 Gosforth,
 Newcastle NE3 3AF
 Telephone: +44 (0)191 213 1515
 Website: www.cundall.com



NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-7.00	-6.00	Dark Red
2	-6.00	-5.00	Red
3	-5.00	-4.00	Bright Red
4	-4.00	-3.00	Red-Orange
5	-3.00	-2.00	Orange
6	-2.00	-1.00	Light Orange
7	-1.00	-0.10	Light Red
8	-0.10	0.10	White
9	0.10	1.00	Light Green
10	1.00	2.00	Light Green
11	2.00	3.00	Light Green
12	3.00	4.00	Light Green
13	4.00	5.00	Light Green
14	5.00	6.00	Light Green
15	6.00	7.00	Light Green



THIS DRAWING IS FOR SCHEME DEVELOPMENT PURPOSES ONLY AND DOES NOT REPRESENT FINISHED DESIGN LEVELS

Based on:	Rev
Architects Dwg No.	Rev
Structural Dwg No.	Rev
Survey Dwg No.	Rev
Other Dwg No.	Rev

DO NOT SCALE FROM THIS DRAWING

Notes

LEGEND:

- MINOR CONTOUR (200mm INTERVAL)
- MAJOR CONTOUR (1m INTERVAL)
- SITE BOUNDARY

NOTE:
ACOUSTIC BUND INDICATIVELY DISPLAYED WITH 1:3 SLOPE

THIS DRAWING IS FOR SCHEME DEVELOPMENT PURPOSES ONLY AND DOES NOT REPRESENT FINISHED DESIGN LEVELS

Issue	Date	Description	By	Chkd	Verfd
P4	09.10.20	REVISED PLOT 1 BUND	MH	RT	BW
P3	20.03.20	REVISED LAYOUT	AW	RB	MH
P2	13.03.20	GABION WALL ADDED	AW	RB	MH
P1	25.02.20	REVISED LAYOUT	AW	RB	MH
-	-	FIRST ISSUE	JS	AF	LF

Project
SIX: 56 WARRINGTON

Client
LANGTREE / FIRST INDUSTRIAL

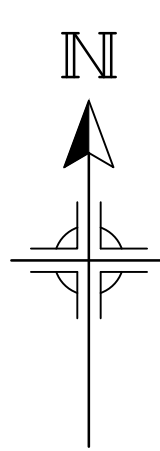
Architect
STEPHEN GEORGE PARTNERS

Title
DETAILED FINISHED LEVELS CONTOURS

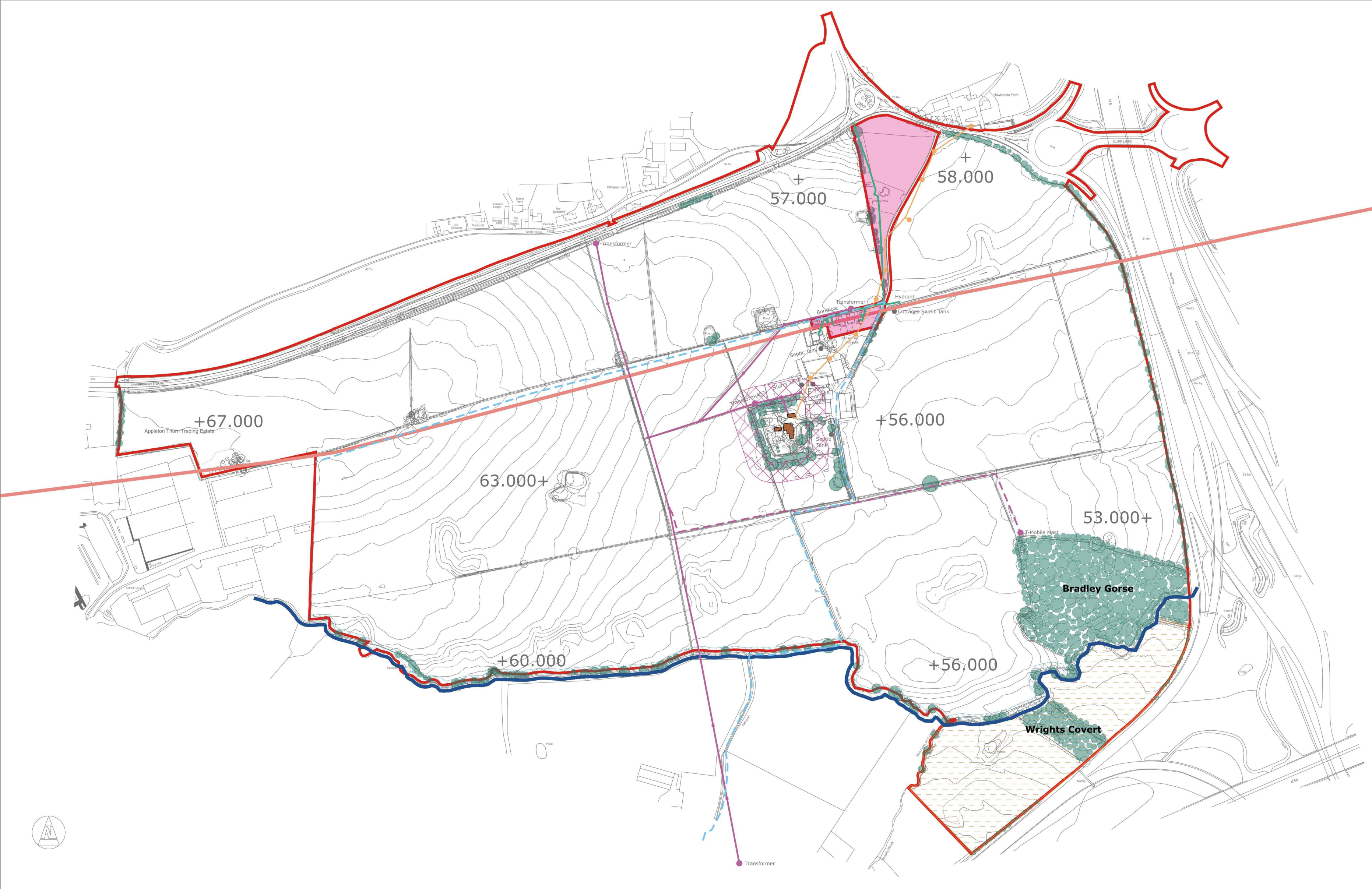
Drawing No. CLXX(52)4003	Drawing Status INFORMATION
Job No. 1015524	Scale 1:2500
Originator JS	Checked AF
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ES Part I Appendix 8



- Planning Boundary
- Illustrative route of Ancient Roman Road
- Existing PRoW
- Existing Watercourse
- Existing buildings to be retained
- Watercourse 15m Stand Off from the top of the bank
- Overhead Power
- Overhead BT Line
- Ecological Mitigation Area
- Existing Trees To be Retained
- Existing Residential Properties
- SAM 30m Buffer Zone
- Underground Cable
- Water Mains

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PANATTONI

Six 56, Warrington
Constraints Plan

CDE Reference

Drawn: MMS
Team: MMS
Scale: 1:2500 @ A1

Project No: 16-184

Drawing Status: Planning

CAD Reference: 16-184-P003

Date: 01/2019

Dwg No: P003

Rev: A

ES Part I Appendix 9



RIDGE

SIX 56 WARRINGTON

FRAMEWORK CONSTRUCTION
ENVIROMENTAL MANAGEMENT
PLAN

LANGTREE PP & PANATTONI
14th February 2019

SIX 56 WARRINGTON

Langtree

PANATTONI

SIX 56 WARRINGTON

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14th February 2019

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1. INTRODUCTION

1.1. Background

1.1.1. Ridge and Partners LLP have been commissioned by Langtree PP and Panattoni to provide a Framework Construction Environmental Management Plan to support the Outline Planning Application for Six 56 Warrington, bound by the B5356 Grappenhall Lane and the A50 Cliff Lane to the north and motorway slip road to the east (the 'Site') as part of their Project Management commission.

1.2. Purpose

1.2.1. This Framework Construction Environmental Management Plan provides a basis for the completion of a full Construction Environmental Management Plan (CEMP).

1.2.2. This framework plan highlights issues and items that will need to be addressed and included in the final CEMP by the Principal Contractor, once selected, to undertake the enabling and construction works.

1.2.3. The framework CEMP is structured to consider the following:

- Discuss the scope and structure of the document
- Provide information relevant to the Development
- Ensure the Development is compliant with relevant stakeholder requirements and environmental legislation
- Discuss the expected impacts and associated mitigation and how it will be implemented
- Provide Environmental Management System Requirements in accordance with ISO 14001
- Ensure communications plans and construction logistics are considered

1.2.4. The final CEMP must be prepared in consultation with Warrington Borough Council and having taken into account previous versions, comments received from stakeholders including Langtree PP, Panattoni and local regulators, and submitted prior to the commencement of enabling or construction works.

1.2.5. The CEMP will be finalised and provided by the selected Principal Contractor to assist in the discharge of planning conditions.

1.3. Scope

1.3.1. This framework identifies, in a broad and non-inclusive list given the design stage currently at, the issues that will need to be addressed in detail in the CEMP. Detailed inclusions will be prepared with consideration and adherence to item 1.2.4.

1.3.2. The CEMP forms an agreed plan between the relevant authority and the Principal Contractor to address temporary site management issues relevant during enabling and construction activities and ensure environmental impacts and risks are mitigated in an acceptable and agreed manner.

1.3.3. The construction process can generate a myriad of effects on the local environment and residents. As such the CEMP will include consideration of the impacts, risks, and mitigations (including procedures for monitoring against construction progress) for the following:

- Construction traffic
- Materials and waste
- Landscape and visual impacts
- Lighting

- Noise and Vibration
- Air Quality
- Unexploded Ordnance
- Drainage
- Ecology
- Heritage and Archaeology
- Ground Stability

1.3.4. In addition to the environmental considerations which are to be considered as listed in 1.3.3, the following logistical considerations should be taken into account:

- Contacts and responsibilities
- Programme and phasing
- Operating hours
- Internal communications
- External communications
- Logistics plans

1.4. Limitations

1.4.1. This report has been prepared for the exclusive use of Langtree PP and Panattoni and those parties designated by them and subject to the provisions of the agreement between Ridge and Partners LLP and its Client.

1.4.2. Ridge and Partners LLP accept no liability or responsibility whatsoever for or in respect of any use or reliance upon this report by any third party.

1.4.3. Whilst reasonable skill and care have been used by Ridge and Partners LLP in reporting, information provided by third parties has been used in good faith and Ridge and Partners LLP cannot guarantee accuracy or completeness of any information provided by others.

2. SITE DETAILS

2.1. Site location and Context

2.1.1. The Application Site is located within the North West of England, predominantly within the local authority area of Warrington.

2.1.2. The Site is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester (approximately 22km (13 miles) and 31km (19 miles) respectively). It is also located approximately 16km (10 miles) from Manchester Airport.

2.1.3. The M56 Motorway and M6 Motorway interchange (Junction 20 and 20A of the M6 and Junction 9 of the M56 Motorways) is located adjacent to the south east of the Site, with the M56 Motorway running east-west to the south of the Site, providing links to Cheshire and Greater Manchester; and the M6 Motorway running north-south to the east of the Site, provide links to Lancashire, Staffordshire and Greater Manchester, as well as the M62 Motorway at Junction 22A of the M6 Motorway to the north, which provides links east-west to Liverpool, Greater Manchester and Yorkshire.

2.1.4. The site is shown on the national and regional context plans below.



Figure 1: National Context



Figure 2: Regional Context

- 2.1.5. The Site relates to an area of land of approximately 98 hectares (242 acres) in extent and is irregular in shape.

- 2.1.6. The Site is bound by the B5356 Grappenhall Lane and the A50 Cliff Lane to the north and motorway slip road to the east. Appleton Thorn Trading Estate, Barleycastle Trading Estate and Stretton Green Distribution Park are located to the west and Bradley Brook runs east-west to the southern boundary. The Site is predominantly farm land (arable and pastoral for cattle), with a series of hedges and trees to field boundaries. Bradley Hall Farm consists of farm house and a series of farm buildings as well as a further residential property. There are a number of other neighbouring residential properties that are adjacent to, but outside the Application Site, including the Bradley Hall Cottages, which are all retained. The farm buildings adjacent to the Bradley Hall Farmhouse will be demolished as part of the proposals. Bradley Hall moated site is a Scheduled Ancient Monument (SAM) located within the Site boundary, to the eastern part of the site,

adjacent to the farm buildings. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house, which is to be retained. The moated island is partly occupied by the farm house associated with Bradley Hall Farm, which is excluded from the Scheduling, but which will be retained and converted to B1a office use as part of the Proposed Development.

- 2.1.7. Beyond the northern boundary of the Site (within the triangle of land outside of the Application Site to the south of Cliff Lane) is a residential property and associated outbuildings, which is accessed from the A50 Cliff Lane via the same access as Bradley Hall Farm. There is a Grade II* and a Grade II Listed Building located beyond the south of the Site and to the north of Barleycastle Lane (Tanyard Farm Building and Barleycastle Farm House). There are other listed buildings within the wider area.
- 2.1.8. There are some wooded areas and wooded outcrops within the Site, including Bradley Gorse and Wrights Covert within the south east of the Site. A series of field boundaries consisting of hedgerows and trees and a number of ponds (ten in total) and ditches are located across the Site.
- 2.1.9. The character of the area is generally rural, with farms and agricultural land beyond the boundaries of the Site, predominantly to the north and south. However, this is interrupted with the Strategic Highway Network and further industrial/logistic uses, most notably those beyond the Site boundary to the south, south west and east.
- 2.1.10. The Site in its local context is shown on the plan below.

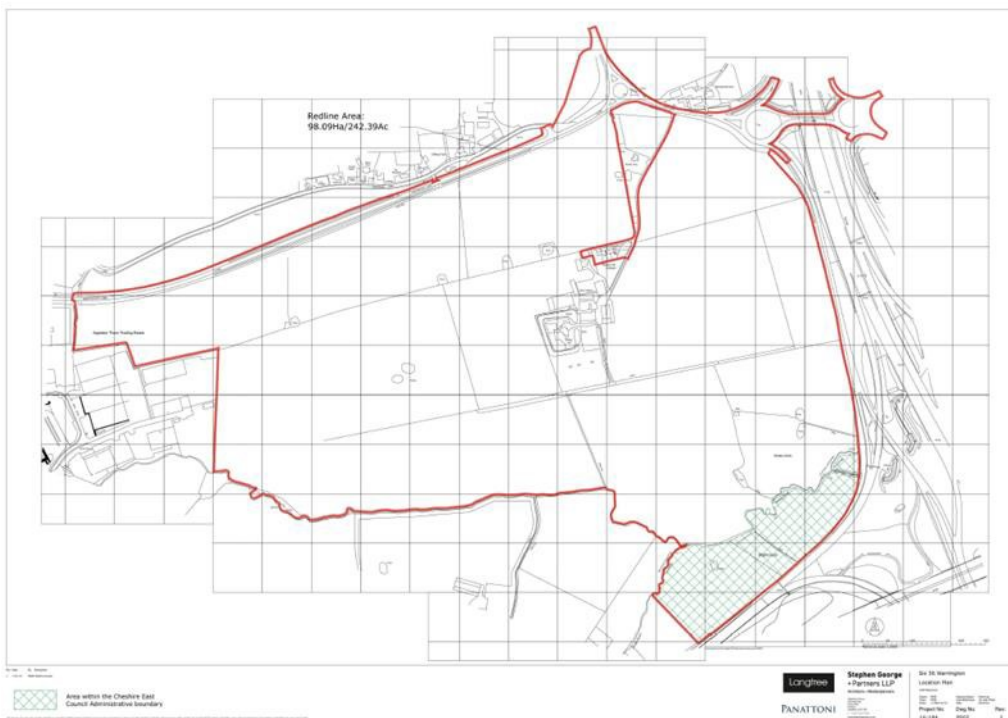


Figure 3: Application Site Boundary

- 2.1.11. Vehicular access to the Site is currently via Bradley Hall Farm from the A50 Cliff Lane, which has direct access to Junction 20 of M6 Motorway, as well as Junction 9 of the M56 Motorway. There are also four field access points available from the Site's 1.15km long frontage to the B5356 Grappenhall Lane.
- 2.1.12. There are three designated Public Rights of Way across the Site, all of which are Footpaths. Footpath No 28 runs between the residential properties adjacent to Bradley Hall Farm in the east and Appleton Thorn Trading Estate in the west, however no actual connection is available on foot into the trading estate at its western

end. Also, Footpath No's 31 and 23 run north-south across the site along the route of the main site access between Howshoots Farm to the north-east and Barleycastle Lane to the south of the Site.

- 2.1.13. The Site's topography is generally level, although it has two distinct areas of topography that are separated by a ridgeline running east to west. The northern plateau is a relatively flat area and the southern plateau becomes more undulating, with occasional ponds and depressions.
- 2.1.14. The Site is currently designated as Green Belt within the adopted Local Plan Core Strategy (July 2014) and Saved Proposals Map. The Site however forms part of a wider area identified for future growth in the form of the Garden Suburb within the emerging new Local Plan (Preferred Options Consultation (July 2017)). The Site is identified for employment development which can be delivered independently of the Garden Suburb.

2.2. Project Description

- 2.2.1. The outline application (all matters reserved except for means of access) comprises the construction of up to 287,909m² (3,099,025ft²) (gross internal) of employment floorspace (Use Class B8 and B1(a) offices) including change of use of Bradley Hall Farmhouse to B1 (a) office use (335m² (3,600ft²)) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation, alteration of existing access road into site including works to the M6 J20 dumbbell roundabouts and realignment of the existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.

3. ENVIRONMENTAL OBLIGATIONS

3.1. Policy and Planning

- 3.1.1. The CEMP is to list all relevant and appropriate legal and regulatory requirements.
- 3.1.2. The various ES Technical Papers within the planning application list various relevant legislation. Whilst some have been listed, it is expected that the CEMP will have a complete comprehensive list included within which has been reviewed and agreed with Warrington Borough Council prior to implementation of the CEMP.
- 3.1.3. Any and all technical reports provided in support of the current and future planning applications and decisions must be adhered to.
- 3.1.4. In addition to 3.1.1, 3.1.2, and 3.1.3, the CEMP must outline the manner and methods in which the requirements, reports, and decisions will be adhered to.
- 3.1.5. All contractors and sub-contractors shall comply with best practice regarding environmental pollution protection, and undertake the works in accordance with the Employers Requirements and project specifications.
- 3.1.6. The contractor is expected to operate within and possess its own Environmental and Sustainability Policies, in addition to the above items.

3.2. Consents, Commitments and Permissions

- 3.2.1. The CEMP is to reference any consents, permits, and licenses granted and applicable to the works.

- 3.2.2. In addition to 3.2.1, the CEMP must ensure all terms and conditions associated with various consents, permits, and licenses are adhered to.

4. ENVIRONMENTAL CONSIDERATIONS

4.1. Construction Traffic

- 4.1.1. All construction traffic related risks are to be considered and included within the environmental risk register discussed in 4.12.1.

- 4.1.2. There will be an increase in traffic movements, noise and air quality in relation to traffic. Noise and air quality are discussed in 4.5 and 4.6 respectively.

- 4.1.3. There will be an increase in car parking associated with employees and sub-contractors, however it is not expected to affect adjacent streets to the site and that all parking related to workers and vehicles will be contained within the site. The CEMP will have to demonstrate and confirm this is the case.

- 4.1.4. While there will be an increase in HGV movements to site, it is considered that these will not be severe as the majority of the construction plant will be stored within the site. In addition, large amounts of material movements to and from site are not anticipated as the cut and fill for the site is anticipated to be contained as much as practical within the site, subject to confirmation of condition of material during excavation.

- 4.1.5. To mitigate against increased traffic movements related to the construction activities, the following should be considered:

- Work to specified hours only to minimize disruptions
- Co-ordinate on-site construction movements via a Site Logistics Plan;
- List the vehicle and plant types used in detail, and assurance they can enter and exit the site with minimal disruptions to the existing highways network
- Manage potential conflicts between construction activities and the local highways networks, including the junctions
- Co-ordinate Pedestrian Routes and manage conflicts between pedestrian/cycle traffic and construction traffic and include the use of designated walkways, crossing points, and barriers
- Trip Generation –identification of anticipated level of vehicular traffic during each phase of construction with an aim of reduction of required movements where possible through a combination of route planning, construction activity phasing, and optimal loadings of delivery and construction vehicles
- Measures which can reduce vehicle use and parking demand such as car sharing, access to public modes of transportation, walking and cycling, etc.
- Parking provisions within the site
- Monitoring of the condition of the local highways to identify if any damage has arisen as a result of the construction activities and ensure remedial work will be carried out
- Implementation and enforcement of safe speed limits within the work site
- Entrance and egress to and from the site should be controlled via a gateman located within a cabin next to the entrance point.
- Maintaining access for emergency services
- Signage Requirements
- Banksman Requirements
- Notification of public and local businesses
- Delivery requirements and procedures
- Prevention of silt and solids being tracked onto Public Highways

- 4.1.6. The movement of construction traffic and is to be managed through careful consideration through the CEMP and creation of a Construction Traffic Management Plan. The Construction Traffic Management Plan is to be agreed with the local authorities and take due consideration of the items set in 4.1.5 as a minimum.

4.1.7. The CEMP will list all construction traffic mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.2. Materials and Waste

4.2.1. All construction material and waste related risks, including transportation of such to, from, and within the site boundaries are to be considered and included within the environmental risk register discussed in 4.12.1.

4.2.2. The CEMP shall list all hazardous materials expected to be used and stored within site, along with secure safe storage, identification, handling, and first aid measures as per the relevant COSHH regulations.

4.2.3. The CEMP shall include all applicable regulations and methods of how hazardous goods will be transported within, to, and from site and ensure appropriate controls are in place.

4.2.4. All contractors utilizing any hazardous substances shall complete COSHH assessments. Copies of these completed assessments shall be kept on the health and safety file at the site compound.

4.2.5. Fuel storage shall only be permitted in secured areas at the site compound. Quantities are to be kept to a minimum.

4.2.6. Site workers are to use appropriate PPE for the task at hand.

4.2.7. The CEMP should outline the proposed type of fuel storage container(s) to be used which follows applicable standards and regulations, and is to be agreed upon with Warrington Borough Council.

4.2.8. Only authorized personnel trained in refuelling and emergency spill response shall supervise these activities. Refuelling to be undertaken in accordance with PPG7 and subject to a detailed method statement and risk assessment.

4.2.9. The design of Six 56 Warrington is at outline stage and therefore, the design of the proposed buildings has not been finalized. The types of waste that would be generated from the construction of Six 56 Warrington is listed below, however this may be refined during detailed design:

- Soils (soil from levelling of the site, earthworks for buildings, drainage and infrastructure, contaminated soil, imported fill material);
- Glass;
- Concrete/cement;
- Tarmac;
- Bricks;
- Oils (lubricating oil);
- Metals (cables, wires, bars);
- Timber (softwood and board products such as plywood, chipboard);
- Packaging (paint pots, pallets, cardboard, cable drums, wrapping bands, polythene sheets);
- Plastics (pipes, frames, non-packaging);
- Green waste (grass, branches etc);
- Paints;
- Insulation (glass fibre, mineral wool or foamed plastic); and
- Plasterboard.

4.2.10. Given that the design information for the proposed building and infrastructure is still at outline stage, it is not possible to provide a detailed breakdown of waste quantities by type.

4.2.11. Oil to be stored in accordance with the Prevention of Pollution (Oil Storage) (England and Wales) Regulations 2001.

- 4.2.12. The CEMP shall outline the site construction waste management strategy to be utilized. This will discuss disposal routes and frequencies, security measures, storage containers and signage, waste separation strategies, waste reduction strategies, recycling strategies, and implementation methodology.
- 4.2.13. An Outline Site Waste Management Plan (SWMP) has been prepared which sets out a management strategy for construction waste. Measures have been identified for each option within the waste hierarchy (i.e. prevention, re-use, recycle, recover and disposal). These measures include using pre-fabricated materials for on site assembly, just in time deliveries, re-use of spoil on site and the use of recycled content materials. The aim would be to use options from the top of the waste hierarchy to manage each waste stream. The targets set by the revised Waste Framework Directive and BREEAM Very Good would be applied.
- 4.2.14. The Plan is based on outline design information; an updated SWMP would be prepared during the detailed design stage based on the principles set out in the Outline SWMP. The Plan is a working document to be used during the construction process to record movements of waste from the site and to demonstrate that duty of care obligations are being met.
- 4.2.15. For details of the plan see Appendix 11.1. within the Waste Technical Paper 11.
- 4.2.16. The CEMP will list all materials and waste mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.3. Landscape and Visual Impacts

- 4.3.1. Landscape effects during the Construction Phase will vary depending on the operations taking place and the scale and extent development that has been undertaken or is in progress.
- 4.3.2. All construction related landscape and visual impact related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.3.3. Risks anticipated are in relation to the views from the public and private receptors of the surrounding properties to the construction activities.
- 4.3.4. A CEMP will provide mitigation to adjacent and site retained landscape features.
- 4.3.5. The following shall be considered as a minimum when formalizing the CEMP to ensure landscape and visual impacts are mitigated:
- Public rights of way are to be determined where applicable, and construction works are to either avoid or manage these as necessary and practicable
 - Temporary signage to direct public away from the construction activities where possible
 - Appropriate protection of trees and hedgerows to be retained
 - Earthworks in proximity to neighbours to be phased in such a way to screen future works where practicable
 - The retention of existing perimeter vegetation except for the copse by Cliff Lane
 - The retention of perimeter landscape features where possible and incorporation of landscape and conservation features consistent with local management objectives
 - The retention of boundary vegetation and woodland blocks with perimeter screen planting
 - Protective screening to be incorporated to protect key features within the Site including Bradley Gorse and additional existing vegetation comprising the Ecological Mitigation Area; and the 30m offset areas surrounding the Scheduled Ancient Monument and the PROW's within the Site.
 - Locate the site compound within the site to be visually screened as much as possible. The location of the site compound will be agreed with the Local Authority prior to the commencement of work and whether this site is to be within a static location or moving throughout the Site depending on the phase of construction. The proposed external bunding and planting along with the screening mitigation should screen visibility of Site Compound from view
- 4.3.6. The CEMP will list all landscape and visual impact mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.4. Lighting

- 4.4.1. All construction related lighting related risks are to be considered and included within the environmental risk register discussed in 4.12.1. A Light pollution study has been completed and results shown in drawing BSXX(63)4001 and report 1015524-RPT-LG-002-Six 56 Warrington Technical Assessment-RevA submitted with the Six 56 Planning Application.
- 4.4.2. Risks include both light pollution, as well as ensuring adequate site lighting exists to ensure safe working and curb potential antisocial behaviour.
- 4.4.3. Localized lighting is to exist as and when specific task items around the site require and anticipate dim lighting conditions.
- 4.4.4. All light sources are to take consideration of the construction risk and atmosphere, and ensure lighting sources are deemed intrinsically safe where required.
- 4.4.5. Lighting to be directed at task level, and into site only/away from residential areas to reduce light pollution.
- 4.4.6. Only the site compound should be illuminated.
- 4.4.7. No lighting should be utilized within the construction site once work ceases each evening.
- 4.4.8. Site lighting should only be in operation during dim conditions (i.e. not running through the day time) when not required for security purposes.
- 4.4.9. The selection of light fittings and illumination levels will be in accordance with standard practise and relevant Health and Safety regulations, as well as the Guidance Notes for the Reduction of Light Pollution (Institution of Lighting Engineers, 2000).
- 4.4.10. The CEMP will list all landscape and visual impact mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.5. Noise and Vibration

- 4.5.1. All noise and vibration related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.5.2. It is expected that there will be an increase in current noise levels associated with construction activities. To reduce these impacts on local noise sensitive residents and amenities, an acceptable range of mitigation measures will be considered during the detailed design stage of the development.
- 4.5.3. To assist in mitigating and reducing noise generated from construction related plant and activities, the following measures are to be incorporated:
- Plant to be regularly serviced and maintained in good working order
 - Plant should comply with EU noise emission limits
 - Plant to be operated in a way that noise is minimised (e.g. plant switched off when not in use)
 - Plant to be effectively sound attenuated by use of engineering controls on the plant
 - Ensure working hours are adhered and deliveries be programmed to arrive during those working hours wherever practical. Proposed hours of working are as follows:
 - 08:00 – 18:00 hrs on Monday – Friday;
 - 08:00 – 13:00 hrs on Saturday; and
 - No working on Sunday or bank holidays
 - All vehicle and mechanical plant should be fitted with effective exhaust silencers
 - Strategic locations of temporary stockpiles to shield the environment from noise impacts
 - Plant to be powered by electricity where practicable
 - Plant to be positioned to direct noise away from receptors wherever possible
 - If necessary localised screens and enclosures should be used to reduce noise from particularly noisy, static operations
 - Low noise versions of reversing alarms to be fitted to all mobile plant in favour over the traditional reversing alarms
 - Inherently quiet plant to be selected where appropriate
 - All major compressors shall be sound reduced model fitted with properly lined and sealed acoustic covers.
 - All ancillary pneumatic percussive tools should be fitted with mufflers or silencers
 - Care should be taken when erecting and striking scaffolds to avoid impact noise from banging steel
 - All materials should be handled with care and be placed, not dropped
 - The use of hydraulic attachments or other means of crushing concrete should be used in preference to pneumatic breakers
 - Piling should be avoided wherever possible and low vibration piling techniques should be adopted wherever practical
- 4.5.4. Detailed advice on good construction practise for minimising construction vibration is found in BS5228: Part 2:2009+A1:2014 and should be adopted within item 4.5.5.
- 4.5.5. The CEMP will list all noise and vibration mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.6. Air Quality

- 4.6.1. All air quality related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.6.2. There is a risk of reduced local air quality due to emissions from increased traffic movements during construction works and plant, as well as reduced local air quality due to dust generation.
- 4.6.3. To reduce the risk of reduced local air quality due to emissions, all plant and vehicles should be regularly

serviced and maintained. In addition, only plant and vehicles which have deemed acceptable emissions should be used.

- 4.6.4. Vehicles should not be left running unnecessarily to reduce emissions.
- 4.6.5. To reduce the risk of reduced local air quality due to dust generation, the following mitigation measures should be employed:
- The site layout should be planned so dust causing activities are located as far as possible from receptors
 - Solid barriers and screens are to be erected around the site boundary
 - Site run off water and mud should be avoided
 - Site fencing, barriers and scaffolding are to be kept clean using wet methods
 - Ensure material is stockpiled and constructed with gentle slopes and covered where possible to prevent wind whipping
 - Cutting, grinding or sawing equipment is only to be used when fitted in conjunction with suitable dust suppression techniques such as water sprays
 - Adequate water supply is to be ensured on the site to enable effective dust mitigation
 - Haulage vehicles are to use designated haul routes which is to be damped with a fine water spray to prevent dust particles from becoming airborne when and where appropriate
 - Vehicles transporting debris from the site are to be sheeted with dust sheets or equivalent to prevent debris spillage and dust particles from becoming airborne
 - Weather conditions are to be considered (example, windy conditions) prior to commencement of activity
 - Avoid double handling of dust yielding material where possible.
 - Use enclosed chutes conveyors and covered skips where practicable
 - Minimize drop heights from construction handling equipment
 - Stockpile away from residential and public receptors
- 4.6.6. A dust management plan (DMP) that is Local Authority approved should be developed and implemented. As a minimum the DMP should include the highly recommended measures in the IAQM dust guidance with the desirable measures included as appropriate for the 'Site'.
- 4.6.7. Regular site inspections to monitor compliance with the DMP are to be carried out, with the frequency of these increased when activities with high potential of producing dust are taking place.
- 4.6.8. Dust monitoring locations are to be agreed with the local authority.
- 4.6.9. A stakeholder communications plan is to be developed and implemented.
- 4.6.10. The names and contact details of persons accountable for the air quality and dust issues are to be displayed on site.
- 4.6.11. A record of all dust and air quality complaints which identifies causes and appropriate measures to reduce emissions is to be kept and made available to the local authority upon request.
- 4.6.12. The CEMP is to include all mitigation for medium risk demolition, construction and trackout as listed in ES Technical paper 8 Air Quality, Odour and Dust.
- 4.6.13. The CEMP should consider the need for wheel washing and vehicle washing facilities due to the likelihood of the potential of mud during the site enabling and landscaping works.
- 4.6.14. No burning of materials are to take place anywhere on site.
- 4.6.15. The CEMP will list all air quality mitigation measures within the Environmental Management Plan discussed

in 4.12.2 and 4.12.3.

4.7. Unexploded Ordnance

- 4.7.1. All UXO and bomb related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.7.2. Prior to undertaking and ground disturbance works, a preliminary UXO risk assessment shall be undertaken in accordance with CIRIA Report C681.
- 4.7.3. Any mitigation measures proposed by the preliminary UXO risk assessment must be followed prior to any ground disturbance works.
- 4.7.4. The CEMP will list all UXO mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.8. Drainage

- 4.8.1. All drainage related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.8.2. All works are to follow the EA's Pollution Prevention Guidelines to mitigate migration of leachable heavy metals and hydrocarbons.
- 4.8.3. Oil spill kits are to be based at the construction compound, as well as carried with all site plant and vehicles, to ensure localized oil or fuel spillage is prevented from seeping into the ground and contaminating the surface and ground water.
- 4.8.4. Silt traps and oil separators are to be implemented to control surface water runoff contamination.
- 4.8.5. Concrete aprons and wheel wash stations are to be located a minimum of 30m from watercourses and surface water drainage sources.
- 4.8.6. Any large and deep excavations should be avoided is possible, if they are required, they should be covered especially in periods of heavy rain. No connection from excavations should be made to the watercourse unless treatment processes are in place.
- 4.8.7. Haul roads or matting should be provided as part of construction works.
- 4.8.8. Any construction activity in close proximity to a watercourse must ensure water control measures (such as cut off ditches, temporary settlement lagoons, using fencing to restrict movement, etc.) are in place during the works.
- 4.8.9. No foul water is to be discharged from sanitary facilities on site.
- 4.8.10. Additional drainage facilities are to be provided for construction vehicle parking areas and excavations below the water table which require de-watering.
- 4.8.11. The CEMP will include considerations for the need for discharge consents from the Environment Agency.
- 4.8.12. The CEMP is to outline how the foul water will be discharged or disposed of, and ensure the relevant licenses are in place.
- 4.8.13. If any waters onsite are known to be polluted, treatments may be necessary before disposal to the surface water receptor. The CEMP should ensure settlement and separation are included in the treatment.
- 4.8.14. The CEMP should ensure potential pollution spills are managed and monitored, this includes providing bunds around at-risk areas particularly handling oils and fuels. These areas should be isolated and away from potential waterways.
- 4.8.15. Works which could affect controlled waters shall be mitigated in measures agreed with stakeholders and regulators.
- 4.8.16. A portion of surface water attenuation should be developed prior to increasing the impermeable area. Water management on site is to be in accordance with PPG5.
- 4.8.17. The CEMP is to ensure a Remediation Strategy is put in place.

- 4.8.18. The CEMP is to ensure a Surface Water Management System is put in place.
- 4.8.19. Drainage validation is to be required prior to the commencement of site works.
- 4.8.20. Any water which comes in contact with contaminated materials shall be disposed of to the satisfaction of the Environment Agency and in accordance with the Water Resources Act (1991). Any temporary dewatering from excavations that is directed to the nearby waterbodies should comply with the EA guidance 'Temporary dewatering from excavations to surface water' published in July 2018.
- 4.8.21. The CEMP will list all Drainage mitigation measures and monitoring within the Environmental Management Plan discussed in 4.12.2 and 4.12.3

4.9. Ecology

- 4.9.1. All ecology related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.9.2. The risks expected to be encountered are related to the various ecology receptors such as flora, fauna, habitats, trees, birds, bats, etc. For a comprehensive list of various surveys and results performed to date, please refer to the Ecology and Nature Conservation ES Paper 5 and corresponding Appendices.
- 4.9.3. All retained habitats (including trees as per the Arboricultural Assessment) to be protected during construction activities in accordance with best practice standards.
- 4.9.4. Details of proposed ecology buffer zones and how they are to be protected is to be agreed with the local authority and implemented into the CEMP.
- 4.9.5. Details on invasive species present and how to prevent the spread of these are to be taken into account and included within the CEMP.
- 4.9.6. Legally compliant mitigation to be implemented to ensure no breeding birds are harmed construction and enabling works. Works in these areas should be conducted outside of the bird breeding season (March – August inclusive). If this cannot be achieved, a nesting bird survey should be completed by a competent ecologist and an exclusion zone retained around identified active bird nests until the chicks have fledged.
- 4.9.7. An Invasive Species Method Statement and Management Plan is to be required.
- 4.9.8. Any construction works which have the potential to impact on ecological receptors of any kind must be mitigated against with corresponding relevant management strategies. All risks and corresponding mitigation strategies shall be consulted on with the local authorities and agreed prior to any site works which could impact these receptors.
- 4.9.9. The CEMP should include mitigation for the following habitats:
- Broadleaved woodland
 - Hedgerows
 - Ponds
 - Scattered trees and Shrubs
 - Tall Ruderal
 - Watercourses
- 4.9.10. The CEMP should include all mitigation for the following protected and priority species:
- Badger
 - Bats
 - Birds
 - Brown Hare
 - Great Crested Newt
- 4.9.11. Speed limits should be imposed around site together with suitably located warning signs to reduce the risk of road kill. Access would be restricted to ecologically important areas along brook, woodland and Ecological Mitigation Area to avoid human disturbance of badger setts and adjacent foraging habitat.
- 4.9.12. Where bat roosts are present, they should be protected from incidental disturbance by restricting access to roost features. The lighting design would ensure that any roost locations are not lit at night by street or security lighting.

- 4.9.13. Within the built environment building managers should be made aware of the locations of nest boxes and any other nest sites in buildings of priority species such as house sparrow and hirundine species and measures would be employed to ensure they are not disturbed during the bird breeding season. These would be set out within the EcMP for the site.
- 4.9.14. Management of habitats would also be timed to avoid the bird nesting season.
- 4.9.15. Degradation of habitats both as a result of human activity (changes in management, disturbance, pollution etc.) would be avoided through the adoption of an Ecological Management Plan (EcMP) to cover both retained and new habitats incorporated into the development layout. The EcMP should be implemented for a minimum of 10 years. This could be secured via a planning condition.
- 4.9.16. The EcMP will broadly include:
- Periodic grass cutting (twice yearly) within the Ecological Mitigation Area to ensure a species-rich sward is maintained;
 - Periodic scrub cuts (on a biennial basis) to ensure that the Ecological Mitigation Area maintains grassland habitats;
 - Maintenance of hedgerows; cutting in winter on a rotational basis to allow fruits to set and avoid impacts to nesting birds;
 - Annual maintenance of gully pots to ensure they remain free of debris and remain amphibian friendly;
 - Annual monitoring of invasive species and eradication as necessary; and
 - Prescriptions for maintenance of communal ornamental planting to ensure it is conducted in a manner that is sensitive to wildlife.
- 4.9.17. The CEMP will list all ecology mitigation measures within the EcMP.

4.10. Heritage and Archaeology

- 4.10.1. All heritage and archaeology related risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.10.2. The Principal Contractor shall confirm all risks from an archaeology and heritage perspective have been captured, and agree the required mitigation strategy with the local authorities prior to the undertaking of any intrusive works.
- 4.10.3. If previously unrecorded archaeological or heritage features are uncovered during construction, works shall immediately cease and Warrington Borough Council is to be notified. Works are not to resume until approved by Warrington Borough Council.
- 4.10.4. The CEMP will list all heritage and archaeology mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.11. Ground Stability and Excavated Soils

- 4.11.1. All ground stability risks are to be considered and included within the environmental risk register discussed in 4.12.1.
- 4.11.2. Earthworks to be undertaken in accordance with the 'Definition of Waste: Development Industry Code of Practice, March 2011.
- 4.11.3. All large and deep construction excavations should be avoided as far as possible. Where not possible, these should be covered and appropriately signed.
- 4.11.4. A Materials Management Plan (MMP) will be produced with the scheme in accordance with the Definition of Waste Code of Practice (DoWCoP) which will provide a permanent record of how materials have been controlled and re-used on the site in accordance with current guidance, legislation and good practice. The purpose of an MMP is to demonstrate that materials re-used on site are suitable for their intended use, have certainty of use, and are demonstrated to have reached an 'end of waste' scenario. Critically, for materials to be considered suitable for re-use under DoWCoP they must not classify as containing 'Hazardous' properties in accordance with the EA's WM3 guidance. The Materials Management Plan is to be written by the Principal Contractor. This will signed off by a QP prior to its submission to the EA. This must take place prior to works starting on site. The MMP will provide a permanent record of how materials have been controlled and re-used on the site in accordance with current guidance, legislation and good practice.
- 4.11.5. Where appropriate, excavated soils will be reused in accordance with the supporting documents to the Materials Management Plan, which will consist of the Geotechnical Design Reports and Remediation Strategy for material and Verification Report which is deemed not a waste.
- 4.11.6. The CEMP should detail how any deleterious or geotechnically unstable materials shall be removed prior to reuse of made ground soils.
- 4.11.7. All works should follow the ES's Pollution Prevention Guidelines to mitigate migration of leachable heavy metals and hydrocarbons.
- 4.11.8. It is expected that the majority of the material on site is suitable for reuse as part of the cut and fill strategy. This will assist in reducing noise, dust, traffic, and air quality impacts in the vicinity of the site, as well as reduce related haulage traffic.

- 4.11.9. Piling Assessment and design (where applicable) is to be required to minimize any potential disturbance or contamination to the underlying principal acquirer in accordance with the guidance provided in BS5228 and BS7385.
- 4.11.10. Identification of potential risks and associated mitigation to human health in relation to potential contaminated excavated soils shall be included within item 4.11.11.
- 4.11.11. The CEMP will list all ground stability mitigation measures within the Environmental Management Plan discussed in 4.12.2 and 4.12.3.

4.12. Environmental Risk Register and Environmental Management Plan

- 4.12.1. The final CEMP shall include a fully completed Environmental Risk Register, with all Environmental Risks having been avoided or impacts satisfactorily mitigated, with mitigation measures fully included within the applicable management plans. The ES Technical Papers should be referenced in addition to this document for further mitigation considerations.
- 4.12.2. The Principal Contractor will produce an Environmental Management Plan, which is to be included within the CEMP, and follows ISO 14001 accredited environmental management system and contract requirements.
- 4.12.3. The Environmental Management Plan is to indicate how the requirements, obligations, and practises will be adopted and how they meet the environmental and CEMP requirements. Furthermore, the Environmental Management Plan will detail the responsibilities of the staff involved for achieving these requirements, and list the method in which all staff will be aware of their obligations.

5. LOGISTICAL CONSIDERATIONS

5.1. Contracts and Responsibilities

- 5.1.1. The CEMP will include identification of the responsible contractor(s) and sub-contractor(s) responsible for the various site operations and the associated site managers and their contact details. In addition, the contact for the Principal Contractor's site manager will be supplied.
- 5.1.2. A list of telephone numbers to be available to the general public, including an after-hours number for 24 hour coverage, is to be included within the CEMP.
- 5.1.3. The responsibilities of the roles are anticipated as follows, but will be updated within the CEMP:
- The Client will nominate a Project Manager for the site.
 - The Project Manager is responsible for the overall environmental management of the site
 - The Principal Contractor takes ownership of the responsibility of undertaking the works in accordance with the CEMP
 - The Construction Manager will oversee the daily management of the site
 - The Waste and Environmental Manager will plan the works
 - Site Staff will perform the works in accordance with the CEMP
 - Designers will design out adverse effects on the environment, and where not possible will design in engineering controls in accordance with legislation and best practices. Furthermore, the designers will advise all staff on environmental hazards that cannot be reasonably anticipated

5.2. Programme and Phasing

- 5.2.1. The CEMP will broadly identify the construction programme for the proposed works, and is to align with the programme agreed as part of the Employers Requirements.
- 5.2.2. At the current stage, the phasing of the construction works, are in the process of being determined. Once determined, the proposed diagrammatic phasing plans and phasing programme are to be communicated with Warrington Borough Council and, notwithstanding item 5.2.1, be included within the CEMP.
- 5.2.3. The CEMP is to include an implementation programme as outlined in 5.7.3.

5.3. Working Hours

- 5.3.1. The permitted working hours for construction works are to be agreed Warrington Borough Council, and included within the CEMP.
- 5.3.2. Whilst not agreed at this stage, the anticipated working hours are suggested as:
- Monday to Friday – 08:00 to 18:00
 - Saturday – 08:00 to 13:00
 - Sundays and Holidays – No Working
- 5.3.3. If work is required to be undertaken outside of the permitted working hours, the Principal Contractor will request written permission for the works from Warrington Borough Council, and demonstrate what steps are being undertaken to reduce noise impacts on the areas adjacent the site.

5.4. Internal Communications

- 5.4.1. Communications internally will follow the agreed structure that forms part of the Employers Requirements and Contractors Proposals and negotiated Main Contract. These will be in place prior to the start of any enabling or construction works.
- 5.4.2. Internal environmental awareness among site personnel shall also be communicated via the site notice boards.

5.5. External Communications

- 5.5.1. As listed in 5.1.2, a list of telephone numbers to be available to the general public, including an after-hours number for 24-hour coverage, is to be included within the CEMP.
- 5.5.2. In addition to setting up a contact channel with interested neighbouring stakeholders and members of the public as indicated in 5.5.1, the Principal Contractor will also look to provide the public with quarterly updates of the progress and upcoming headline milestones as part of their community engagement. Included should be updates on any and all works which are likely to cause an impact to neighbours.
- 5.5.3. Should any unexpected environmental concerns or complaints arise during the site works, the Principal Contractor shall report immediately to the site management. All concerns shall be promptly dealt with using appropriate measures consistent with the CEMP, notwithstanding assessed within method statements, risk assessments, and controls to deal with the works.
- 5.5.4. A complaints procedure will be formally established and listed within the CEMP.

5.6. Logistics Plan

- 5.6.1. The Principal Contractor is to provide as part of the CEMP, and the Employers Requirements, an agreed 'Site Logistics Plan' which will identify site access and egress routes, site office site(s), sanitary facility locations, equipment laydown and delivery locations, pedestrian/worker circulation routes, emergency muster points and working locations as a minimum.

5.7. Implementation and Monitoring

- 5.7.1. The CEMP will be implemented and monitored by the Principal Contractor.
- 5.7.2. The Principal Contractor will appoint a Site Manager to have responsibility for the delivery of the CEMP, as well as be responsible for consulting with the relevant authorities in relation to all items and issues related.
- 5.7.3. A staged programme for the implementation of the CEMP is to be included to assist in ensuring the process of introducing the CEMP is achieved in such a way to ensure the adherence of the CEMP and associated environmental management plans throughout the entirety of the works. The programme will provide clarity in terms of timeline of when and how different aspects of the CEMP are to be implemented and whom will be responsible.
- 5.7.4. The CEMP and Environmental Risk Register is to be updated as necessary. All amendments shall be communicated with Warrington Borough Council prior to implementing revisions to the CEMP.
- 5.7.5. The Principal Contractor shall ensure all site staff and visitors to site will undergo a safety induction, which will include as part of the induction reviewing the obligations of the CEMP to ensure all fully understand and comply with it. In addition, the Principal Contractor will ensure a signed record is kept of all inductees, and

that each inductee also signs a statement that they understand and will abide by the CEMP, induction, and method statements.

- 5.7.6. It is the Principal Contractor's responsibility to ensure all staff on site are fully trained and competent to undertake the work, and to ensure necessary training is given where required.
- 5.7.7. The Principal Contractor is to have a register of all circulated copies of the CEMP and circulate any amendments to copy holders. Only the Principal Contractor is to act as the document controller, and be the sole party who distributes the CEMP to ensure people are working to the latest version at all times.
- 5.7.8. The Principal Contractor is to ensure detailed records of all monitoring activities including time, date, person, instrument and serial number, calibration details, locations, activity, weather conditions, results, comparisons against acceptable criteria are kept for validation purposes.

5.8. Construction Compound

- 5.8.1. A site compound will be required for the duration of the construction activities of the project.
- 5.8.2. The location of the compound will be agreed with Warrington Borough Council, Langtree PP and Panattoni and identified on the plans listed in 5.6.1.
- 5.8.3. The compound is to include welfare facilities, storage, office accommodation, site notice boards, meeting rooms, client offices, and designated parking areas as a minimum.
- 5.8.4. The layout of the compound, including the foundation design and construction method, shall be listed and agreed with Warrington Borough Council, and Langtree PP and Panattoni.
- 5.8.5. Site compound should be powered by mains supply as soon as practicable. In the interim, silenced electrical generators stored in a waterproof enclosure which incorporates the environment agency's requirements shall be used.
- 5.8.6. Water shall be supplied to the site compound.
- 5.8.7. Appropriate firefighting equipment shall be located around the site to deal with any small localized fires. The equipment shall be inspected on a regular basis. The proposed inspection schedule and procedure shall be listed within the CEMP.
- 5.8.8. Muster points and evacuation routes are to be in place, as well as designated smoking areas.
- 5.8.9. Safety signage and pedestrian areas will be clearly defined and displayed within the site compound.
- 5.8.10. Upon completion of the project, the compound and all temporary barriers are to be dismantled and the area reinstated.



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ES Part I Appendix I 0

Langtree PP & Panattoni

Six 56 Warrington

Alternative Sites Assessment

Revision B 14 March 2018



Revision Record

Revision Reference	Date of Revision	Nature of Revision	Author	Checked By
B	15.03.2019	Amendments following review	SC	DR

Report Author	Gavin Winter and Stephen Courcier
Report Date	15 March 2018
Project No.	4055
Document Ref.	P0-TP-SPA-RP-P34055-0017
Revision	B

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I. Introduction

I.1. This Alternative Sites Assessment study is produced as part of an outline planning application for a strategic employment development on land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six 56 Warrington), submitted on behalf of Langtree Property Partners and Panattoni.

I.2. The planning application is described as follows:

The outline application (all matters reserved except for means of access) comprises the construction of up to 287,909m² (3,099,025ft²) (gross internal) of employment floorspace (Use Class B8 and B1(a) offices) including change of use of Bradley Hall Farmhouse to B1 (a) office use (335m² (3,600ft²)) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation, alteration of existing access road into site including works to existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.

I.3. The application site is 98 ha (239 acres) in area and is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester (approximately 22km (13 miles) and 31km (19 miles) respectively).

I.4. The Site is located predominantly within the local authority area of Warrington with a small section to the south of the Brook located in the Cheshire East local authority area. The Adopted Core Strategy Policies Map identifies the Site as Green Belt land, along with the neighbouring fields.

I.5. The Site however forms part of a wider area identified for future growth in the form of the Garden City Suburb within the emerging new Local Plan (Preferred Options Consultation (July 2017) & Proposed Submission Version (March 2019)). The Site is identified for employment development which can be delivered independently of the Garden City Suburb. The Evidence base prepared to inform the Preferred Development Option Regulation 18 Consultation Document, includes The South Warrington Urban Extension Framework Plan Document

(SWUEFP) (June 2017) produced on behalf of Warrington Borough Council, also classifies the Site as suitable for Employment Use.

- 1.6. In line with National Policy and the adopted development plan requirements, development that is identified as being “inappropriate” in Green Belt should not be approved except in “very special circumstances”. The case for “very special circumstances” for development at Six 56 is set out in greater detail within the Planning Statement that accompanies this planning application.
- 1.7. This Alternative Sites Assessment report considers whether there are potential alternative sites that could accommodate the proposed development in whole or in part. This is not in itself a ‘test’ of national Green Belt policy, but where there is a lack of alternatives to accommodate a development, this may form a part of the case for development.
- 1.8. It has been demonstrated in Economic Development Needs Assessment (EDNA) (2016) and EDNA Udate (2019) that there is a significant need for new employment floorspace, particularly of a larger footplate to address the employment needs for warehouse and distribution uses and deficit of suitable sites within Warrington. The EDNA also recognises the positive locational benefits of the Barleycastle Trading Estate/Stretton Green Distribution Park and the surrounding area, which includes the Six 56 site for B8 users and that future B8 land allocations should look to build on these established locations in and around this M56/M6 corridor for logistics use. It has also been demonstrated in evidence that has been submitted as part of the Local Plan that Warrington has a significant proportion of its administrative area designated as Green Belt, which has not been reviewed for a considerable time (since 1979). As a result, the Local Authority has acknowledged through published “needs” studies, including the (EDNA) (2016) and EDNA Udate (2019) and emerging Submission Version Local Plan (March 2019) and supporting evidence base that to meet development needs in Warrington, particularly through larger scale developments, there will be a need to use land that is currently in Green Belt. The EDNA (2019) and emerging Submission Version Local Plan (March 2019) states there is a need to provide 362ha of employment land between 2017 and 2037, with 213ha of this employment land through Green Belt release. The socio-economic report (Technical Report 6) that forms part of the ES Part 2, also demonstrates that the Six 56 Development will have a significant positive economic benefit to Warrington and confirms that logistics operators need large sites. The Six 56 Site has all the locational

requirements of a B8/Logistics operator and lies within one of the UK's most efficient locations for this sector.

- 1.9. This application is made in the context of an emerging Local Plan which also now acknowledges that the application site is a suitable employment site and by the very nature of its size and location, in close proximity to the M6 / M56 Lymm Interchange, it would support logistics type development, therefore it should be removed from Green Belt to serve the needs of the borough. Whilst the Local Plan still needs to go through its full process, the application site has been subject of assessment within a Green Belt Assessment in 2016 and 2017 that forms part of the evidence base for the emerging Local Plan. This Assessment therefore has regard to the approach taken within the emerging Local Plan.
- 1.10. The Planning Statement has considered the emerging Local Plan and its supporting evidence base in the context of paragraph 48 of the Framework and outlines the reasoned justification for the proposals, including its degree of consistency with the Framework and considers that whilst weight may be limited in respect of the emerging Plan itself, which is currently at submission stage, the evidence that has underpinned the emerging Plan and its approach to economic growth, including the EDNA is highly material and significant weight can be ascribed to this evidence base as a material consideration.
- 1.11. Advice has also been sought on market considerations of sites from JLL, who have identified that there is significant demand for employment land within the Borough and that the Six 56 Site is an optimal location for local and regional large scale industrial and logistics projects. This Report is attached to Appendix 3.
- 1.12. It has been agreed with the Council that the list of sites to be considered as part of an Alternative Sites Assessment are those that have been identified within the EDNA (2016) and updated EDNA (2019) and Core Strategy Local Plan or through the Council's Call for Sites which have subsequently been identified as potential employment locations in the Preferred Development Option Regulation 18 Consultation Document and subsequently in the Proposed Submission Version Local Plan (2019) as an employment allocation. The EDNA (2018 and 2019) is being used by the Council to inform the emerging Local Plan as well as in determination of planning applications.
- 1.13. This Alternative Site Assessment will consider a range of sites identified within the EDNA Development Option Regulation 18 Consultation Document and Proposed Submission

Version Local Plan (2019) and will also, for robustness, consider the 'scope for disaggregation' of the application proposals. In this regard, consideration has been given to the potential to deliver each of the components that make up the planning application scheme. This is considered in the next section.

2. Methodology

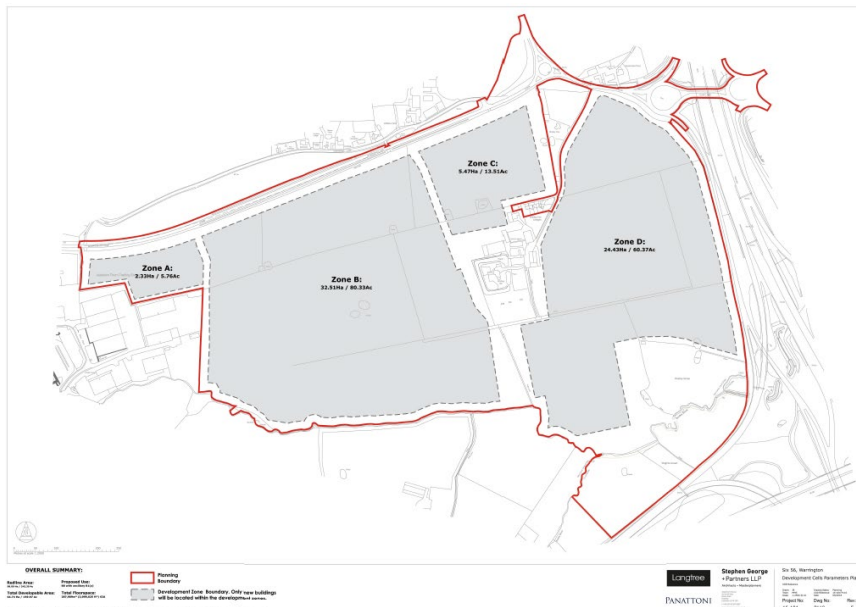
Approach

- 2.1 This Assessment considers the potential for alternative sites to accommodate a new logistics park at this strategic employment development on land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six56 Warrington).
- 2.2 The development proposals are being submitted in the context of a significant identified need for deliverable employment floorspace in Warrington, alongside a strategic Green Belt Assessment (2016 & 2017) that has determined that to meet the needs of Warrington there is requirement for Green Belt release.
- 2.3 The principle of Green Belt release to meet an employment need particularly to meet the needs of the logistics sector is a key element of the emerging Local Plan.
- 2.4 The scheme proposes a comprehensive development and will provide 287,909m² (3,099,025ft²) of floor space across the Site. This will be accommodated within 7 to 13 new buildings across the Site, across four development cells but is likely to be characterised by a small number of large units for B8 uses with ancillary BI (a) office use and a change of use of the existing Bradley Hall Farm house ((335m²) 3600ft²)) to BI (a) office use. Whilst an indicative masterplan layout has been prepared, the application is supported by a series of parameters plans which would form part of any approval within an outline planning permission. These parameters plans will control developable areas across the Site and disposition of uses, number of units, building heights, finished floor levels, floor space and car parking provision, access points and circulation, noise mitigation and drainage strategy, strategic landscaping and buffers around the heritage asset.
- 2.5 The delivery of the proposed development will come forward in phases. This will ultimately be driven by the demand for the employment buildings, however for the purposes of the Environmental Assessment, the following timescales have been assumed, which represent a precautionary approach (and therefore a worst-case scenario) by assuming a single continuous phase of site enabling works.

2.6 The Development stage is expected to take approximately 6.5 years, commencing with an initial enabling works phase. The delivery of the units will be phased across the 6.5 years, alongside the other infrastructure works which are likely to be developed on a plot by plot basis. This will be dependent on market demand.



Indicative Masterplan, Six 56



Development Cells Parameters Plan

2.7 This assessment therefore considers primarily whether there are sites that are deliverable to meet the scale of needs accommodated within the comprehensive scheme. However, in leading to a conclusion on that matter, for robustness, we have considered the scope for disaggregation, based on the proposed ‘development cells’ at Six 56. The development cells and plot sizes identified in the Illustrative Masterplan were established through a review of market requirements undertaken by JLL and therefore reflect the land area required to develop out market facing logistics buildings. These ‘development cells’ are a key component of the outline planning application and they are therefore established and controlled through the use of “parameters plan”. This approach does not take into account the need (and hence site area) for wider site infrastructure requirements such as primary or secondary roads, utilities (beyond the plot boundary) or strategic landscaping. These are important components of any large scale logistics sites and needs to be factored into consideration of available and suitable plots for logistics buildings.

The Scope for Disaggregation

2.8 The Site is being promoted as a road-based logistics park which is characterised by larger floorplate employment units to meet the identified employment need. Large scale logistics park need to occupy strategic locations, that are in close proximity to the motorway network. Locating logistics operators in one location, also maximises opportunities for sustainable modes of transport. There are a range of plot sizes proposed, including one development cell (Zone A) which is smaller in scale, however this has been included in the Assessment to make best use of the residual land. Therefore, whilst we identify these smaller cells as being the guide for the threshold for this Assessment, it is material that the smallest cells form a more limited component of a scheme which is more characterised by larger building plots. If therefore, the smaller cells could be accommodated elsewhere (outside of the Green Belt), this would not address the need to deliver the larger building plots which is the main focus of this application proposal.

Zone	Area Ha	Number of Units / Proposed Floorspace
A	2.33	Max: 13,935m ² (150,000ft ²) Ranging from 1-3 units

B	32.51	Max 157,935m ² (1,700,000ft ²) Ranging from 1 – 6 units
C	5.47	Max 29,729m ² (320,000ft ²) 1 unit
D	24.43	Max. 123,561m ² (1,330,000ft ²) Ranging from 1 – 3 units
Site Boundary	97.18 Ha	Total Developable Area: 64.74ha

Figure 1 Schedule of Development Cells and Disposition of Uses

2.9 The smallest development cell is Plot A with an area of 2.33 Ha. The indicative layout identifies a unit of 8,918.70m² on this plot. The dimensions of this cell have in part been governed by the constraints of the site in this location. A constraints exercise has also identified a range of other parameters which restrict the developable area. It should be noted that the indicative layout identifies units of c.93,026.10m² and 79,339.16m² on plots 4 (Zone B) & Plot 2 (Zone D) respectively with a maximum height to underside of haunch of 40m (43.5m to ridge). In assessing potential alternative sites, these “parameters” will be considered. These plots are within the site and well away from boundaries and hence sensitive uses. This potential for separation from sensitive uses is a material factor for consideration.

Criteria

2.10 The Applicant has identified certain criteria / parameters in establishing an area of search for large scale employment development. These criteria / parameters are based on an approach and methodology agreed with the neighbouring authority, St Helens for an Alternative Sites Assessment undertaken for the planning application at Parkside, Newton Le Willows.

2.11 This included:

- Minimum site size of 5 Ha (this reflects the smallest zone (Zone C) identified on the proposed masterplan (this is also supported by the findings of the Council’s EDNA)
- Drivetime to motorway junction of 10 minutes or less
- HGV access into site possible
- Access to/from the primary and strategic road network
- Public Transport access

- Separation from adjacent sensitive uses

2.12 The application Alternative Sites Assessment will therefore consider sites identified within the EDNA and Development Option Regulation 18 Consultation Document of over 5 Ha. For robustness, it also considers sites of between 2.33 and 5ha or more to identify whether there is any deliverable opportunity to accommodate the smallest component of the application proposal on land outside of the Green Belt.

Area of Study

2.13 There is a need to define an area of search for potential alternative sites. Given that the proposed development of Six 56 is being promoted in the context of meeting the needs of Warrington, the first parameter is that only sites within Warrington are considered. It is noted that in recent planning applications, for instance at Florida Farm (St Helens), representations were made to suggest that Green Belt sites should be retained as such, and that there was plenty of available space in neighbouring boroughs. We do not support this approach and it has been proven through those applications in St Helens (supported by the Secretary of State decisions) and through the St Helens Council's own evidence base (submitted with these applications), that developing employment sites in other authority areas does not have the same socio-economic benefit as it would do if located within the authority boundary. An obvious example of this, relates to the retention of business rates and provision of employment opportunities close to those areas of the borough in most need, as well as having greater control over providing skills and training opportunities. It is however worth noting that St Helens and the Greater Manchester Authorities are also having to release land from the Green Belt to meet their own employment needs and the recently released Warrington Local Plan "Proposed Submission Version Local Plan" confirms a need for 361.74ha of new employment land of which some 215.14ha is required to come from the Green Belt. This confirms the need for significant Green Belt release for employment uses within the sub area and specifically within the Borough of Warrington.

2.14 Developing outside of the Authority will also affect travel to work patterns and not directly serve those areas of Warrington that are in greatest need. A large proportion of Warrington is Green Belt land which has not been reviewed for nearly 40 years in any strategic terms through the Local Plan process. It has been established in the Proposed Submission Version Local Plan that there is a need to release Green Belt land to meet those development needs.

National guidance is clear that where Green Belt is to be changed, then this must be undertaken with a long-term view of development needs, not a short term 'fix'.

Consideration of Potential Sites

- 2.15 In reviewing the potential for alternative sites, consideration has been given to any allocated employment sites remaining in the adopted Core Strategy that are over 2.3 ha in area and could accommodate a unit of 8,918.7m².
- 2.16 Sites with permission for employment development and built out with unoccupied units and sites that have been promoted and are identified in the emerging Local Plan are also considered.
- 2.17 A number of existing employment sites identified in both the adopted Core Strategy and referenced as available in the EDNA (2016) have been considered and discounted. The following commentary outlines the reasons these were discarded and discounted.
- 2.18 The EDN Study (2016) states that there is 23,843m² available floorspace at Woolston Grange, and half of this available floorspace comprises one single building of 11,427m². Whilst this could potentially accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A) which is proposed to be 8,918.70m², it would not be sufficient to accommodate any other unit within the proposed masterplan which ranges from 20,503.69m² to 93,026.10m². Furthermore, the EDNA (2016) states that there are no other properties in excess of this (as of 2016), currently available in Warrington. The second largest unit available anywhere in Warrington is 5304m² at Melbury Court, Birchwood. This puts in perspective the available space to accommodate the units proposed as part of Six 56.
- 2.19 The EDNA (2016) states that the Forrest Way Business Park, Forrest Way, (EDNA site ref: 309) which is 7.50 ha in size could accommodate a 9,477m² B8 warehouse (over 3.75ha). This could therefore accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A). However, the EDNA states that it has previously been agreed that no unit on the site would exceed 4,645m², therefore this site has been discounted.
- 2.20 The EDNA (2016) references Gemini 16, Westbrook (Site ref: 36c) as part of an allocated employment site (7.60 ha) (Core Strategy Policy PVI) with consent for B1, B2, B8 uses. However, the western portion of the site which is 5.4 ha in size is now approved for housing,

leaving only 2.2 ha available for employment use. This reduces the available employment land below the 2.3 ha threshold, therefore this site has been discounted.

- 2.21 The EDNA (2016) references Gemini 8, Charon Way, Westbrook (Site ref: 356) as part of an allocated employment site (5.21 ha) (Core Strategy Policy PVI) with consent for B1, B2, B8 C1, A3/A4 uses. This includes space for 3.18 ha of B1, B2, B8 uses. However the EDNA goes onto identify that the remaining land is being marketed for design and build developments of 929-18,581 sqm. Therefore it could accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A) which is proposed to be 8,918.70m², but it would be insufficient to accommodate any other unit within the proposed masterplan which ranges from 20,503.69m² to 93,026.10m².
- 2.22 The Quadrant (South), Birchwood Park (EDNA site ref: 367) forms part of an allocated employment site (3.64 ha) (Core Strategy Policy PVI) with consent for B1, B2, B8 uses. A number of units are now built out and let, leaving only 1.87 ha undeveloped. This reduces the available employment land below the 2.3 ha threshold, therefore this site has been discounted.
- 2.23 Lingley Mere Phase 3 is referenced in the EDNA (site ref: 15Ac) at 3.62 ha. This forms part of the Omega and Lingley Mere policy allocation (CS8), with outline consent for employment development comprising 13,000m² B8 space. The commentary states this could support a 9,290m² B8 unit and could accommodate the smallest potential unit on the Six 56 site at Plot 7 (Zone A) which is proposed to be 8,918.70m², it would not be sufficient to accommodate any other unit within the proposed masterplan which ranges from 20,503.69m² to 93,026.10m².
- 2.24 Lingley Mere Phase 2 referenced in the EDNA as ref: 15 A(g) comprises a site of 9.37 ha and is allocated for employment use as part of the Omega and Lingley Mere policy allocation (CS8) and has permission for B1 office space. It now has planning permission for 275 dwellings, therefore this site has been discounted.
- 2.25 Omega Phase 3 (remaining plots) (51.36 ha) allocated for employment use under Core Strategy policy allocation (CS8) is now proposed for housing led development and has permission for 1100 dwellings, A1-A5, C1, C2 and D1 uses. On this basis, this site has been discounted.

- 2.26 All other employment sites with available B8 floorspace are smaller than the agreed threshold of 2.3 ha and therefore they have been discounted.
- 2.27 The Assessment takes a series of stages. **Stage 1** is to establish whether the identified sites meet the minimum requirements for logistics development, namely proximity to the motorway network, good access to this via A roads, public transport connectivity and ability to mitigate for sensitive uses where these are present.
- 2.28 **Stage 2** then considers a range of additional factors to establish the suitability of development such as site shape and proximity to workforce.
- 2.29 **Stage 3** then assesses the remaining sites and considers the approach taken by the Local Plan and Green Belt Assessment in 2016 and 2017 and recent planning applications where the Secretary of State has supported the approach.

Stage 1 Site Assessment

- 2.30 At Stage 1 the sites are assessed based on the minimum site requirements as set out in the criteria in 2.11 and scored using a traffic light system:

Site Requirement	Reasoning/ Comments	Indicator	Score
Motorway Access	There is a need for Motorway access to be within 2.5km	Site is within 2.5km and is well connected to M/Way by A roads	√
		Site is within 2.5km but less well connected to M/Way	√/X
		Site is >2.5km from M/Way	X
'A' Road Access	There is a need for the site to have good access to 'A' roads with decent linkage to the Motorway Network	Site is located on key A road	√
		Site is located on secondary A road network	√/X
		Site is located off the A road network	X
		Regular bus route at site entrance	√

Public Transport	There is a need for decent access to the site by public transport	Regular bus route in easy walking distance from site entrance (<400m) or irregular service	√/X
		Poor Bus route and/ or route >400m distance	X
Separation (sensitive uses)	There is a need for sufficient space within a site to allow for decent buffering/ mitigation and separation from sensitive uses	No adjacent sensitive uses or space for buffering/ mitigation	√
		Adjacent to sensitive uses but mitigation potential not optimal	√/X
		Adjacent to sensitive uses and no prospect of mitigation	X

Stage 2 Site Suitability Assessment

2.31 The second stage of assessment considers the suitability of the remaining sites. It assesses the sites in terms of potential constraints such as shape, proximity to settlement and topography.

Site Requirement	Reasoning/ Comments	Indicator	Score
Shape	A regular site shape to fit a regular shaped rectangular logistics building. Shape as a constraint is most relevant to a smaller scale of sites.	Regular shaped site	√
		Regular shaped site with certain anomalies	√/X
		Irregularly shaped site	X
Proximity to Settlement	There is a need for proximity to a settlement to ensure access for a local workforce	Site is part of or adjacent to a key settlement	√
		Site is located <1 km from a key settlement	√/X
		Site is located >1 km from a key settlement	X
Topography	There is a need for sufficient space to create development platforms for development. A varied topography is not necessarily a preclusion to development, it is the ability	Site can provide sufficient space for development platforms to accommodate large floorplate units	√
		Site can accommodate large floorplate units but not ideal	√/X

	to create those platforms that is most important to delivery	Site is unable to create appropriate development platforms due to topography	X
Flood Risk	Sites should avoid areas of flood risk in line with Policy.	Flood Zone I	√
		Some parts of the site at risk of flooding	√/X
		Site delivery significantly affected by flood risk	X

Stage 3 Green Belt Assessment

2.32 The third stage of Assessment considers the sites against the “purposes” of Green Belt. Should any sites that are not in Green Belt be identified at this stage, then clearly, they would effectively meet all of the “purposes”.

Site Requirement	Reasoning/ Comments	Indicator	Score
Purpose 1	To check unrestricted sprawl of large built up areas.	Site is well contained	√
		Site is well related to the urban area and partially contained	√/X
		Site is not contained/ separate from the urban area	X
Purpose 2	To prevent neighbouring towns from merging into one another.	Site would not lead to merging of towns (physically/ perceptively)	√
		Site will not physically merge towns, but perceptively may reduce a strategic gap affecting character	√/X
		Sites would bring towns close together reducing a strategic gap to significantly affect character	X
Purpose 3	To assist in safeguarding the countryside from encroachment.	The development would not mean a spread of development into countryside	√

		The development would extend the urban area into countryside but there are certain mitigating factors such as surrounding urban areas	√/X
		The development would mean encroachment into the countryside as an extension of the urban area	X
Purpose 4	To preserve the setting and special character of historic towns.	Warrington is a historic town however, if the site is not within 250m of any of the Town Centre Conservation Areas or does not cross an important viewpoint of the Parish Church, then Purpose 4 does not apply and sites will comply.	√
			√/X
			X
Purpose 5	To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	Development involves recycling of derelict and other urban land	√/X
		Development involves some recycling of derelict and other urban land	X
		Development involves no recycling of derelict and other urban land	X

3. Assessment

Identification of Sites

3.1. In line with the above methodology, a total of 9 sites have been identified. Whilst consideration has been made to the smallest development cell in the indicative layout, only one site has been identified that is less than the minimum site threshold of 5 ha identified in the Council's studies. A plan of these sites can be viewed at Annex A to this study. The sites are:

Site Ref	Site Address	Size (Ha)
1.	Omega North Extension. Call for Sites Ref: R18/066	13.5 ha
2.	Burtonwood Brewery & White House Farm Call for Sites Ref: R18/080	4.22 ha
3.	Port Warrington. Call for Sites Ref: R18/133 & Core Strategy Policy Ref CS11 Strategic Opportunity	74.19 ha
4.	Land North of Barley Castle Lane, Appleton (Stobart's proposed NDC site)	15.3 ha
5.	Land at Barley Castle Farm. Call for Sites Ref: R18/148 (8.69 ha) Land at E end of Barleycastle Lane (North Parcel). Call for Sites Ref: R16/150 (6.4 ha) Land at E end of Barleycastle Lane (South Parcel). Call for Sites Ref: R16/151 (4.55 ha) *These sites are considered as one consistent with the emerging Local Plan	19.64 ha
6.	Land South of Barley Castle Lane. Call for Sites Ref: R18/147 (9.47 ha) Land at Barley Castle Lane. Call for Sites Ref: R18/043 (0.5 ha) *These sites are considered as one consistent with the emerging Local Plan	9.97 ha
7.	Omega South Plot 7E (Mount Park) / Omega South Plot 7F (Mount Park) Comprising: Unit 2 Coming Soon 136,963 ft ² (completed Dec 2018) Unit 3 Coming Soon 90,771 ft ² (completed Dec 2018) Unit 4 Coming Soon 183,669 ft ² (to be completed by Feb 2019)	18.27 ha 136,963 ft ² 90,771 ft ² 183,669 ft ²
8.	Omega South Zone 1B	17.99 ha
9.	Fiddlers Ferry Power Station *includes main power station, ash lagoons, rail sidings, pump house and agricultural land	330 ha
10.	Six 56, Warrington (the Application Site)	96 ha

Stage I: Assessment Against Minimum Site Requirements

3.2 The sites have been assessed against the minimum site requirements as set out in the EDNA and scored using a traffic light system. We have removed the HGV Access test as this does not assist the assessment as it is a prerequisite and most sites identified have existing or potential for access. Access to the main roads and motorways is the more important test:

Site Address	M/Way Access	Trunk Road Access	Public Transport	Separation (Sensitive Uses)	Overall Score
1 Omega North Extension	Yellow	Yellow	Green	Yellow	Yellow
2 Burtonwood Brewery & White House Farm	Red	Red	Green	Red	Red
3 Port Warrington	Red	Red	Red	Green	Red
4 Land North of Barley Castle Lane, Appleton	Yellow	Yellow	Red	Green	Yellow
5 Land South of Barley Castle Farm.	Red	Yellow	Red	Yellow	Yellow
6 Land South of Barley Castle Lane	Red	Yellow	Red	Yellow	Yellow
7 Omega South	Green	Green	Green	Green	Green
8 Omega South Zone 1B	Green	Green	Green	Green	Green
9 Fiddlers Ferry Power Station	Red	Green	Green	Green	Red
10 Six 56 Warrington	Green	Green	Red	Green	Yellow

3.3 The first stage of assessment has identified a number of sites to be taken to Stage 2. The sites that were filtered out our predominantly ones that have access issues for operators. However, it is considered on balance that there would be a sufficient quantum of development on the larger sites to be able to mitigate any existing shortfalls of public transport provision. Equally, highway improvements can be undertaken to short stretches of connector roads to facilitate vehicle access on to the Strategic Highway Network. However, given that the proposal is for a road-based logistics development, the distance from the motorway cannot be mitigated and therefore those sites that scored very poorly on this criterion have been discounted for the purposes of this assessment. As such Burtonwood and Fiddlers Ferry have been discounted because they are remote from the motorway and accessing them would require heavy good vehicles passing directly through residential neighbourhoods which is not desirable. Finally, any sites where it is considered that suitable mitigation cannot be implemented to reduce the impact on residential amenity have also not been taken forward into assessment 2.

3.4 Fiddlers Ferry has been discounted in the first stage of the assessment because of its remoteness from the motorway network. Furthermore, the Submission Draft Local Plan acknowledges that there is significant uncertainties over the timing of the decommissioning of Fiddlers Ferry Power Station and recognises the requirement for extensive site remediation of the site. For these reasons, it is considered that the power station is not reasonably available to accommodate the Proposed Development to meet the existing acute need for employment land within the Borough.

3.5 The remaining sites are:

Site	Site Address
1	Omega North
4	Land North of Barley Castle Lane
5	Land South of Barley Castle Farm.
6	Land South of Barley Castle Lane
7	Omega South
8	Omega South Zone 1B
10	Six 56 Warrington

Stage 2: Suitability Assessment

3.6 The sites have been considered against the criteria identified in Stage 2 and scored as follows:

	Site Address	Shape	Proximity to Settlement	Topography	Flood Risk	Score
1	Omega North	Yellow	Yellow	Green	Green	Yellow
4	Land North of Barley Castle Lane	Green	Red	Green	Green	Yellow
5	Land South of Barley Castle Farm.	Green	Red	Green	Green	Yellow
6	Land South of Barley Castle Lane	Green	Red	Green	Green	Yellow
7	Omega South	Green	Yellow	Green	Green	Green
8	Omega South Zone 1B	Green	Yellow	Green	Green	Green
10	Six 56 Warrington	Green	Red	Green	Green	Yellow

3.7. None of the sites have been excluded. The proximity of the sites to the existing key settlement is not considered to be strong enough as a single issue to exclude a site as public transport improvements can be made to support sustainable transport. This is particularly relevant for Sites 4 and 10 because of the Council’s proposals to deliver 7,400 new homes in the proposed Garden Suburb.

3.8. The remaining sites to progress to Stage 3 of the assessment are:

Site	Site Address
1	Omega North
4	Land North of Barley Castle Lane
5	Land South of Barley Castle Farm.
6	Land South of Barley Castle Lane
7	Omega South
8	Omega South Zone 1B
10	Six 56 Warrington

Stage 3: Assessment Against Green Belt Purposes

3.9. The sites have been considered against the criteria identified in Stage 3 of the methodology and scored as follows:

Site Address		Green Belt Purpose					Score
		1	2	3	4	5	
1	Omega North	Green	Green	Yellow	Green	Red	Yellow
4	Land at Barley Castle Lane	Yellow	Green	Yellow	Green	Red	Yellow
5	Land South of Barley Castle Farm.	Red	Green	Yellow	Green	Red	Yellow
6	Land South of Barley Castle Lane	Green	Green	Yellow	Green	Red	Yellow
7	Omega South						N/A
8	Omega South Zone 1B						N/A
10	Six 56 Warrington	Yellow	Green	Yellow	Green	Red	Yellow

- 3.10 The results of Stage 3 indicate that of the seven sites that were taken through to this stage, all of them scored sufficiently to be taken forward to a further level of scrutiny (all scored amber or neutral). It is therefore considered worthwhile considering these sites in more detail against the guidance in national policy and Warrington's EDNA (2016). The Framework states that (planning) decisions should help create the conditions in which businesses can invest, expand and adapt and goes on to say significant weight should be placed on the need to support economic growth and productivity, taking into account of local business needs and wider opportunities for development (para 80). Importantly paragraph 82 is explicit that planning decisions should *"recognise and address the specific locational requirements of different sectors which includes... storage and distribution operations at a variety of scales and in suitably accessible locations."*
- 3.11 The EDNA recognizes that the logistics sector in Warrington is 100% road related and therefore *"immediate motorway access is essential"* for any site looking to replicate the success of Omega and compete with other emerging motorway linked schemes elsewhere in the North West.
- 3.12 Sites 4, 5 and 6 (Barley Castle) do not benefit from immediate access to the motorway and therefore would be considered a secondary location in this respect. However these sites can be accessed from the motorway network without the need for vehicles to pass through any built-up residential areas. Therefore, it is considered that the issue of lack of direct access to the motorway could be mitigated by improving the local highway network, especially as part of the comprehensive Garden Suburb proposal. Nevertheless, Site 4 is currently subject to a planning appeal for the creation of a National Distribution Centre for a specific end user (Eddie Stobart) and therefore it is not considered to be readily available. In addition, none of these sites individually would be able to accommodate the full amount of employment development proposed for the Six 56 site.
- 3.13 The EDNA states that based on the future strategic take up, reflecting recent development at Omega, it is expected that there will be an ongoing requirement for large regional and national production/distribution facilities wanting sites of between 5 and 10 ha in size (or larger) to accommodate single 'big shed' properties. However, it goes on to state that the Asda development at Omega South took up 43 ha of land (gross) which is likely to represent the largest single development strategic site that Warrington will need to accommodate. The assessment stresses that *"individual strategic sites will therefore have to be at least this size, and*

ideally larger, to ensure they can meet all plausible requirements.”Site 1 ‘Omega North Extension’ due to its shape and configuration would be unlikely to be able to accommodate a unit of 10 ha or more and therefore would not meet the requirements of the logistics sector in this respect. Equally, none of the Omega sites (Sites 1, 7 and 8) would be able to accommodate the needs of the very largest logistics operators (43 ha plus) and therefore they would not meet all the feasible requirements within the market in accordance with the stipulations of the EDNA.

- 3.14 The EDNA states that *“locations on the M62, which link to the existing critical mass of Omega would be desirable for new strategic sites. However, it is accepted that there is limited capacity for a further site of the scale required in this area, particularly south of the M62”*. However it recognised that *“stakeholders showed strong support for the provision of a new strategic site(s) along the M56 Corridor... the advantages were felt to include a greater body of potentially available land; links to the crucial Manchester-North Wales Corridor; the ability to build on the existing logistics base of Barleycastle Trading Estate/Stretton Green Distribution Park and the ability to provide greater employment opportunities in the south of the Borough”*. Therefore, it is evident that there would be significant benefits in bringing forward the Six 56 Site which would be unrealised by bringing forward the 3 sites at Omega. There is a clear market demand for a logistics site to the south of Warrington to serve the M56 and M6 motorways which is evidenced within the Council’s EDNA and JLL’s Marketing Report. The creation of the Six 56 Development would ensure that there is choice and competition in the employment land market within the Borough.
- 3.15 It is important to note that the Omega sites have already been accounted for in the employment land supply set out in the emerging Local Plan. Therefore, their development would not reduce the amount of land that is scheduled to be removed from the Green Belt to meet the employment land requirement and would not lessen the need for the Garden Suburb Employment Area. The study has considered the scope for disaggregation through identifying a smaller range of sites. It has been demonstrated that there are no suitable sites. This is confirmed by the economic evidence base for the emerging Local Plan and in recent planning applications (Eddie Stobart Planning Committee Report). The position is clear that there is a need to go into Green Belt to deliver large employment units to meet the need.
- 3.16 In conclusion, it is considered that there are significant benefits as outlined above in bringing forward the Six 56 site in comparison to other sites considered in this assessment. The Six 56 site is the only one which meets all the requirements of the Council’s EDNA in terms of

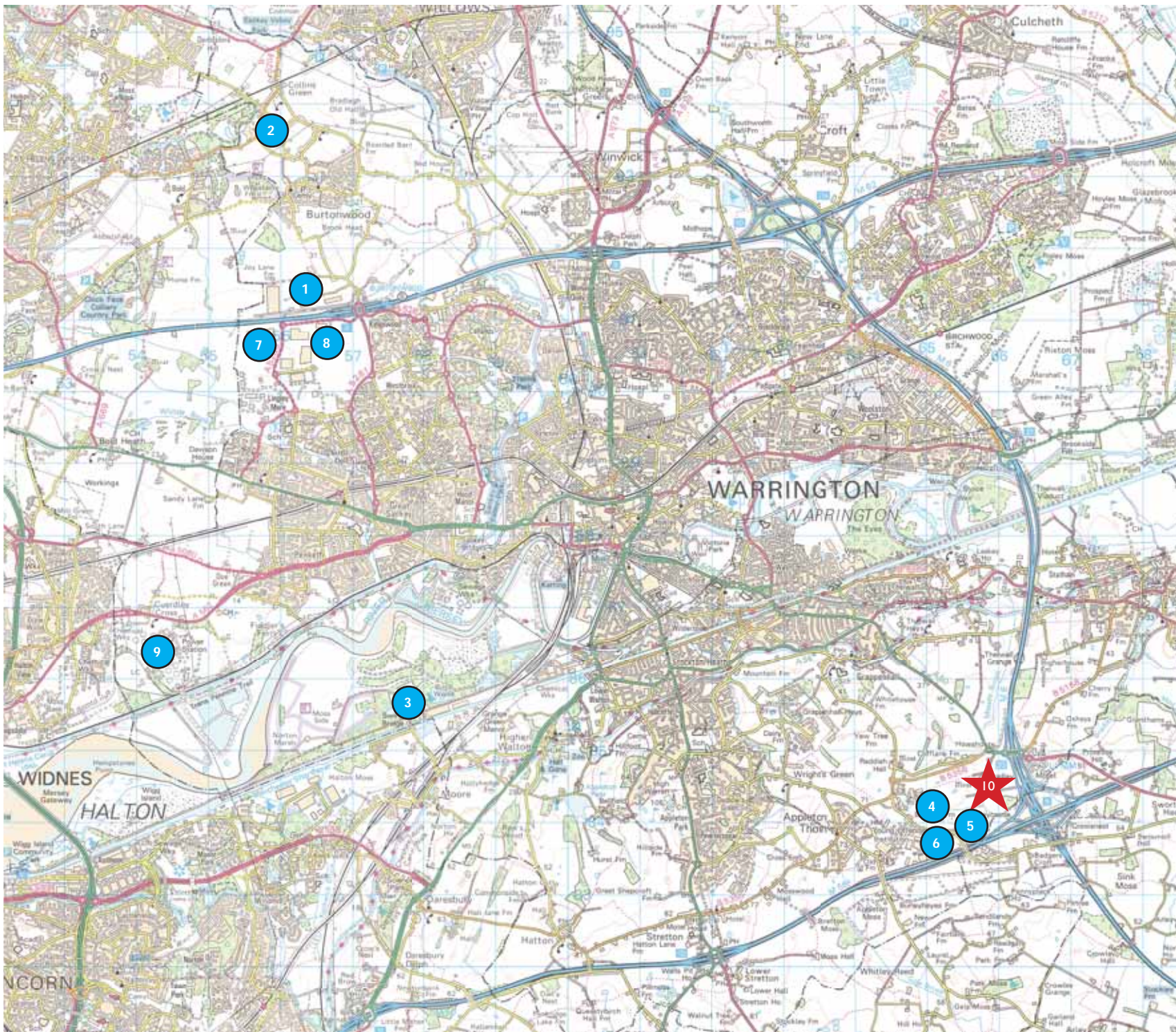
direct access on to the motorway network, meeting the demand for a new strategic site along the M58, and being able to accommodate the full range of employment requirements within the borough.

- 3.17 Nevertheless, the Submission Draft Local Plan makes clear it will be necessary to bring forward all the sites considered within the third part of the assessment to meet the employment land requirement within the borough over the plan period.

4. Conclusions

- 4.1 In conclusion, this Alternative Sites Assessment has considered whether development that is being proposed at the Six 56 sites could not be accommodated on a more suitable site either within or outside of the Green Belt. The assessment has concluded that there are no sites that are suitable for either the development as a whole, or indeed its component parts (scope for disaggregation).
- 4.2 It should be noted that no other site will deliver the regenerative benefits at Six 56.
- 4.3 The Site meets with the locational and site requirements for logistics operators. These locational characteristics and site requirements cannot currently be fully met at any other location within the Borough. The site is a flat and expansive with no topographic constraints. It is accessible to the supporting supply chain and it will be close to an established employment area and an area of population growth, given it forms part of a Garden Suburb in which up to 7000 additional houses are now proposed. All these attributes are key drivers for logistics operators when making decisions on locations for new employment space. It is logical therefore for employment land to be allocated in this location which is attractive to the employment market and will continue the success in the Borough provided by Omega.
- 4.4 Delivery of high quality logistics floorspace on this site will act as a catalyst for urban regeneration and will aid delivery of the wider Garden Suburb, creating a well-balanced community by generating significant long term employment. The Application Proposals will help to support the regeneration of these neighbourhoods, providing a range of accessible jobs and working with organisations such as Warrington & Co., will help to ensure that the uptake of employment by economically inactive residents can be optimised.
- 4.5 The delivery of the Site will bring direct and indirect employment opportunities, in the short-term for construction and, as the Site is developed, longer-term employment opportunities. In turn the Proposals will also lead to in-ward investment and confidence in the market, bringing about further investment and development opportunities. This is all of direct benefit to the Borough and its regeneration.

Appendix I – Plan of Identified Sites



KEY

1. Omega North Extension
2. Burtonwood Brewery & White House Farm
3. Port Warrington
4. Land North of Barley Castle Lane
5. Land at Barley Castle Lane
6. Land South of Barley Castle Lane
7. Omega South Plot 7E / 7 F
8. Omega South Zone 1B
9. Fiddlers Ferry Power Station
10. Six 56 (The Application Site)

ALTERNATIVE SITES ASSESSMENT PLAN

Appendix I Key:

Site Ref	Site Address	Size (Ha)
1	Omega North Extension	13.5
2	Burtonwood Brewery & White House Farm	4.22
3	Port Warrington	74.19
4	Land at Barley Castle Lane, Appleton	15.3
5	Land South of Barley Castle Farm (including land at the east end of Barleycastle Lane)	19.64
6	Land South of Barley Castle Lane	9.97
7	Omega South	18.27
8	Omega South Zone 1B	17.99
9	Fiddlers Ferry Station	330
10	Six 56, Warrington	97

Appendix 2 – Individual Site Assessments

Site Ref.	Address/ Site Description	Site Size
I	Omega North Ref: R18/066	13.5
Stage 1 Considerations		Score
Motorway Access	Site is located less than 1 km from Junction 8 of the M62, but it is not connected to the M/Way by an A Road	X/N
Trunk Road Access	Site is located slightly off an A Road	X/N
Public Transport	Bus routes at site entrance	√
Separation (Sensitive Uses)	There is a residential property on the northern boundary. The impact could be mitigated, but it reduces the scope of the site to accommodate the larger units.	X/N
Stage 2 Considerations		
Shape	Regular shape, but could be difficult to accommodate the largest Big Box sheds i.e. 10 ha plus.	X/N
Proximity to Key Settlement	To the north of Warrington (within 1km)	X/N
Topography	Relatively flat	√
Flood Risk	Flood Zone I	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	The site is on the edge of Omega with existing units on the southern and western boundaries. The northern boundary is defined by Burtonwood Road and Joy Lane.	√
To prevent neighbouring towns merging into one another;	Omega is located away from the main urban and it would maintain a strategic gap with Burtonwood and therefore it will not lead to coalescence of towns	√
To assist in safeguarding the countryside from encroachment;	The site would lead to encroachment into the countryside, but the level of encroachment would not be significant	X/N
To preserve the setting and special character of historic towns	The site is not within 250m of the Town Centre and does not impact on any viewpoints of the Parish Church	√
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	The sites are greenfield with no built form.	X
Other Site Considerations		
Land Use/ Neighbouring uses	Open countryside with neighbouring industrial and logistics uses	
Market Planning Policy	The site is located on the edge of the existing Omega site where there is a proven demand. However due to the shape of the site it would not be able to accommodate the larger industrial and logistic Big Box units (10 ha plus).	
Summary/ Comments		
<p>The Site is located close to the built-up area and on the edge of an established employment area. Nevertheless, it scores poorly because it is not connected to the Motorway by an A1. Its size and shape would make it difficult to accommodate the larger industrial and logistic Big Box units (10 ha plus). The promotional masterplan submitted with the call for sites representations shows that the site could accommodate two units of approximately 274,400 sq. ft. and 211,000 sq. ft., which is below the majority of the unit sizes on Six56.</p>		

Site Ref.	Address/ Site Description	Site Size
2	Burtonwood Brewery & White House Farm	4.22
Stage 1 Considerations		Score
Motorway Access	The M62 M/Way is approximately 3km from the site.	X
Trunk Road Access	Not connected to them M/Way by A Roads	X
Public Transport	Bus routes nearby on Broad Lane	√
Separation (Sensitive Uses)	A number of residential properties nearby and the size of the site limits the scope for mitigation	X
Stage 2 Considerations		
Shape	The site is relatively long and thin which limits its attractiveness for the larger logistics operators.	X/√
Proximity to Key Settlement	The site is remote from any key settlement (approximately 1.5 km from St Helens)	X
Topography	Relatively flat	√
Flood Risk	Flood Zone 1	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	The site is an outlier to the settlement and partially contained.	X
To prevent neighbouring towns merging into one another;	The site is located within a strategic gap between Burtonwood and Ashton Green/St Helens and would alter the character of countryside in this location.	X
To assist in safeguarding the countryside from encroachment;	The site is partially developed, but the proposal would represent an encroachment within to the countryside	X/√
To preserve the setting and special character of historic towns	The proposal is remote from Warrington Town Centre and would have no impact any important viewpoints of the Parish Church	√
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	The site comprises of a mix of greenfield and brownfield land	X/√
Other Site Considerations		
Land Use/ Neighbouring uses	Industrial, residential, agriculture/forestry.	
Market	The site is remote from any significant population centre and from the strategic road network. Its shape and proximity to residential properties also makes it unattractive to logistics operators.	
Summary/ Comments		
Site is too peripheral from the Motorway network to be suitable or attractive to the market for large primary employment development.		

Site Ref.	Address/ Site Description	Site Size
3	Port Warrington	74.19
Stage 1 Considerations		Score
Motorway Access	6 km to M56 M/way and 13km to M62 M/way	X
Trunk Road Access	The site is located off the A Road Network	X
Public Transport	Nearest bus stops on Runcorn Road, which are 1.5km from the site	X
Separation (Sensitive Uses)	Site is away from sensitive uses and where these are present mitigation could be introduced due to site size	√
Stage 2 Considerations		
Shape	Regular shape	X
Proximity to Key Settlement	To the east of Runcorn (5km) and west of Warrington (4km)	X
Topography	Relatively flat	√
Flood Risk	Predominately within Flood Zone 1 with a proportion within FZ2 and 3	X/√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	The site is not well contained and is separate from the urban area	X
To prevent neighbouring towns merging into one another;	The site would not merge Warrington and Runcorn, but would reduce the strategic gap between the two settlements	X/√
To assist in safeguarding the countryside from encroachment;	The site would not lead to a significant encroachment into the countryside	X
To preserve the setting and special character of historic towns	The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.	X
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	The site is predominately greenfield, but does involve the redevelopment an area of brownfield land	X/√
Other Site Considerations		
Land Use/ Neighbouring uses	Agriculture, Nature Reserve, sewerage works and caravan park	
Market	The site is remote from the strategic highway network and therefore would not be attractive for large logistic operators.	
Summary/ Comments		
The site is remote from the strategic highway network and therefore is not currently suitable for large logistic operators who require convenient access on to the M/way. The site has also been allocated in the Core Strategy to become a multi modal port facility utilising the ship canal with an opportunity for rail freight. Therefore, the utilisation of the site for road-based logistics would be contrary to the Core Strategy and would potentially lead to the loss of the opportunity to create a multi modal port facility within the Borough.		

Site Ref.	Address/ Site Description	Site Size
4	Land North of Barley Castle, Appleton	15.3
Stage 1 Considerations		Score
Motorway Access	M56 is less than 2.5km from the M6. Access not direct by A road	X/√
Trunk Road Access	Site is located away from the A road network but with broad connectivity	X/√
Public Transport	The nearest bus stops are on Grappenhall Lane, which are more than 400 metres from the site	X
Separation (Sensitive Uses)	The site borders on to Booth Farm, which contains a Grade II listed farmhouse. However, the site is large enough to accommodate mitigation.	√
Stage 2 Considerations		
Shape	Fairly regular	√
Proximity to Key Settlement	The site is more than 1 km to the south and east of Warrington	X
Topography	Relatively flat	√
Flood Risk	Flood Zone 1	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	The site borders directly onto the Trading Estate and is partially contained by established field boundaries and Bradley Brook	X/√
To prevent neighbouring towns merging into one another;	The site would not lead to merging of towns	√
To assist in safeguarding the countryside from encroachment;	The site would lead to encroachment, but it would be perceived as a rounding off of the Trading Estate	X/√
To preserve the setting and special character of historic towns	The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.	√
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	The site is entirely greenfield	X
Other Site Considerations		
Land Use/ Neighbouring uses	Agricultural with a small number of residential uses,	
Market	The site is located on the edge of an established and successful trading estate and therefore is considered to be attractive to logistics operators, subject to appropriate highway works.	
Summary/ Comments		
The site is one the edge of an established and successful Trading Estate. However, it is not linked on to the strategic road network and is away from any key settlements. The site is also too small to accommodate the whole of the Six 56 scheme.		

Site Ref.	Address/ Site Description	Site Size
5	Land at Barley Castle Farm (including two parcels at east end of Barley Castle Lane)	19.64
Stage 1 Considerations		Score
Motorway Access	M56 is approx. 2.9km from the M6. Access not direct by A road	X
Trunk Road Access	Site is located away from the A road network, but with broad connectivity	X/√
Public Transport	The nearest bus stops are on Grappenhall Lane, which are more than 400 metres from the site.	X
Separation (Sensitive Uses)	There are a number of residential properties within or in close proximity to the site. Two of these properties are listed. However, there are opportunities to mitigate the potential impact.	X/√
Stage 2 Considerations		
Shape	Fairly regular	√
Proximity to Key Settlement	The site is approximately 2.5km to the south and east of Warrington	X
Topography	Relatively flat	√
Flood Risk	Flood Zone I	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	The site is not contained and is separate from the urban area	X
To prevent neighbouring towns merging into one another;	The site would not lead to merging of towns	√
To assist in safeguarding the countryside from encroachment;	The site would lead to encroachment into the countryside	X
To preserve the setting and special character of historic towns	The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.	√
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	The site is entirely greenfield	X
Other Site Considerations		
Land Use/ Neighbouring uses	Agricultural with a small number of residential uses	
Market	The site is located close to an established and successful trading estate and therefore is considered to be attractive to logistics operators, subject to appropriate highway works.	
Summary/ Comments		
The site is close to an established and successful Trading Estate. However, it is not linked on to the strategic road network and is away from any key settlements. The site is also too small to accommodate the whole of the Six 56 scheme.		

Site Ref.	Address/ Site Description	Site Size
6	Land South of Barley Castle Lane	9.97
Stage 1 Considerations		Score
Motorway Access	M56 is approx. 2.9km from the M6. Access not direct by A road	X
Trunk Road Access	Site is located away from the A road network, but with broad connectivity	X/√
Public Transport	The nearest bus stops are on Grappenhall Lane, which are more than 400 metres from the site.	X
Separation (Sensitive Uses)	There is a residential property in the middle of the site, which limits the opportunities for mitigation on this relatively small site.	X/√
Stage 2 Considerations		
Shape	Fairly regular	√
Proximity to Key Settlement	The site is approximately 2.5km to the south and east of Warrington	X
Topography	Relatively flat	√
Flood Risk	Flood Zone I	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	The site is well contained and borders on the urban area	√
To prevent neighbouring towns merging into one another;	The site would not lead to merging of towns	√
To assist in safeguarding the countryside from encroachment;	The site would lead to encroachment into the countryside, but it can be mitigated,	X/√
To preserve the setting and special character of historic towns	The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.	√
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	The site is entirely greenfield	X
Other Site Considerations		
Land Use/ Neighbouring uses	Industrial to the north and west and agriculture to the east	
Market	The site is located adjacent to an established and successful trading estate and therefore is considered to be attractive to logistics operators, subject to appropriate highway works.	
Summary/ Comments		
The site is adjacent to an established and successful Trading Estate. However, it is not linked on to the strategic road network and is away from any key settlements. The site is also too small to accommodate the whole of the Six 56 scheme		

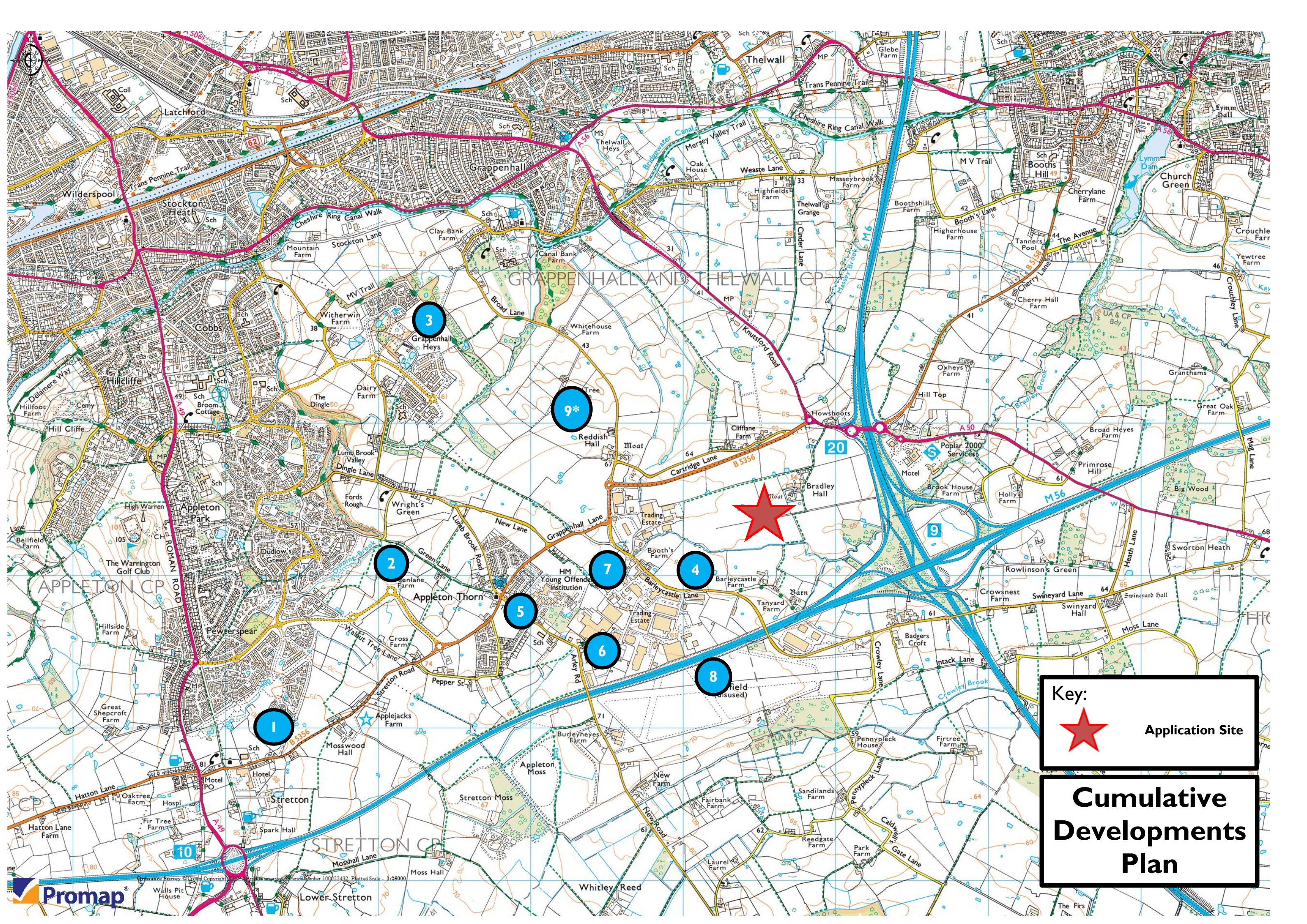
Site Ref.	Address/ Site Description	Site Size
7	Omega South Plot 7E and 7F	18.27
Stage 1 Considerations		Score
Motorway Access	Less than 2.5km to M62 Junction	√
Trunk Road Access	Estate road directly onto M/way junction	√
Public Transport	Site is located close to a bus route	√
Separation (Sensitive Uses)	Site is distant from any sensitive uses	√
Stage 2 Considerations		
Shape	Regular size	√
Proximity to Key Settlement	On the edge of Warrington (within 1 km)	X/√
Topography	Relatively flat	√
Flood Risk	Flood Zone 1	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	N/A	N/A
To prevent neighbouring towns merging into one another;		
To assist in safeguarding the countryside from encroachment;		
To preserve the setting and special character of historic towns		
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.		
Other Site Considerations		
Land Use/ Neighbouring uses	Industrial to the north and east and agricultural land to the west.	
Market	The site is within an established and successful logistics park with direct access on to the M62	
Summary/ Comments		
The site is within an established industrial and logistics park and benefits from direct access on to the M62. Omega Zone 7 is exclusively for manufacturing and logistics floorspace. The site is too small to accommodate the whole of the Six 56 proposals.		

Site Ref.	Address/ Site Description	Site Size
8	Omega South Zone 1B	18.27
Stage 1 Considerations		Score
Motorway Access	Less than 2.5km to M62 Junction	√
Trunk Road Access	Estate road directly onto M/way junction	√
Public Transport	Site is located close to a bus route	√
Separation (Sensitive Uses)	Site is next to proposed residential site and PROW runs through the site but there is potential for mitigation	√
Stage 2 Considerations		
Shape	The site is irregularly shaped, but is large enough to accommodate regular shaped logistic buildings	√
Proximity to Key Settlement	Proximity to Warrington (within 1 km)	X/√
Topography	Relatively flat	√
Flood Risk	Flood Zone 1	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	N/A	N/A
To prevent neighbouring towns merging into one another;		
To assist in safeguarding the countryside from encroachment;		
To preserve the setting and special character of historic towns		
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.		
Other Site Considerations		
Land Use/ Neighbouring uses	Industrial, office (B1a) and residential	
Market	The site is within an established and successful logistics park with direct access on to the M62	
Summary/ Comments		
The site is within an established industrial and logistics park and benefits from direct access on to the M62. Omega Zone 7 is exclusively for manufacturing and logistics floorspace. The site is too small to accommodate the whole of the Six 56 proposals.		

Site Ref.	Address/ Site Description	Site Size
9	Fiddlers Ferry Power Station	330ha
Stage 1 Considerations		Score
Motorway Access	The Site is over 2.5km from the M62	X
Trunk Road Access	Site is located close to the A562	√
Public Transport	Bus routes nearby on Widnes Road	√
Separation (Sensitive Uses)	No adjacent sensitive uses	√
Stage 2 Considerations ⁶²		
Shape	Regular shape	√
Proximity to Key Settlement	The site is located within 1 km of a key settlement (Widnes)	X/√
Topography	Relatively flat	√
Flood Risk	Flood Zone 1	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	N/A	N/A
To prevent neighbouring towns merging into one another;		
To assist in safeguarding the countryside from encroachment;		
To preserve the setting and special character of historic towns		
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.		
Other Site Considerations		
Land Use/ Neighbouring uses	Agricultural land, chemical works and residential development	
Market	Secondary location due to poor accessibility to the strategic highway network	
Summary/ Comments		
Fiddlers Ferry is an active power station. Therefore, it is currently not available for B8 logistics use. Furthermore, even when decommissioned there will be extensive demolition and remediation necessary before the site is ready for employment/logistics uses.		

Site Ref.	Address/ Site Description	Site Size
10	Six 56, Warrington	97
Stage 1 Considerations		Score
Motorway Access	Close to Junction 20 of the M56 and M6 junction	√
Trunk Road Access	The site links on to the A50	√
Public Transport	Bus routes over 400m from the site	X
Separation (Sensitive Uses)	A number of residential properties and a scheduled monument are located within the site, but there is space for buffering and mitigation	√
Stage 2 Considerations		
Shape	Regular shaped site	√
Proximity to Key Settlement	The site is over 1 km from Warrington	X
Topography	Relatively flat land	√
Flood Risk	Flood Zone 1	√
Stage 3 Green Belt Purposes Test (if Applicable)		
To check the unrestricted sprawl of large built-up areas	Site borders on to the urban area and is reasonably well contained	X/√
To prevent neighbouring towns merging into one another;	The site does not fulfil a strategic green belt function and would not lead to merging of settlements.	√
To assist in safeguarding the countryside from encroachment;	The Development would lead to encroachment into the countryside, but the site has relatively strong boundaries in terms of roads, motorways and field boundaries.	X/√
To preserve the setting and special character of historic towns	The site is more than 250 m from Warrington Town Centre and would not impact on any viewpoints of the Parish Church.	√
To assist in urban regeneration by encouraging the recycling of derelict and other urban land.	The site is predominately greenfield.	X
Other Site Considerations		
Land Use/ Neighbouring uses	Industrial to the west, the motorway (M6) to the east and agricultural land to the north and south.	
Market	The site is located within an area where there is high demand for logistic sites because of its proximity to the M6 and M56. As evidenced in the EDNA and JLL Marketing Report	
Summary/ Comments		
The site is located in the south of Warrington where there is significant pent-up demand and a shortage of available B8 premises to take advantage of the strategic location close to the M6 and M 56. The site has scored relatively poorly in respect to accessibility, but by their very nature logistics sites need to be located away from urban areas and close to the Strategic Highway Network.		

ES Part I Appendix I I



GRAPPENHALL AND THELWALL CP

APPLETON CP

STRETTON CP

Key:



Application Site

**Cumulative
Developments
Plan**

ES Part I Appendix I 2

Langtree PP and First Panattoni

Six: 56 Warrington

Environmental Impact Scoping Report

Revision B 23 February 2018



This Environmental Scoping Request Report is prepared in association with:



Stephen George
+ Partners LLP
Architects + Masterplanners



Spawforths has been accepted as a registrant to the Institute of Environmental Management and Assessment's (IEMA) EIA Quality Mark scheme. The EIA Quality Mark demonstrates Spawforths commitment to excellence when providing environmental impact assessment services.

Revision Record

Revision Reference	Date of Revision	Nature of Revision	Author	Checked By
B	23 February 2018		JR	AP / DR

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Appendices:

- Appendix 1 – Location Plan (National, Regional, Local Context)
- Appendix 2 – Redline Application Boundary Plan
- Appendix 3 – Parameter Plan (for Scoping)
- Appendix 4 – Key Receptors
- Appendix 5 – Cumulative Development Plan
- Appendix 6 – Topographical Plan
- Appendix 7 - Constraints and Opportunities Plan
- Appendix 8 – Geology and Ground Conditions
 - Baseline Geotechnical and Geoenvironmental Assessment
 - Phase I Geotechnical and Geoenvironmental Assessment
- Appendix 9 - Traffic and Transportation:
 - Plan of Junctions Assessed
- Appendix 10 - Flood Risk and Drainage:

- Drainage and Flood Risk Baseline Assessment

Appendix 11 – Landscape and Visual Impact:

- LV1 - Extract of plan from the Warrington Borough Council Green Belt Assessment 2017
- LV 2-3 - National Character Areas Plan and Local Character Areas Plan
- LV 4-6 - Zone of Theoretical Visibility Plans
- LV 7 - Field Work Zones Plans
- LV 8-26 - Photographs from the Landscape and Visual Baseline Fieldwork
- LV27-33 - Arboricultural Assessment Report and Plans

Appendix 12 - Ecology and Nature Conservation:

- Preliminary Ecological Appraisal

Appendix 13 - Noise and Vibration:

- Environmental Noise Baseline Assessment

Appendix 14 - Lighting Baseline Assessment

Appendix 15 – Glossary and Abbreviations

I. Overview

Summary of Proposals

I.1. Spawforths are to submit a planning application for a strategic employment development on land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six:56 Warrington), on behalf of Langtree Property Partners and First Panattoni. This will be in the form of an outline planning application with all matters, apart from access to the Site reserved for consideration at a later date.

I.2. The description of development is as follows:

Matters of Outline

The outline application (all matters reserved except for means of access) comprises demolition of existing buildings and the construction of up to 325,150m² (3.5 million ft²) (gross internal) of employment floorspace (Use Class B8 and B2 and B1 (a) offices) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation and alteration of existing access road into site including works to existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.

I.3. The Site is located in the North West of England. It is predominantly within the local authority area of Warrington, with the areas identified for proposed ecological mitigation to the south of the site (south of Bradley Brook), located within Cheshire East's local authority area. The site's location in the national and regional context is shown on the plans below in red and on the plans at a larger scale within **Appendix I**:



Figure I.1: National Context



Figure I.2: Regional Context

- I.4. The Site is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester

(approximately 22km (13 miles) and 31km (19 miles) respectively). It is also located approximately 16km (10 miles) from Manchester Airport.

- 1.5. The site is shown on the plans below and on the plans within **Appendix 2**:

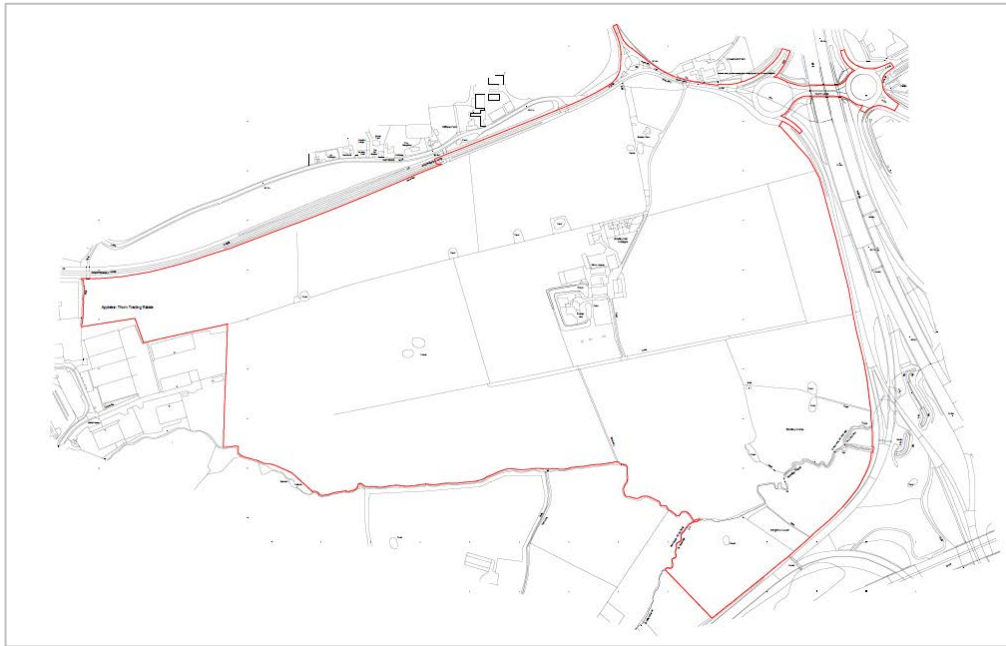


Figure 1.3: Application Site Boundary

- 1.6. Plans within **Appendices 1** and **2** show the site location and the plan within **Appendix 3** shows the parameters of the proposals which are currently evolving and which will evolve further as the environmental assessment work is undertaken. This has been informed, in part, by the Site Topography and Constraints and Opportunities included in **Appendix 6**, the Key Receptors, which are shown on a series of plans within **Appendix 4** and a series of baseline reports included in **Appendices 8 to 14**. The plan at **Appendix 5** shows the projects to be considered as part of the cumulative assessment.

Summary of Approach to EIA

- 1.7. The Proposed Development does not fall within Schedule 1 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as “the EIA Regulations”) where an Environmental Statement (ES) is mandatory. However, the

Proposed Development does fall within Schedule 2 of the EIA Regulations as an “Urban Development Project, including the construction of shopping centres and car parks, sports stadiums, leisure centres and multiplex cinemas”.

- 1.8. An Environmental Impact Assessment (EIA) is not needed for every Schedule 2 project. However as the Proposed Development is likely to give rise to “significant effects on the environment by virtue of factors such as its nature, size or location” due to the scale and nature of the Proposed Development, the surroundings and the likely cumulative effects with other development, there is a need to fully assess the environmental impacts of the Proposed Development. The proposals are therefore considered to constitute EIA Development and as such, in line with the EIA Regulations, the planning application will be accompanied by an Environmental Statement (ES). On this basis, a Screening Opinion has not been sought from the Local Authority as the Proposed Development is considered to be EIA development.
- 1.9. This report is a request for a Scoping Opinion from the Planning Authority to agree the scope and level of detail of information to be provided within the ES that will be produced for submission with the planning application. This Scoping Request is submitted in line with Part 4, Regulation 15 (1) and (2) of the EIA Regulations.

Summary of Items to be ‘Scoped In’ and ‘Scoped Out’ of the ES

- 1.10. Each of the Technical Chapters within this Scoping Request Report (Chapters 7 to 18) set out the likely significant impacts to be considered further through the environmental assessment. A series of plans within **Appendix 4** identify the receptors that are relevant to each of the technical assessments. The summary tables below identify the items to be ‘scoped in’ and those to be ‘scoped out’ and these should be read in conjunction with each of the Technical Chapters of this report.

Scoped In

Environmental Issue	Reason for “scoping in”
Ground <i>Construction:</i> Temporary flood risk Pollution to receptors Unstable ground	Construction work will present new risks to the greenfield site.

Environmental Issue	Reason for “scoping in”
<p>Traffic and Transportation</p> <p><i>Construction:</i> Driver Delay Pedestrian Amenity and Delay Road Safety Public Transport Severance</p> <p><i>Operation:</i> Driver Delay Pedestrian Amenity and Delay Road Safety Public Transport Severance</p>	<p>The development is likely to result in additional traffic on the highway network during the construction and operational phase. This may impact on all of the environmental issues listed.</p>
<p>Flood Risk & Drainage</p> <p><i>Construction:</i> Temporary flood risk and pollution to watercourse due to incomplete systems/spills.</p> <p><i>Operation:</i> Flood risk, pollution to watercourse and impact to aquifer.</p>	<p>The sites previous greenfield classification and the potential for increased flows, collection, concentration and conveyance of storm water during construction and operational uses. The increased pathways for contamination and the location of the underlying Aquifer as well as the potential impact on adjacent uses, construction workers and future site users.</p>
<p>Landscape and Visual Impact</p> <p><i>Construction and Operation:</i> Visual receptors on roads, PRoW's, in local open space, educational locations and dwellings identified within the 5km study area. Landscape receptors identified within the 5km study area, especially where there is a distinct change in character or type to the current landscape; Security and compound lighting.</p>	<p>The significance of the effect will potentially be greater than Slight.</p>
<p>Ecology and Nature Conservation</p> <p><i>Construction:</i> Impacts to habitats e.g. loss or damage Impacts to protected and priority species e.g. loss of habitat that supports them or disturbance Spread of invasive non-native species (INNS) Impacts to badgers</p> <p><i>Operation:</i> Impacts to protected sites e.g. recreational disturbance/degradation Impacts to habitats e.g. degradation Impacts to protected and priority species e.g. disturbance Impacts to badgers</p>	<p>Impacts to habitats and species of ecological importance must be considered under local and national planning policy and legislation. Spread of INNS is prohibited under in the WCA 1981. Badgers are afforded legal protection from disturbance, killing and injury under the PBA 1992. Impacts to protected sites, habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p>
<p>Socio Economic</p> <p><i>Construction:</i></p> <ul style="list-style-type: none"> • Temporary increase in employment • Short-term increase in economic output (GVA) • Training and apprenticeship opportunities • Effects on local services and facilities • Wider socio-economic impacts 	<p>The provision of new B8 and B2 floorspace through the Proposed Development will support the creation of a significant number of new employment opportunities, both during the Construction Phase and Operational Phase. This is expected to lead to further impacts relating to training and apprenticeship opportunities, demand for local services and wider socio-economic impacts, along with potential effects</p>

Environmental Issue	Reason for “scoping in”
<p><i>Operation:</i></p> <ul style="list-style-type: none"> • Creation of long-term employment opportunities • Long-term increases in economic output (GVA) • Increase in business rate revenue • Training and apprenticeship opportunities • Effect on local labour market • Commuting and migration impact • Effect on local services and facilities • Wider socio-economic impacts 	<p>on the local labour market and commuting patterns during the Operational Phase.</p>
<p>Noise and Vibration</p> <p><i>Construction Phase:</i> Noise impacts associated with construction related fixed and mobile plant Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles Vibration impacts associated with construction related fixed plant and mobile plant (e.g. piling)</p> <p><i>Operation Phase:</i> Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development</p> <p>Noise impact associated with the “industrial” noise emissions from the Proposed Development e.g. movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant.</p>	<p>There is the potential for significant impacts at nearby sensitive receptors</p>
<p>Air Quality, Odour and Dust</p> <p><i>Construction:</i> Dust Changes in NO₂, PM₁₀ and PM_{2.5} due to construction traffic if HGV numbers exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i> Changes in NO₂, PM₁₀ and PM_{2.5} due to changes in operational traffic</p>	<p>During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.</p> <p>The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. The main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO_x) and particulate matter (PM₁₀). Emissions of total NO_x from combustion sources comprise nitric oxide (NO) and NO₂. The NO oxidises in the atmosphere to form NO₂. The assessment of operational impacts will therefore focus on changes in NO₂ and PM₁₀ concentrations. The impact from fine particulate matter, known as PM_{2.5} (a subset of PM₁₀) concentrations will also be considered. Increases in NO₂ and PM can lead to an increase in cardiovascular diseases.</p>
<p>Cultural Heritage and Archaeology:</p>	

Environmental Issue	Reason for “scoping in”
Bradley Hall Moated Site (DCH159)	The Proposed Development will negatively impact the setting of the scheduled monument.
Grade II* Listed Tanyard farm building (DCH13677)	Development will diminish the agricultural setting of the farm building.
Grade II Listed Barley Castle Farmhouse (DCH1935)	Development will affect the agricultural setting to the asset.
Effect on demolition of Locally listed Bradley Hall and Barn (DCH127563)	Demolition will result in the loss of a locally listed asset
Roman road (547/1/7) within the site	Groundworks and construction activities will impact any surviving sections of Roman road.
Roman road (547/1/7)	Groundworks and construction activities will impact any features associated with the Roman road.
Medieval Cross (551)	Groundworks and construction activities will impact the site of the medieval cross.
<p>Utilities</p> <p><i>Construction:</i> Disconnections / Diversions of existing utility infrastructure crossing the site. New EHV Primary sub-station. Temporary proposed utilities to site.</p> <p><i>Operation:</i> Disruption to existing connections to residential properties adjacent Bradley Hall Farm.</p>	<p>Existing services are required to be disconnected and relocated to facilitate the Proposed Development.</p> <p>A new EHV Primary sub-station is required to provide the Electrical power to the Proposed Development from Scottish Power’s network.</p> <p>Temporary utilities are required for construction activities and offer a more energy efficient and acoustic solution.</p> <p>Disruptions are likely which are associated with the diversion and disconnection works.</p>
<p>Waste</p> <p><i>Construction:</i> The types and likely quantities of waste generated during the construction of the Proposed Development. The treatability of waste generated by the Proposed Development The measures to manage wastes.</p> <p><i>Operation:</i> The types and likely quantities of waste generated during the operation of the Proposed Development. The treatability of waste generated by the Proposed Development The measures to manage waste.</p>	<p>The additional waste generated by the Proposed Development may exceed the capacity of existing and proposed waste management infrastructure. The types of waste generated may have to be transported outside the borough or county to be managed. National and local policies set requirements for how to manage types of waste.</p>
<p>Energy</p> <p>Baseline energy model of speculative units.</p> <p>Energy and CO₂ emissions.</p>	<p>To establish baseline Energy use and Carbon emissions.</p> <p>Due to increased energy and subsequent CO₂ required for the proposed development.</p>

Environmental Issue	Reason for “scoping in”
Reduce demand to Proposed Development	To mitigate the energy and CO ₂ produced. Refer to table 18.9 within this paper.
Energy efficient systems	To mitigate the energy and CO ₂ produced. Refer to table 18.9 within this paper.
Renewable and Low Carbon Technologies	To mitigate the energy and CO ₂ produced. Refer to table 18.10 within this paper.
Cumulative Assessment	Section 6 of this Report identifies the projects to be scoped in for the Cumulative Assessment.

Table 1.1: Environmental Issues Scoping In

Scoped Out

Environmental Issue	Reason for “scoping out”
Ground Conditions and Contamination Ground Gas	Ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.
Flood Risk & Drainage <i>Construction:</i> Hydromorphological changes <i>Operation:</i> Hydromorphological changes	The Development does not change the physical form or functioning of a waterbody. The brook system to the southern boundary will be retained in its current form with no more than greenfield runoff being discharged. The Development will have no effect on the flow dynamics of the river.
Flood Risk & Drainage <i>Construction:</i> <i>Moat around Bradley Hall - Hydrology</i> <i>Operation:</i> <i>Moat around Bradley Hall - Hydrology</i>	<i>There will be no implications from the development on the hydrology of the moat. The moat is not a permanent water feature and the conveyance of storm water to the moat from surrounding areas (other than internally) is very limited and the development will have no impact on the operation/quality of the moat or its waters. There is no physical connectivity to the moat from the surrounding site.</i>

Environmental Issue	Reason for “scoping out”
<p>Landscape and Visual Impact Assessment</p> <p>Visual receptors beyond the 5km study area.</p> <p>Visual receptors in airplanes passing overhead on flight path into or out of Manchester airport</p> <p>Visual receptors travelling along the M6 & M56 Motorways</p> <p>Visual receptors at Barleycastle Industrial Estate.</p>	<p>Receptors over 5km will not be affected by the proposed development.</p> <p>Airplanes passing over will not be affected by the proposed development as the site will be seen in the context of the nearby motorways and the Barleycastle Trading Estate.</p> <p>Views towards the site are well screened and the impact upon views travelling at speed (70mph) by both passengers and drivers will be negligible.</p> <p>The sensitivity of views towards the site from the Barleycastle Trading Estate will be low, given the context of the existing light industrial units.</p>
<p>Ecology and Nature Conservation</p> <p><i>Construction:</i></p> <p>Arable, improved grassland and tall ruderal habitats</p>	<p>Habitats are of low value and do not need to be considered further. However, the protected species that they may host will be considered further in the fauna section of the ES chapter.</p>
<p>Socio Economic</p> <p><i>Construction:</i></p> <p>Effect on local labour market</p> <p>Commuting and migration impact</p>	<p>Commuting and migration impacts and the effect on the local labour market will be considered in relation to the Operational Phase. However, these impacts have not been considered as part of the Construction Phase, given the temporary and transient nature of construction related employment.</p>
<p>Noise and Vibration</p> <p><i>Operation Phase:</i></p> <p><i>Operational vibration impacts</i></p>	<p>Based on the nature of operations associated with B8 storage or distribution units, as well as the distances involved between B8 units and sensitive receptors, it is not considered that any element of the typical operational activities undertaken at B8 units will result in any significant vibration impacts.</p> <p>It is therefore considered that the only potential source of vibration associated with the operational phase of the scheme is additional HGV movements on existing road networks. However, due to existing quantities of HGV movements on the local road</p>

Environmental Issue	Reason for “scoping out”
	<p>network, vibration values attributable to additional HGVs travelling to / from the Application Site would not be considered significant.</p> <p>On this basis, the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.</p>
<p>Air Quality, Odour and Dust</p> <p><i>Construction:</i></p> <p>Changes in NO₂ , PM₁₀ and PM_{2.5} due to construction traffic if HDV numbers do not exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i></p> <p>Odour</p> <p>Dust</p>	<p>Unlikely to have a significant impact if below the threshold.</p> <p>There are no proposed sources of odour or dust during the operational phase.</p>
<p>Cultural Heritage and Archaeology</p> <p>DCH1638 Yew Tree Farmhouse Grade II Listed Building I139340</p> <p>DCH1659 Beehive Farmhouse Grade II Listed Building I139361</p> <p>DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I139362</p> <p>DCH1934 Booths Farm Farmhouse Grade II Listed Building 1329740</p> <p>DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building</p> <p>DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm</p> <p>DCH12879 Old Chapel, Old Cherry Lane, Lymm Locally Listed Building</p> <p>DCH13677 Tan House Farm, Barleycastle Lane, Appleton</p>	<p>No impact on the setting of these assets</p>
<p>Utilities</p> <p><i>Construction:</i></p> <p>Disconnections of services to the existing Telecommunication mast.</p>	<p>Telecommunications mast is to remain operational and services diverted.</p>

Environmental Issue	Reason for “scoping out”
<p><i>Operation:</i> Relocation of the existing Telecommunication mast.</p>	<p>The Telecommunications mast is to remain in its current location and is not affected by the Proposed Masterplan.</p>
<p>Waste <i>Operation:</i> Local Authority Collected Waste, Agricultural Waste, Low Level (Non -Nuclear) Radioactive Waste, and Waste Water/Sewage Sludge</p>	<p>These types of waste will not be generated by the Proposed Development</p>
<p>Energy Future tenant specific Energy modelling. Renewable Technologies deemed not appropriate</p>	<p>Detailed operation unknown at this stage.</p> <p>Some Renewable Technologies are deemed not appropriate for the Proposed Development and are therefore not to be considered during future design works. Refer to table 18.10 within this paper.</p>
<p>Cumulative Assessment</p>	<p>Section 6 of this Report identifies the projects to be scoped out of the Cumulative Assessment.</p>

Table 1.2: Environmental Issues Scoping In

2. Introduction and Background

- 2.1. Spawforths have been instructed by Langtree PP and First Panattoni to prepare and submit an outline planning application for land adjacent to Junction 20 of the M6 Motorway and Junction 9 of the M56 Motorway (known as Six:56 Warrington). The proposal comprises 325,150m² (3.5 million ft²) (gross internal) of employment floorspace (Use Class B8 and B2 with ancillary B1(a) Office space) and associated development.
- 2.2. The applicants have taken professional advice from a competent development team and supplementary information has been prepared in support of this scoping request by the following consultants:

- Project Management – Ridge and Partners LLP
- Planning – Spawforths
- Environmental Assessment Co-ordination - Spawforths
- Masterplan and Design – Stephen George and Partners
- Ground Conditions – Cundall
- Traffic and Transportation – Curtins
- Flood Risk and Drainage – Cundall
- Landscape and Visual Impact – Munro and Whitten
- Ecology and Nature Conservation – Tyler Grange
- Socio Economic – Amion
- Noise and Vibration – Cundall
- Air Quality and Dust – RPS
- Cultural Heritage and Archaeology – BWB
- Utilities – Ridge and Partners LLP
- Waste – RPS
- Energy – Ridge and Partners LLP

- 2.3. A statement confirming the relevant experience and qualifications of the development team will be provided with the ES in line with the EIA Regulations (Part 5, Regulation 18(5b)).

History

- 2.4. The Site is currently predominantly undeveloped being in use only for arable and both livestock / cattle production. Historically the site has no recorded use other than agricultural, although anecdotally it is known that part of the Site may have been used as a decoy during the Second World War.

- 2.5. Located at the near center of the site is Bradley Hall Moated site which is scheduled under the Ancient Monuments and Archaeological Area Act 1979. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house which date from the 14th Century. The medieval manor house no longer remains and has been replaced with a more recent house and barn. Between the early 18th and the early 19th century the hall was considerably altered as was the location and extent of the moat. Analysis of later maps show the addition of a number of outbuildings to the hall as well as a number of agricultural buildings immediately to the northwest of the moat.

Policy and Guidance

- 2.6. Policy, guidance and legislation relevant to each technical area of the environmental assessment is set out within the Introduction and Baseline Section of Chapters 7 to 18 in this report.
- 2.7. The National Planning Policy Framework (the Framework) (2012) provides the national planning policy and promotes sustainable economic growth and seeks to support economic recovery through the planning system. National Planning Practice Guidance (NPPG) provides additional guidance.
- 2.8. Local Planning Policy is provided within the Warrington Local Plan Core Strategy (July 2014). Following a High Court Challenge, Warrington's housing target within the Core Strategy was quashed in the High Court in February 2015. Warrington Council is therefore committed to establishing a new evidence base of housing and employment needs and pursuing a new Local Plan.
- 2.9. The South Warrington Urban Extension Framework Plan Document (SWUEFP) (June 2017) produced on behalf of Warrington Borough Council as part of their evolving planning policy, classifies the Site for redevelopment for Employment Use.
- 2.10. The planning policy context will be set out fully within the Environmental Statement to be submitted with the outline planning application.

3. Approach to Scoping

Environmental Impact Regulations

- 3.1. The Proposed Development does not fall within Schedule 1 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as “the EIA Regulations”) where an Environmental Statement (ES) is mandatory. However, the Proposed Development does fall within Schedule 2 of the EIA Regulations as an “Urban Development Project, including the construction of shopping centres and car parks, sports stadiums, leisure centres and multiplex cinemas” in excess of one hectare of urban development which is not a dwelling house development / includes more than 150 dwellings / the overall area is in excess of five hectares.
- 3.2. Nevertheless, an Environmental Impact Assessment is not needed for every Schedule 2 project. The EIA Regulations and the PPG (Planning Practice Guidance) are clear that an Environmental Impact Assessment (EIA) is required for Schedule 2 projects only if they are likely to give rise to “significant effects on the environment”.
- 3.3. Due to the scale, nature and surroundings, there is a need to fully assess the environmental impacts of the development. It is therefore considered that the Proposed Development falls within Schedule 2 of the Regulations and accordingly an ES will follow this Scoping Request. On this basis, a Screening Opinion has not been sought from the Local Authority as the Proposed Development is considered to be EIA development.

Scoping Requirements

- 3.4. As the Proposed Development is considered to require EIA, a Scoping Report can be produced under the EIA Regulations. In line with best practice, this Scoping Report seeks to set out the relevant environmental issues which should be assessed as part of the ES. This will be done through consultation with Warrington Council, statutory consultees and other interested groups. In accordance with Regulations Part 4 (15), this Scoping Report sets out a description of the project (Chapter 4), including the nature and purpose of the development, including its location and technical capacity. Location plans are included at **Appendices 1 and 2**.

3.5. Further information includes a Parameter Plan at **Appendix 4** which identifies the key parameters to the Proposed Development. These will evolve through further environmental assessment and will inform an indicative masterplan, which will be submitted with the planning application and ES to show how the Site could be developed in line with the parameters set for the Proposed Development.

3.6. Sections 7 through to 18 include a series of topic scoping chapters which include an explanation of the likely significant effects of the development on the environment and therefore issues to be assessed as part of the ES. These should be read alongside the Key Receptor Plans included at **Appendix 4** and a series of baseline reports in **Appendices 8 to 14**. The topic scoping chapters include:

- Chapter 7 - Ground Conditions and Contamination
- Chapter 8 - Traffic and Transportation
- Chapter 9 - Flood Risk and Drainage
- Chapter 10 - Landscape and Visual Impact
- Chapter 11 - Ecology and Nature Conservation
- Chapter 12 - Socio Economic
- Chapter 13 - Noise and Vibration
- Chapter 14 - Air Quality (including odour and dust)
- Chapter 15 - Cultural Heritage and Archaeology
- Chapter 16 - Utilities
- Chapter 17 - Waste
- Chapter 18 - Energy

3.7. Each of these topic chapters is laid out as follows:

- Introduction
- Baseline Information
- Alternatives Considered
- Potential Environmental Impacts
- Methodology for the Environmental Statement
- Significance of Effects
- Mitigation
- Additive Impacts (Cumulative Impacts)

- Further Work Required
- Summary

3.8. The scoping of matters associated with Human Health are addressed through the Ground Conditions and Contamination, Air Quality, Noise and Vibration and Socio Economic Chapters. Matters associated with Climate are addressed within the Flood Risk and Drainage, Ecology and Nature Conservation, Air Quality and Energy Chapters. Soil matters are addressed within the Ground and Contamination Chapter, which will also be supported by an Agricultural Land Assessment.

Aims and Process

3.9. Scoping is the process of determining the content and extent of matters to be covered by the Environmental Impact Assessment and in the resulting Environmental Statement (ES). Scoping is not mandatory for every application, but the EIA Regulations provide a mechanism for developers to agree the scope of the EIA formally through the request for a 'scoping opinion'. Scoping helps to focus minds on the submission and the feedback received from ES consultees may also provide developers and their project teams with a different perspective on likely environmental effects. The benefits of scoping can be summarised as:

- Local Planning Authorities (LPA): an opportunity to influence the ES in the early stages of preparation to ensure that specific concerns, based on local understanding are properly addressed.
- Developers: to identify primary concerns at an early stage in the process that appropriate surveys can be conducted, stakeholders consulted and methods agreed prior to submission of the application.
- Consultees: to ensure that principal concerns appropriate to the local area are addressed comprehensively.
- Overall a more concise ES focusing on the key issues of concern and one that should minimise the need to request further information thereby accelerating the decision-making process.

- 3.10. Importantly, the scoping process should seek to discount, or 'scope out', those issues where significant effects are unlikely.

Methodology for the Assessment of Significant Effects

- 3.11. The EIA Regulations stipulate that an ES should, where possible, identify, describe and assess the likely effects of the development on the environment. The methodology has three stages to identify the effects:
- Receptors
 - Environmental Impacts
 - Significant Effects

Receptors

- 3.12. The significance of an effect is relative to the sensitivity or quality of a receptor. Receptors are set out in accordance with the magnitude of their importance. Some receptors are given relatively high levels of importance through legislation, such as designated conservation sites or world heritage sites. Determining the importance of other receptors can be more subjective. To maintain consistency in how receptors are considered, this scoping report assesses each one in relation to the following hierarchy:
- International
 - National
 - Regional
 - County
 - Borough/District
 - Local/Neighbourhood
- 3.13. Each environmental topic area within this report has outlined the relevant receptors and how they fit within the above hierarchy. A series of plans showing the receptors are included at **Appendix 4**. The scoping report provides an opportunity for consultees to have an input into the designation of each receptor.

Environmental Impacts

3.14. This Scoping Report will adopt the standard approach of assessing the impacts of the relevant area of the proposals. These impacts have been developed giving due regard to the following:

- Beneficial and adverse impacts
- Short, medium and long term impacts
- Direct and indirect impacts
- Permanent and temporary impacts
- Cumulative impacts

3.15. Each of the impacts assessed will be categorised as being

- Neutral
- Negligible
- Minor
- Moderate
- High
- Substantial

3.16. These impacts can be classified as being either positive or negative.

Significant Effects

3.17. Once the receptors and impacts have been established they need to be assessed against each other to provide the likely significant effects. Each of these will be considered in relation to the following:

- Extent and magnitude of the effect
- Effect duration (whether short, medium or long term)
- Effect nature (whether direct or indirect, reversible or irreversible)
- Whether the effect occurs in isolation, is cumulative or interactive
- Performance against environmental quality standards or other relevant pollution
- control thresholds
- Sensitivity of the receptor
- Compatibility with environmental policies

3.18. In order to define the magnitude of the effect the matrix in Table 3.1 has been developed. An effect will be categorised as being either:

- Substantial This **will** have a **significant** influence on the environment.
- High This **may** have a **significant** influence on the environment.
- Moderate This **will** have a **slight** influence on the environment.
- Minor This **may** have a **slight** influence on the environment.
- Negligible This **will not** have **any notable** influence on the environment.
- Neutral This **will not** have **any** influence on the environment.

3.19. The interaction or cumulative impact or nature of these effects is also important. In isolation the lower categories may not have a significant influence on decision making however in combination with a number of other effects, the significance may be increased.

		Sensitivity Value of Receptor						
		International	National	Regional	County	Borough	Local	
Magnitude of Effect	Positive	Substantial	Substantial Benefit	Substantial Benefit	Substantial Benefit	High Benefit	Moderate Benefit	Moderate Benefit
		High	Substantial Benefit	Substantial Benefit	High Benefit	Moderate Benefit	Moderate Benefit	Minor Benefit
		Moderate	Substantial Benefit	High Benefit	High Benefit	Moderate Benefit	Minor Benefit	Minor Benefit
		Minor	Moderate Benefit	Moderate Benefit	Moderate Benefit	Minor Benefit	Minor Benefit	Minor Benefit
	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	
	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	
	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	
	Negative Impacts	Minor	Moderate Adverse	Moderate Adverse	Moderate Adverse	Minor Adverse	Minor Adverse	Minor Adverse
		Moderate	Substantial Adverse	High Adverse	High Adverse	Moderate Adverse	Minor Adverse	Minor Adverse
		High	Substantial Adverse	Substantial Adverse	High Adverse	Moderate Adverse	Moderate Adverse	Minor Adverse
Substantial		Substantial Adverse	Substantial Adverse	Substantial Adverse	High Adverse	Moderate Adverse	Moderate Adverse	

Significance Matrix

Table 3.1 Significance Matrix

Impact Prediction Confidence

- 3.20. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 3.2: Impact Prediction Confidence

4. Project Description

- 4.1. This section identifies the Site's location and context and describes the Proposed Development.

Site Location and Context

- 4.2. The Site is located in the North West of England, predominantly within the local authority area of Warrington.
- 4.3. The Site is located to the southeast of the town of Warrington (approximately 6 km (3.5 miles) from the town centre) and between the cities of Liverpool and Manchester (approximately 22km (13 miles) and 31km (19 miles) respectively). It is also located approximately 16km (10 miles) from Manchester Airport.
- 4.4. The M56 Motorway and M6 Motorway interchange (Junction 20 and 20A of the M6 and Junction 9 of the M56 Motorways) is located adjacent to the south east of the Site, with the M56 Motorway running east-west to the south of the Site, providing links to Cheshire and Greater Manchester; and the M6 Motorway running north-south to the east of the Site, provide links to Lancashire, Staffordshire and Greater Manchester, as well as the M62 Motorway at Junction 22A of the M6 Motorway to the north, which provides links east-west to Liverpool, Greater Manchester and Yorkshire.
- 4.5. The Site is shown on the national and regional context plans below and on a larger scale on the plans within **Appendix I**.



Figure 4.1: National Context Plans



Figure 4.2: Regional Context Plan

- 4.6. The Site relates to an area of land of approximately 97 hectares (239 acres) in extent and is irregular in shape.
- 4.7. The Site is bound by the B5356 Grappenhall Lane and the A50 Cliff Lane to the north and motorway slip road to the east. Appleton Thorn Trading Estate, Barleycastle Trading Estate and Stretton Green Distribution Park are located to the west and Bradley Brook runs east-west to the southern boundary. The Site is predominantly farm land (arable and pastoral for cattle), with a series of hedges and trees to field boundaries. Bradley Hall Farm consists of farm house and a series of farm buildings as well as a number of neighbouring residential properties that are all within the Application Site. The farm buildings will be demolished as part of the proposals. Two options will however be considered for the residential houses located to the north of Bradley Hall Farm - Option 1 for the properties to remain in situ, and Option 2 for them to be demolished. Bradley Hall moated site is a Scheduled Ancient Monument located within the Site boundary, to the eastern part of the site, adjacent to the farm buildings. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house, which is to be retained. The moated island is partly occupied by a farm house associated with Bradley Hall Farm, which is excluded from the Scheduling, and which will be demolished as part of the Proposed Development.
- 4.8. Beyond the northern boundary of the Site (within the triangle of land outside of the Application Site to the south of Cliff Lane) is a residential property and associated outbuildings, which is accessed from the A50 Cliff Lane via the same access as Bradley Hall Farm. There is a Grade II* and a Grade II Listed Building located beyond the south of the Site and to the north of Barleycastle Lane (Tanyard Farm Building and Barleycastle Farm House). There are other listed buildings within the wider area (see Cultural Heritage section below).
- 4.9. There are some wooded areas and wooded outcrops within the Site, including Bradley Gorse and Wrights Covert within the south east of the Site. A series of field boundaries consisting of hedgerows and trees and a number of ponds (ten in total) and ditches are located across the Site.
- 4.10. The character of the area is generally rural, with farms and agricultural land beyond the boundaries of the Site, predominantly to the north and south. However this is interrupted with the Strategic Highway Network and further industrial/logistic uses, most notably those beyond the Site boundary to the south, south west and east

4.11. The Site in its local context is shown on the plan below and in **Appendix 2**

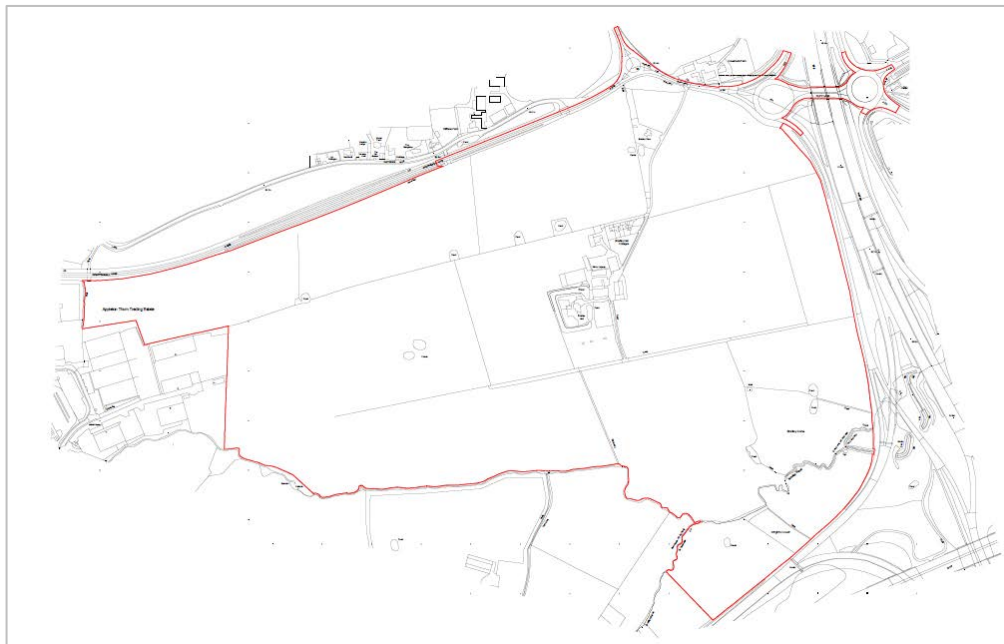


Figure 4.3: Application Site Boundary

- 4.12. Vehicular access to the Site is currently via Bradley Hall Farm from the A50 Cliff Lane, which has direct access to Junction 20 of the M6 Motorway, as well as Junction 9 of the M56 Motorway. There are also four field access points available from the Site's 1.15km long frontage to the B5356 Grappenhall Lane.
- 4.13. There are three designated Public Rights of Way across the Site, all of which are Footpaths. Footpath No 28 runs between the residential properties adjacent to Bradley Hall Farm in the east and Appleton Thorn Trading Estate in the west, however no actual connection is available on foot into the trading estate at its western end. Also, Footpath No's 31 and 23 run north-south across the site along the route of the main site access between Howshoots Farm to the north-east and Barleycastle Lane to the south of the Site.
- 4.14. The Site's topography is generally level, although it has two distinct areas of topography that are separated by a ridgeline running east to west. The northern plateau is a relatively flat area and the southern plateau becomes more undulating, with occasional ponds and depressions.
- 4.15. The Site is currently designated as Green Belt within the adopted Local Plan Core Strategy (July 2014) and Saved Proposals Map. The Site however forms part of a wider area identified

for future growth in the form of the Garden City Suburb within the emerging new Local Plan (Preferred Options Consultation (July 2017)). The Site is identified for employment development which can be delivered independently of the Garden City Suburb.

Development Description

The Development

- 4.16. The application will be an outline planning application as described below:

The outline application (all matters reserved except for means of access) comprises the construction of up to 325,150m² (3.5 million ft²) (gross internal) of employment floorspace (Use Class B8 and B2 and B1(a) offices) and associated servicing and infrastructure including car parking and vehicle and pedestrian circulation and alteration of existing access road into site including works to existing A50 junction, noise mitigation, earthworks to create development platforms and bunds, landscaping including buffers, creation of drainage features, electrical substation, pumping station, and ecological works.

- 4.17. All matters, except for the Means of Access are reserved for consideration at a later date.
- 4.18. The South Warrington Urban Extension Framework Plan Document (SWUEFP) (June 2017) produced on behalf of Warrington Borough Council as part of their evolving planning policy, classifies the Site for redevelopment for Employment Use.

Parameters

- 4.19. During the evolution of the proposals, a number of parameters will be fixed, and will form the basis of the environmental assessments.
- 4.20. The parameters that inform the proposals for the Site have been generated from the key drivers identified within the SWUEFP. From this starting point, the arrangement of the Site has been heavily influenced by the presence of the Scheduled Ancient Monument on Site, the strong transport links and facilities that establish a series of hard boundary conditions, site

topography and geological features, and substantial landscape features including Bradley Gorse and Bradley Brook to the immediate South East of the Development Site.

- 4.21. The scheme’s evolution will be influenced by a sequence of development plateaus relating to their immediate and wider context arranged around access routes through the Site. The scope of development of each of the plateaus is directly related to that of its immediate neighbours and the associated boundaries of that plateau. Environmental testing will also influence the scheme evolution.
- 4.22. The scheme is in evolution, however, the parameters identified at this stage are identified on the plan below and at a larger scale at **Appendix 3**:

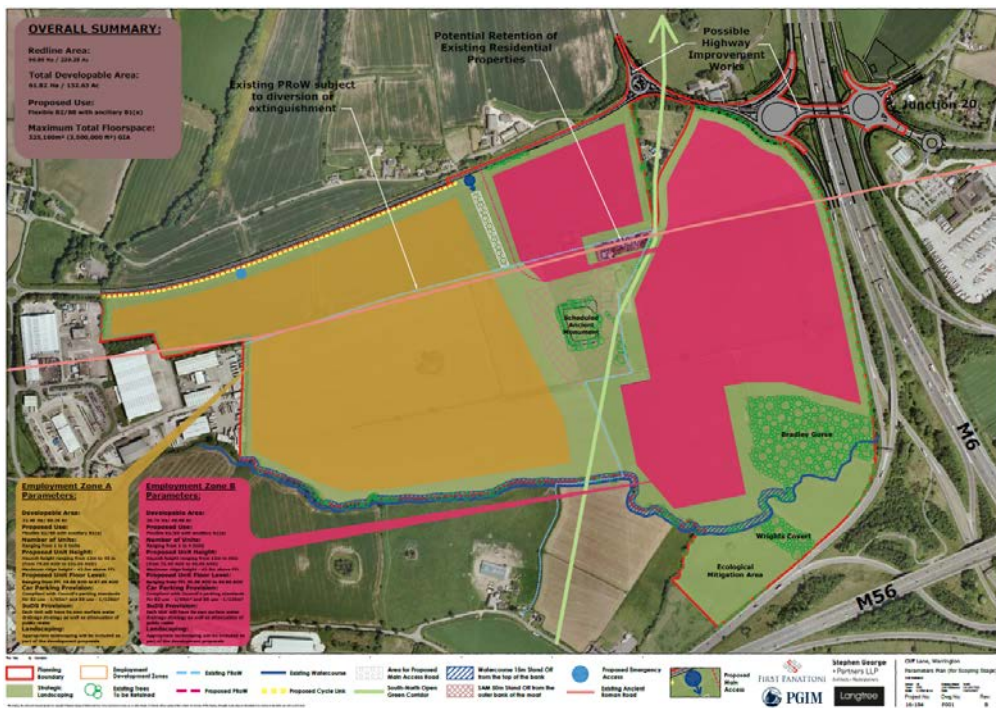


Figure 4.4: Parameters Plan (For Scoping)

- 4.23. The parameters will be developed and confirmed as the scheme evolves and environmental testing is undertaken to establish the acceptability of the proposals in respect of the environment, however, for Scoping Stage, the following Parameters are identified on the plan above as the maximum scenario for development:

- Development Cells – land use, developable area, floor space, number of units, unit height, unit floor level, car parking provision and SUDs provision
- Green Infrastructure – strategic landscaping, open green corridor, ecological mitigation, SUDs and stand off to watercourse
- Access – points of access into the Site
- Heritage - stand off to Heritage Asset

4.24. It is anticipated that the Parameters to be confirmed once the scheme evolves and therefore the basis of environmental assessment through the ES are as follows:

- Development Cells - Land use and disposition of uses, developable area, floor space, building heights, finished ground levels, finished floor levels
- Green Infrastructure – strategic landscaping, open green corridor, ecological mitigation, buffers, retained vegetation
- Access and Circulation – points of access into the Site, footpaths and cycleways
- Drainage / Flood Risk – including drainage easements
- Noise
- Utility Corridors
- Lighting
- Heritage – buffers to Heritage Asset

4.25. The current proposals identify a maximum development area of 3,500,000 ft² (325,150m²) of floor space ranging from 2 to 10 units covering use classes B2/B8 (80% B8 and 20% B2) with ancillary B1(a) office. Built form will range in height between 12m and 40m to haunch, with a maximum ridge height of up to 43.5m above FFL. This will ultimately be determined by further environmental testing and taking account of end user requirements that is driven by commercial demand.

4.26. Ultimately, each development plot will have its own surface water drainage strategy as well as attenuation of the associated and immediate public realm. A strategy is being developed for plot level and site wide drainage.

4.27. Buffer zones, landscape planting and bund formation will be determined as the scheme evolves, and as an outline landscape strategy is evolving.

- 4.28. Design development of the masterplan which will be developed in line with the parameters plan, will identify internal access routes serving each of the development plots suitable for pedestrians, cyclists, light vehicles and heavy good vehicles. These routes will be planned to ensure good connectivity throughout the site and beyond to the wider context, complying with the aspirations of the SWUE proposals.

Infrastructure Arrangements and Ground Conditions

- 4.29. This section details service arrangements, drainage and flood risk, access and highways and ground conditions.

Existing Services Arrangements

- 4.30. The existing Site has the following services that will need to be disconnected and / or diverted to facilitate the proposed development:

- Electrical services (Low Voltage only)
- Telecommunication services
- Water services

- 4.31. The existing electrical services comprise an overhead low voltage cable that runs south from the B5356 Grappenhall Lane, across the site to Barleycastle Lane. The cable serves Bradley Hall, an on-site telephone mast, adjacent to Bradley Gorse, and properties on Barleycastle Lane.

- 4.32. The Electrical supplies to the existing site will be disconnected and the existing services on Barleycastle Lane shall be re-fed from new supplies to the south of the Site. Should the residential properties adjacent to Bradley Hall Farm be retained, new services will be installed.

- 4.33. The telephone mast will be re-fed by a new supply via underground cabling from the proposed development.

- 4.34. The existing Telecommunications services feed the existing residential properties adjacent to Bradley Hall Farm, these services will be disconnected back to B5356 Grappenhall Lane or new services installed should the residential properties be retained.

- 4.35. The existing water services feed the existing residential properties adjacent to Bradley Hall Farm, these services will be disconnected back to B5356 Grappenhall Lane or new services installed should the residential properties be retained.

Proposed Services Arrangements

- 4.36. New Utilities services will be installed for the proposed development including electric, telecommunications, water and gas services.
- 4.37. The proposed electrical supplies to the proposed development will comprise a new 33kV primary sub-station to be located within the Proposed Development Site, this primary sub-station will feed a number of 11kV sub-stations located adjacent to the units. The capacity applied for the proposed development supply is 20Mva.
- 4.38. The proposed telecommunications services to the proposed development will comprise an infrastructure of below ground ducts and wire ways to each unit. The ducts will connect back to the telecommunications primary network on B5356 Grappenhall Lane.
- 4.39. The proposed water service to the Proposed Development will derive from the existing water main on B5356 Grappenhall Lane, and will distribute throughout the Site to serve each unit and fire hydrants, where required, a pumping station is likely to be required. The existing water mains infrastructure requires upgrading to support the Proposed Development. The capacity applied for the proposed development is 13.39 l/s.
- 4.40. The proposed gas supply to the Proposed Development will be derived from the existing 180PE M/P main, located near to the junction of Barleycastle Lane and Grappenhall Lane, the new gas main will run underground along Grappenhall Lane to the Proposed Development, this distance is approximately 900 meters. The new gas supplies for the Proposed Development will run underground to each unit location terminating into a dedicated gas meter per unit. The currently applied for gas load is 26,500 kWh. The existing network is unlikely to require reinforcement; however a full study is required to confirm this.

Drainage and Flood Risk

- 4.41. The Site is wholly within Environment Agency Flood Zone 1 land, classified as land that has a low probability of flooding.

- 4.42. A main EA river network is present on the southern boundary of the Site. A tributary of Bradley Brook originates from Barleycastle Lane flowing west to east before joining Bradley Brook prior to being culverted under the M6. The river continues north through Lymm with eventual connection to the Manchester Ship Canal network.
- 4.43. There are no groundwater abstraction points or primary aquifers within 1 km of the Proposed Development.
- 4.44. There are no formal foul or storm artificial drainage connections offsite from the development. The existing drainage assets are limited to the farm house, cottages and field drainage. The waste from the existing properties is collected within an underground system and discharges to a series of local artificial cess pits which are emptied at regular intervals. The storm water drainage from the properties and surrounding infrastructure is collected and conveyed to a combination of ground and overland routes with eventual collection in the Bradley Brook network on the southern boundary. Artificial drainage from the agricultural fields is also present with discharge to various ditches throughout the Site.
- 4.45. The closest adoptable sewer network is located in the industrial estate to the west, under the responsibility of United Utilities. The closest adoptable sewer network with available connection to processing plants is found further south-west within the outer regions of Appleton.
- 4.46. The natural drainage patterns on the Site indicate mainly greenfield runoff toward Bradley Brook. There are also a series of onsite ponds which collect and store water for sub-catchments without positive artificial connections. Bradley Gorse also has an independent natural drainage network which includes ponds and overland connectivity with eventual connection back to Bradley Brook.
- 4.47. The proposed foul drainage strategy is to collect and convey waste via gravity to a central pumping station. This will then be pumped within a rising main west and south along the B5356 with connection to the United Utilities sewer network.
- 4.48. The proposed storm water drainage strategy will see the Site with eventual discharge direct to Bradley Brook at Greenfield Runoff Rate. Storm water will be restricted to GRR from each plot and conveyed to a central SUDs corridor where discharge from the road network will also discharge. Treatment levels will be provided both on plot and in the public realm.

4.49. A series of Key Receptor Plans are included in **Appendix 4**.

Access Arrangement and Highway Works

4.50. The Site currently benefits from five access points along the B5356 Grappenhall Lane, including one main Site access into Bradley Hall Farm, between the A50 Cliff Lane / Grappenhall Lane roundabout and the western roundabout of the M6 Motorway Junction 20, plus four field accesses along the Site's frontage to Grappenhall Lane.

4.51. The main Site access into Bradley Hall Farm also forms part of the Public Right of Way Network (Footpath No 31), which allows a connection through the Site to Barleycastle Lane to the south (where the route becomes Footpath No 23).

4.52. The proposed development will be accessed via a single roundabout arrangement on Grappenhall Lane at a point approximately 380m to the west of the A50 Cliff Lane / Grappenhall Lane roundabout.

4.53. The roundabout will be designed in full accordance with design standard TD16/07 of the Design Manual for Roads and Bridges and will accommodate the swept path manoeuvres of a high volume of large HGV vehicles.

4.54. Internally, the initial section of the proposed Site access road will feature a dual-carriageway road, which will lead to an internal network of roads with minimum 7.3m carriageway width and 2m footways.

4.55. It is anticipated that a new 3.5m wide combined foot / cycleway will also be provided alongside the full extent of the Site's northern frontage onto Grappenhall Lane, including suitable access points onto Grappenhall Lane at each end. Suitable pedestrian and cycle provision will be catered for within the internal Site layout as part of the development of a detailed scheme layout. Where possible, the existing Public Rights of Way through the Site will be retained.

4.56. It is anticipated that a series of improvements will be required to the A50 Cliff Lane / Grappenhall Lane roundabout and the two 'dumbbell' roundabouts at the M6 Motorway Junction 20. Such works are likely to involve capacity-related improvements and will be confirmed as the scheme evolves and environmental assessment progressed.

- 4.57. In terms of access by sustainable modes, the Site is located within the typical preferred maximum 2km walking distance of Appleton Thorn Village, which includes facilities characteristic of its scale and nature.
- 4.58. The Site is also within the typical maximum 8km cycle distance of a range of areas including Daresbury to the west, central Warrington to the north-west, Warburton to the north-east, and Arley to the south.
- 4.59. The nearest bus stops to the site are situated in Appleton Thorn Village some 2.3km walk distance from the centre of the Site. Currently, the bus stops in Appleton Thorn are served by the No's 8/8A/8E & 7 services, which (combined) provide an hourly service to Warrington / Stockton Heath. This reflects the semi-rural location of Appleton Thorn in the Borough.
- 4.60. The potential to improve the accessibility of the Site by public transport will therefore be investigated as part of future Transport Assessment work. Nonetheless, and setting aside the potential significant improvements to public transport that could be brought about by the Warrington Garden City Suburb allocation, there is already a commitment to improve bus services to the west of the Site. It is understood that Warrington Borough Council (WBC) have recently secured circa £500,000 via a S106 financial obligation from the HCA in connection with their three recently-approved residential schemes near Appleton, and that the obligation relates to the improvement of the no.8 bus service provision along Stretton Road (which becomes Grappenhall Lane further towards the Site).
- 4.61. The nearest railway stations are in Warrington (Warrington Bank Quay and Warrington Central), both situated some 6.5km crow-fly distance from the Site. The stations lie within 8km cycle distance from the Site, making a longer journey by rail / cycle a possibility.
- 4.62. Both stations are collectively served by a large number of train services that route to a wide variety of destinations across the entire country at a high frequency. Whilst it is not intended to exhaustively list each destination, selected destinations include Manchester, Liverpool, Blackpool, London, Glasgow, Edinburgh and Llandudno.
- 4.63. At the time of writing, the scope of the Transport Assessment (TA) and Travel Plan reports are being discussed with WBC and Highways England. These reports will provide a full assessment of the accessibility of the Site by non-car modes, all improvements that are to be

included as part of the application and an assessment all transport & highway-related facets of the proposals.

4.64. The TA and Travel Plan will inform the traffic and transport environmental assessment and will be appended to the ES Traffic and Transportation Paper when this is produced.

4.65. A plan of the Key Receptor Plan is included in **Appendix 4**.

Ground Conditions

4.66. The site is recorded as being undeveloped historically, aside from the curtilage of Bradley Hall. The inferred historical land uses are agricultural. In addition, it is known from the Unexploded Ordnance (UXO) assessments that part of the Site was used as a decoy during World War II.

4.67. Ground conditions at the Site are anticipated to comprise a downward sequence of topsoil, glacial till (clay) and sandstone. Depths to rock are expected to be shallow in the western third of the Site. No contamination is anticipated, though locally soft / unconsolidated soils may be present where any ponds or old watercourses have been infilled.

4.68. It is anticipated that the glacial till and sandstone would be suitable for re-use on Site as part of enabling works to create a development platform. Treatment for contamination is not anticipated. Topsoil is not suitable for re-engineering so any surplus topsoil will be either accommodated in the landscaping or removed from Site.

4.69. Any soft / organic soils associated with infilled ponds etc. would also not be considered suitable for engineering purposes, therefore this material would require either treatment, accommodation in landscaped areas, or off-site removal. It should be noted that the volumes of material associated with infilled ponds etc. is not considered significant in the wider development context.

4.70. As the Site is greenfield with no significant sources of contamination identified, and there is no requirement for a significant import of materials to form finished levels, the Site is considered to not represent a significant environmental risk during either the construction or operational phases.

4.71. A plan of the Key Receptor Plan is included in **Appendix 4**.

Ecology and Landscape

Ecology and Nature Conservation

- 4.72. There are no statutory designated sites within the Site, or within the study area. Four locally designated non-statutory sites are present within 2km of the Site, but no impacts to these are expected.
- 4.73. An 'extended' Phase I habitat survey undertaken in November 2016 identified features of ecological importance comprising:
- Broadleaved Woodland
 - Hedgerows
 - Ponds
 - Scattered Trees
 - Watercourses (Bradley Brook and tributary adjacent to Site boundary)
- 4.74. Other habitats comprise improved grassland and arable fields, scrub and tall ruderal.
- 4.75. Habitats of ecological importance will be retained wherever possible. Where losses are unavoidable, compensation will be made through the inclusion of replacement planting of similar species within the landscape design including enhancement of boundary features and replacement planting to provide green buffers and open space throughout the Site.
- 4.76. Based on the findings of the Phase I habitat survey and a desk-based study, a series of detailed species surveys have been undertaken, or will be completed prior to submission of the outline planning application. These surveys comprise:
- Badger survey (April 2017)
 - Bat Activity survey (May – October 2017)
 - Bat Preliminary Roost Assessment (PRA) of Buildings (late 2017)
 - Bat and Barn Owl Preliminary Roost Assessment (PRA) of Trees, and follow-up aerial inspections, if required (to be completed)
 - Bat and Barn Owl Roost Surveys of Buildings, if required (to be completed)
 - Breeding Bird Survey (April – June 2017)
 - Great Crested Newt (GCN) Survey (April - June 2017)

- Wintering Bird Survey (October 2017 – March 2018, ongoing)

- 4.77. A small population of GCN is present in one pond within the Site boundary. A small population of GCN was also recorded in an off-site pond to the south. A mitigation strategy and NE licence will be required prior to works, detailing measures to avoid killing/injury of GCN, and mitigation for losses of breeding and terrestrial habitat.
- 4.78. Evidence of badger activity, but no badger setts, has been recorded within the Site. Surveys for breeding birds identified a range of common passerine species; barn owl was also heard calling within the vicinity of the Site during the GCN surveys. Bat activity surveys identified bats using the woodland, hedgerows and watercourse corridor for foraging and commuting. Based on surveys undertaken to date, it is anticipated that compensation for losses to bat and bird habitats can be accommodated within the landscaping design, as described above.
- 4.79. A Habitat Features plan is included in **Appendix 4**.

Landscape and Visual Impact

- 4.80. 'The Character of England' produced by Natural England places the Site within the Mersey Valley: National Character Area 60. To the south of the Site, the study area is placed within National Character Area 61: Shropshire, Cheshire and Staffordshire Plain.
- 4.81. Warrington Borough Council's Landscape Character Assessment (2007) places the majority of the Site within the Landscape Type 1b Undulating Enclosed Farmland – Appleton Thorn. The southern tip of the Site lies within the Landscape Type LFW 3: Arley Character Area identified by Cheshire East Council (2008).
- 4.82. The Site is predominantly a rural, pastoral landscape of small to medium-scale fields bounded by mature hedgerows with occasional hedgerow trees. Tree cover includes small woodland blocks and copses, including Wrights Covert and Bradley Gorse. The well-vegetated Bradley Brook runs along the southern boundary of the Site. There are several field ponds within the northern part of the Site with mature trees and scrub. To the centre of the Site lies Bradley Hall Farm with the remains of Bradley Hall moated site, a Scheduled Ancient Monument, to the west of the farm. Immediately to the north of the farm are several small private dwellings and circa 150m further north, Bradley View, a larger private dwelling. Grappenhall Lane lies along the northern Site boundary linking fast moving traffic including HGVs from Barleycastle Trading Estate to the west, to the J20 M6/M56 Motorway Interchange east of the Site.

- 4.83. The baseline Arboricultural Survey and Assessment carried out in September 2017 (which will be appended to the ES) has established that the tree stock across the Site is broadly made up of either moderate (Category B) or high landscape value (Category A) trees, which are generally in a good condition. The report recommends that buffer zones should be placed between new development and landscape features including Wrights Covert, Bradley Gorse and Bradley Hall moated site. Managed hedgerows both within and along the boundaries of the Site are generally mature and appear to be in a good condition.
- 4.84. The existing trees and mature hedgerows within the Site should be retained and enhanced within the emerging masterplan where possible. Retained trees and woodlands blocks, particularly along the Site boundaries, will form an important part of mitigating the potential impacts of new development. The developing landscape proposals will include new woodland belts on earth mounding along the Site boundaries and internal roads which with the Sustainable urban Drainage Scheme will aim to enhance site-wide biodiversity and create new wildlife corridors.
- 4.85. The landscape philosophy accepts that the landscape character of the Site will change, from a rural, pastoral landscape heavily influenced by the established visual and audible presence of the nearby motorways and Barleycastle Trading Estate, to a landscape of large scale, coarse grain built form with associated infrastructure. The landscape proposals aim to deliver a robust scheme that over time will develop to mitigate the adverse nature of the impacts through the implementation of new native woodlands and tree cover; with the long-term goal of improving biodiversity, developing new ecological habitats, and establishing wildlife connections with the wider landscape to enhance the local area.

Zone of Theoretical Visibility

- 4.86. A desktop study has been carried out using a computer model of the 5km study area to produce a Zone of Theoretical Visibility (ZTV) based on the topographical OS data for the study area. The ZTV is used to ascertain locations from within the study area where the Proposed Development is theoretically visible from an observer’s eye level. The ZTV was run using three different building heights for the Proposed Development with the following results:

ZTV

- 14-17m High Units: **69.62%** theoretically visible within the study area.
- 14-22m High Units: **72.94%** theoretically visible within the study area.

- 14-40m High Units: **73.01%** theoretically visible within the study area.

4.87. The ZTV analysis was then modified to take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) with the following results:

ZTV (Modified)

- 14-17m High Units: **23.68%** theoretically visible within the study area.
- 14-22m High Units: **29.66%** theoretically visible within the study area.
- 14-40m High Units: **35.29%** theoretically visible within the study area.

4.88. A plan of the Key Receptor Plan is included in **Appendix 4**.

Air Quality, Dust and Odour

4.89. The main source of emissions to air at the Application Site is traffic-related pollution from the M6 Motorway, the M56 Motorway and the surrounding roads. There are no other nearby significant sources of emissions to air.

4.90. For the operational phase, arrivals at and departures from the Proposed Development may 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.

4.91. For the construction phase of the Proposed Development the key pollutant is dust, covering both the PM₁₀ fraction that is suspended in the air that can be breathed, and the deposited dust that has fallen out of the air onto surfaces and which can potentially cause temporary annoyance effects.

4.92. There are a number of Air Quality Management Areas (AQMA) within close proximity of the site. AQMA No. 1 is a 50 m continuous strip on both sides of the M6, M62 and M56 Motorway corridors in WMB. A small part of the Proposed Development is within this AQMA. AQMA No. 2 is located approximately 5.5 km northwest of the Proposed Development and covers an area of central Warrington bounded by Parker Street, Wilson Pattern Street, Bold Street, Museum Street, Winmarleigh Street and Sankey Street.

4.93. A plan of the Air Quality Management Area in relation to the Site is shown on the plan below in orange:

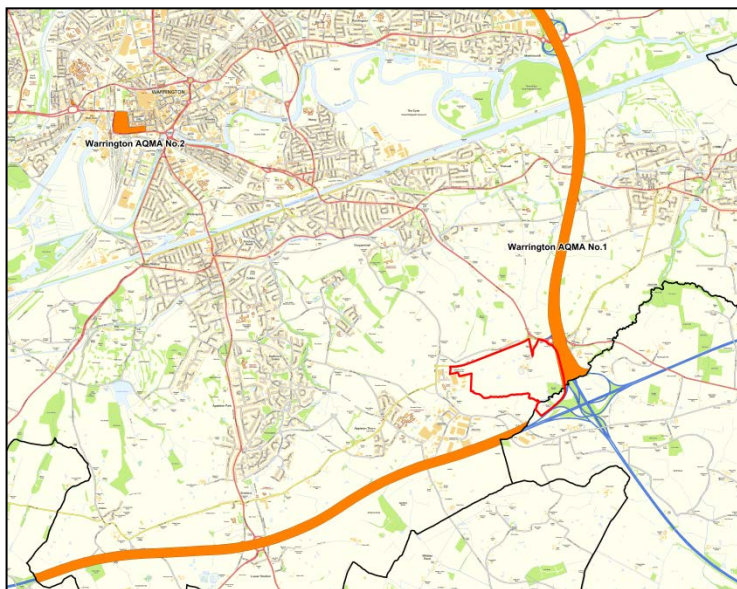


Figure 4.5: Air Quality Management Area (AQMA) Plan

4.94. A plan of the Key Receptor Plan is included in **Appendix 4**.

Noise and Vibration

4.95. Baseline noise monitoring has identified that the prevailing noise climate around the Site is dominated by traffic noise from the adjacent M6 and M56 Motorways, with contributions from the B5356 to the north. There are no other significant sources of noise which have been identified in close proximity to the Site. Furthermore, no existing sources of environmental vibration have been identified.

4.96. The nearest and most exposed noise sensitive receptors are Grappenhall Lodge, the residential dwellings on Cartridge Lane, the Bradley View Cottage and the Howshoots Farm to the north of the Site, and Tan House Farm and Barleycastle Farm on Barleycastle Lane to the south of the Site. Generally speaking, the existing noise climate at existing receptors is relatively high due to the proximity to the Motorway network.

- 4.97. Baseline and potential traffic flow data, along with identified fixed and moving plant items and vehicles will be used to create a 3D acoustic model of the site, in order to predict the noise levels at the identified noise sensitive receptors and to advise on potential noise mitigation measures during the Construction and Operation phases of the Proposed Development.
- 4.98. A plan of the Key Receptor Plan is included in **Appendix 4**.

Cultural Heritage/Archaeology

- 4.99. A corpus of work has been undertaken to understand the Cultural Heritage Context of the Site including the historical built form including listed buildings, conservations areas, the archaeological resource and the historic landscape within which the Site sits.
- 4.100. The Cheshire Environments Records (HER) have identified a number of archaeological sites and findspots within the area. These have either been recorded through aerial photographs, evaluation/ mitigation or through chance discoveries.
- 4.101. Identified to the southeast of the Site is an elliptical enclosure which may have prehistoric origins. Found to the north of this near to Junction 9 of the M56 Motorway was a prehistoric stone shaft-hole axe. No other artefacts or monuments of this date are recorded within the study area.
- 4.102. Recorded within the northern extent of the Site is a Roman road which heads in an east west direction. Accounts state that it has been traced for over 12km with its alignment dictated by the crest-line of an escarpment of New Red Sandstone which overlooks the Mersey Valley to the north. Evidence for the road has been proven from the study of Tithe and estate maps, parish boundaries, hedge lines, place names, and observations of road material in plough fields.
- 4.103. A section through the road was excavated to the west of the site prior to the development of the adjacent industrial estate. At this point the road was found to be 13.5m wide. Accounts suggest that the road continued in use during the medieval period which is in part substantiated by the placement of a cross on the road near to Bradley Hall Medieval moated site.
- 4.104. Throughout the medieval and post-medieval periods the area was farmed as evident on the early Ordnance Survey map series. Depicted on the 1st edition Ordnance Survey map are a

series of farms and barns some of which are recorded on the HER. This farming landscape evolved through the removal of a number of field boundaries to form larger fields in the late 19th and early to mid-20th century. Further change occurred with the construction of Stretton Airfield in World War II to the southeast of the Site and the development of the motorway infrastructure during the 1970s and 1980s.

Designated Assets

- 4.105. Located within the eastern part of the Site is Bradley Hall Moated Site which was designated a scheduled monument in 1991. It comprises the buried and earthwork remains of a medieval moated site for a medieval manor house. The moated island is approximately 70m by 55m and is grass covered in the areas not occupied by buildings. Excluded from the scheduling are the farmhouse, access drive, fences, hedged field boundaries and a telegraph pole.
- 4.106. The moat remains water filled and within the island are two occupation phases which survive beneath the present house and gardens. The moat surrounding the island is c. 10m wide and 2.5m deep. Part of the moat has been disturbed through the creation of an ornamental pond on its east side. Access is currently gained from a causeway also on the east side which replaced an earlier drawbridge.
- 4.107. The original hall within the moat was erected in the early 14th century. Documentary sources refer to it around this time with its first depiction on a map dating to 1735 which shows the hall to the northeast of its current position and the moat extending beyond its present location. The hall shown on the aforementioned map replaced that erected in the 14th century. Between the early 18th and the early 19th century the hall was considerably altered as was the location and extent of the moat. Analysis of later maps shows the addition of a number of outbuildings to the hall as well as a number of agricultural buildings immediately to the northwest of the moat.
- 4.108. In November 2009 National Museums Liverpool Field Archaeology Unit undertook a watching brief at Bradley Hall on behalf of Brewster Associates. This was undertaken during works to replace an early 20th century extension to the farmhouse. The watching brief revealed a poorly constructed cobbled surface which was deemed to be associated with the construction of the present house. Underlying the cobbles was a layer of clay which was interpreted as the arising from the excavation of the moat. During the watching brief a number of finds were

encountered including the base of a 14th -15th century jar and later 17th to 18th century pottery sherds.

- 4.109. A number of listed assets are recorded to the south of the site along Barleycastle Lane including Beehive Farmhouse, Booth Farmhouse, Barley Castle Farmhouse and Tanyard Farm. All of these are listed at grade II with the exception of Tanyard Farm which is listed at grade II*.
- 4.110. A plan of the Key Receptor Plan is included in **Appendix 4**.

Demolition and Construction

- 4.111. Construction hours will be between 0800 hours and 1800 hours on Mondays to Fridays, and 0800 hours to 1300 hours on Saturdays with no working on Sundays or Bank Holidays, unless first agreed with the Local Planning Authority.
- 4.112. The construction site office and laydown areas will be within the Site, but outside the landscape and ecological mitigation areas. All deliveries will be within the construction working hours.
- 4.113. It is anticipated that construction access will initially be gained from the existing farm access from the A50 Cliff Lane in order to form Site compounds and to construct the new Site entrance from the B5356 Grappenhall Lane. Once the access point and associated access road from Grappenhall Lane is constructed, this will be utilised by construction traffic to develop the rest of the Site.
- 4.114. No contamination is anticipated on Site. Control measures will be put in place to avoid any new contaminants being introduced to the Site during construction, so that no new contamination that represents a risk either to Site users or the wider environment is present.
- 4.115. Work to establish the Site levels and the associated cut and fill to achieve development platforms and infrastructure corridors is ongoing. This will inform the requirement for any import and export of material. At this stage there is expected to be a need for import and export of material, including the import of material for the sub-base of roads and buildings. This will be confirmed as the scheme evolves.

- 4.116. Stockpiling locations for material to be retained for re-use on-Site is to be determined and the material is expected to be utilised within the Site shortly after excavation.
- 4.117. During construction, drainage features and flood prevention measures will be installed in the early phases of development. These will be required to limit the surface water run-off from the Site and provide flood storage areas with any required flow control measures to manage the storm water. Any required infrastructure for foul water including pumping stations, rising mains and offsite works will also be required for implementation prior to plot works occurring.
- 4.118. Given the Site's location, UXO (Unexploded Ordnance) banksmen will be required during construction to avoid encounters with previously unexploded ordnance, particularly during the bulk earthworks.
- 4.119. There are a number of existing buildings/structures associated with the current farm use that will be demolished as part of the proposals. Work is ongoing to determine if the residential properties will be retained. As part of the demolition planning, pre-demolition surveys will be undertaken to gather the following information:
- The presence, location and condition of asbestos containing materials;
 - The presence of any hazardous materials (e.g. agro-chemicals, fuel etc.);
 - Constraints to demolition; and
 - Pre-construction information.
- 4.120. The pre-demolition survey would also include an audit of the materials which make up the interior and exterior of the buildings to identify what materials could be reused or recycled. In the case of the farm house and farm buildings, the key demolition products are likely to be bricks, concrete and steel. Site clearance will also include the removal of fencing, necessary hedgerows, farm tracks, drainage and utilities to the farm house and farm buildings.
- 4.121. Where possible, material arising from demolition and Site clearance will be recycled and used on Site. Other types of waste likely to be generated during construction will be identified in the Waste chapter of the Environmental Statement.
- 4.122. Demolition works to drainage assets will be minor as the Site, to current understanding, only contains natural drainage depressions and localised relief drains for agriculture. Site outfalls to land boundaries are present however they will be maintained through the development of the Site.

- 4.123. During the construction phase of the development, the Site will be required to have the necessary safety and security lighting. The aiming of all lighting will be critical to minimise light trespass and sky glow. Light plants will be localized to the specific tasks to minimise any impacts. The lighting installed will be inspected, to ensure the aiming of all floodlights is appropriate and no lighting is being directed towards the residential properties, during the site set up and mobilization period.
- 4.124. The details of the type and quantity of construction and earthworks plant/vehicles will be those typically expected for large construction development sites. Further details of these will be provided within the Noise and Vibration assessment and will be confirmed as the scheme evolves and environmental assessment is undertaken.
- 4.125. During the construction phase of the development, noise and vibration impacts from the construction of the Site and the infrastructure associated with it will depend on the length, the location and the type of plant used for the works taking place during each construction phase, as well as the location of proposed construction traffic routes. The implementation of best practice noise and vibration mitigation measures will be necessary to minimise the impact on the nearest noise-sensitive receptors. Such measures could include regulating plant operating times, directing plant away from receptors wherever possible or proposing engineering controls to effectively sound attenuate the plant and will be set out as part of the Noise and Vibration assessment.
- 4.126. For the construction phase of the Proposed Development the key emissions to air is dust, covering both the PM₁₀ fraction that is suspended in the air that can be breathed, and the deposited dust that has fallen out of the air onto surfaces and which can potentially cause temporary annoyance effects. The quantity of this will be assessed through the Air Quality environmental assessment and reported in the ES.
- 4.127. A Construction Environmental Management Plan (CEMP) will be produced to ensure measures are taken to reduce the effects of the construction phase, particularly in respect of noise, vibration, dust, site lighting, ecology and habitats, trees, drainage and flood risk. For example, run off of silts / clays etc. into the Bradley Brook; good construction practice to mitigate spillages / leaks from plant and egress of dust into the wider environment; control measures to prevent the introduction of new contaminants to the Site; tree protection measures; and appropriate mitigation for flora and fauna.

Operation

- 4.128. The end use of the Site is B8 (storage and distribution) and B2 (general industry) with ancillary BI(a) office. As such the operations are likely to be 24 hours.
- 4.129. The residues and emissions from the Site are those associated with a typical B8 and B2 use and will be confirmed through the environmental assessment work, including for water, air, noise and vibration, light and waste.
- 4.130. The SUDs features in the public realm will be managed and maintained by a private management company in accordance with maintenance schedules to be set out in the drainage strategy. All Site drainage generally will be under the split ownership of Warrington Borough Council, United Utilities and the plot developers.
- 4.131. The need for noise mitigation measures to minimise the noise impact on the nearest noise sensitive receptors will be assessed through the Noise and Vibration assessment.
- 4.132. For the operational phase, arrivals at and departures from the Proposed Development may change the number, type and speed of vehicles using the local road network. Changes in road vehicle emissions are the most important consideration for air quality during this phase of the development. This will be assessed through the Air Quality environmental assessment and reported in the ES.
- 4.133. The Proposed Development uses will generate commercial and industrial (C&I) waste, and this will be assessed through the environmental assessment of waste.
- 4.134. The key changes to the development with regards to light spill and sky glow will be from the car park and loading bay lighting, amenity lighting and pathway lighting. A lighting strategy is to be devised and this will be centered around a higher quantity, of lower power luminaires mounted closer to the area to be lit, as this will provide a scheme which is far less likely to cause light pollution compared with more powerful but fewer luminaires.

Decommissioning

- 4.135. Decommissioning of the Proposed Development is not relevant to this project, given the proposed end use for the site.

Phasing

4.136. The delivery of the Proposed Development will come forward in phases. This will ultimately be driven by the demand for the employment buildings, however for the purposes of the Environmental Assessment, the following timescales have been assumed, which represent a precautionary approach (and therefore a worst case scenario) by assuming a single continuous phase of site enabling works and means of access for the Phase I Development, followed by a three year build period:

- Planning Submission – 2018 (late Q3)
- Planning Determination – 2019 (early Q1)
- Reserve Matters/Detailed Design – 2019
- Initial Site enabling and infrastructure works – 2020 (6 months - Q2 2020 to Q4 2020)
- Development – 2020 to 2027 (6.5 years - Q2 2020 to Q1 2027, with each plot taking approximately 9 months to develop)

4.137. The Development stage is expected to take approximately 6.5 years, with the initial enabling works running concurrent with the first 6 months of the development. The delivery of the units will be phased across the 6.5 years, alongside the other infrastructure works which are likely to be developed on a plot by plot basis. This will be dependent on market demand. The timing of mitigation, such as landscape screening and ecological related mitigation will be confirmed as the masterplan evolves and environmental testing is undertaken.

5. Alternative Development Options

5.1. Paragraph 2, Schedule 4 of the EIA Regulations states the need for inclusion of the following details:

“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

5.2. A series of alternatives associated with scheme design have been considered as part of the evolution of the Proposed Development. These will be documented fully within the ES, identifying how environmental considerations have influenced the final Proposed Development. These will include consideration of the following matters:

- Alternative Sites – making reference to Warrington Borough Council’s Evidence Base documents for the evolving Local Plan and consideration of sites.
- Do nothing – leave the Site as it is, undeveloped and therefore not address the Objectively Assessed Need (OAN) for employment in a strategically located site adjacent to the strategic highway network.
- Preferred Option – Compliance with the emerging Local Plan for Warrington (Preferred Development Option, July 2017) and delivery of employment development as set out within the Project Description (Section 4 of this Report).
- Scheme Evolution – the ES will include details of the scheme evolution, the alternatives considered and the environmental considerations that have led to determining the final Proposed Development. This will include the consideration of development design, technology, location, size and scale as studied by the developer. This will be detailed in each of the ES Technical Papers, with an overarching summary provided within the Part I Report of the ES.

6. Interaction of Effects and Cumulative Impact

- 6.1. In respect of the assessment of cumulative effects, Schedule 4 of the EIA Regulations states that an Environmental Statement must include a description of the likely significant effects of the development on the environment (those identified in the Regulations as population and human health; biodiversity; land, soil, water and climate; and material assets, cultural heritage and the landscape), resulting from *'the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.'*
- 6.2. The European Commission identifies cumulative impacts as *'impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project.'*
- 6.3. In respect of the assessment of the interaction of effects, Regulation 4 (2) of the EIA Regulations requires a description and assessment in an appropriate manner, of the direct and indirect significant effects of the proposed development on the interaction of the factors assessed within the ES (i.e. population and human health; biodiversity; land, soil, water and climate; and material assets, cultural heritage and the landscape).
- 6.4. For the purposes of this ES we define the cumulative and the interaction of effects as:

'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself and the synergistic effects (in-combination) which arise from the reaction between impacts of the project on different aspects of the environment.'

- 6.5. The additive impacts and their effects and the synergistic effects are considered in turn below.

Additive Impacts (Cumulative Impact and their Effects)

- 6.6. A geographical search area has been identified where it is considered that cumulative impacts could be caused together with the Proposed Development, as shown on the Cumulative Development Plan (**Appendix 5** and Figure 6.1 below). Within this geographical area a site sieve has been undertaken to include the following within the Cumulative Assessment:

- Development with planning permission that is not yet constructed
- Any existing development that needs to be considered.

6.7. Excluded from the cumulative assessment are therefore sites that are not existing development or do not have planning permission, such as allocated development or emerging allocations. This is due to the uncertainty of these coming forward for development in the future, and/or the unknown nature and scale of the development, which therefore renders them to be 'not reasonably foreseeable' in terms of the environmental assessment. This is with the exception of Land off Barleycastle Lane, Appleton, Warrington, which we understand is likely to be a development of up to 50,000m² of logistics development. This will be included in the cumulative assessment due to its proximity to the site, the scheme has gone through an EIA Scoping exercise and received a Scoping Opinion from WMBC and as an application is to be submitted imminently. The scheme is therefore considered to be reasonably foreseeable and the likely nature and scale of the development is known.

6.8. A number of sites have subsequently been identified that are likely to be relevant for consideration as part of the Cumulative Impact Assessment (CIA) and these are included within the table and figure below (also included at **Appendix 5**). The table also identifies those technical areas where there is a potential relationship between the Proposed Development and the cumulative development and which will therefore be considered further in the cumulative assessment within the ES. Where there is not considered to be a link, a reason why this will not form part of the cumulative assessment within the ES is given.

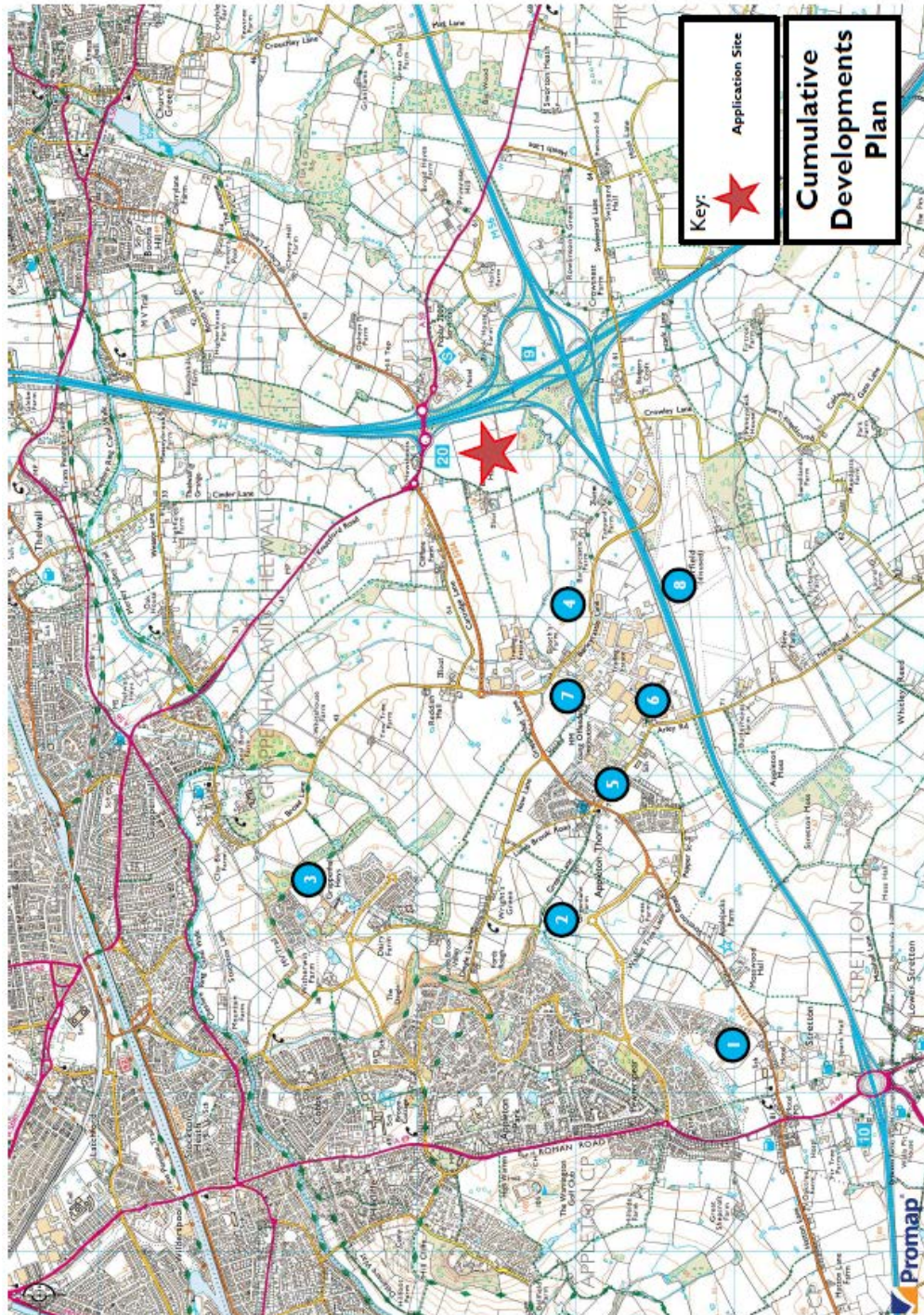


Figure 6.1: Cumulative Development Plans

	Possible Cumulative Development	Details	Status	Justification for Cumulative	To be considered in the CIA (Yes/No)
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 Applicant - HCA	Outline Planning Application for 180 dwellings.	Planning permission granted by WMBC 28-09-2017		
2	Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant - HCA	Outline Planning Application for 370 dwellings	Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017	Potential relationship in terms of socio economic. It is a committed development and therefore included within the future baseline and assessed within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport, noise and vibration and air quality.	Yes – socio economic
3	Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 Applicant - HCA	Outline Planning Application for 400 dwellings	Resolution to grant planning permission by WMBC Development Management	Not considered to be a link in respect of any of the other technical areas due to distance and detached nature from the site.	
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000m ² logistics development	Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243) Application to be submitted.	Potential relationship in terms of geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise. It is to form part of a sensitivity test for traffic and therefore included within the assessment of the Proposed Development. It does not therefore need reconsidering in the cumulative assessment for traffic and transport; and in terms of traffic generation in respect of noise and vibration; and air quality.	Yes- geology and ground conditions; flood risk and drainage; landscape and visual impact; ecology and nature conservation; socio economic; cultural heritage; utilities; waste; energy; and operational noise
5	Land to the east of Stretton Road, north of Pepper Street, Stretton	Full Planning Application for 78 dwellings	REFUSED by WMBC 29-06-2017	Application refused and therefore not considered to be relevant for consideration in the cumulative assessment.	No

	Road, Appleton Thorn, Warrington LPA Ref: 2016/29511				
6	Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY LPA Ref: 2016/28994	Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping. (1,699m ² new build, 180m ² and 265m ² extensions)	Application Approved 17-02-2017 (3 years to implement planning permission)	Potential relationship in terms of geology and ground conditions; flood risk and drainage; socio economic; and waste. The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality. Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; and energy due to distance and detached nature from the site.	Yes - geology and ground conditions; flood risk and drainage; socio economic; and waste
7	Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN LPA Ref: 2015/25255 Morley Estates	Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building)	Application Approved 16-10-2015 (3 years to implement planning permission)	Potential relationship in terms of geology and ground conditions; flood risk and drainage; and socio economic. The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality. Not considered to be a link in respect of landscape and visual impact; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.	Yes - geology and ground conditions; flood risk and drainage; and socio economic
8	Former Stretton Airfield, Warrington, WA4 4RG LPA Ref: 2014/2332 Hensmill Property	Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.	Application Approved 23-06-2015 (3 years to implement planning permission)	Potential relationship in terms of landscape and visual impact; and socio economic. The traffic generation is not considered to be significant and therefore there is not considered to be a relationship in respect of traffic and transport; noise and vibration; and air quality. Not considered to be a link in respect of geology and ground conditions; flood risk and drainage; ecology and nature conservation; cultural heritage; utilities; waste and energy due to distance and detached nature from the site.	Yes - landscape and visual impact; and socio economic

Table 6.1: Cumulative Developments

Synergistic Effects (In-Combination / Interaction of Effects)

- 6.9. There are a number of interactions of effects that will need to be considered for the Proposed Development, both at construction and operational phases i.e. the interaction between different effects on one receptor. Each individual effect may be small but, taken together, in-combination, could be deemed significant and as such this will need to be identified and assessed as part of the environmental assessment work.
- 6.10. The different types of receptors are categorised as follows:
- Humans- (a) long term human receptors- residents, business users; and (b) transient human receptors, including pedestrians, cyclists, drivers and public transport users, construction workers.
 - Property- residencies and business uses.
 - Ecological- habitats, including protected sites or species.
 - Historic Environment– heritage assets
 - Landscape - character areas
 - Controlled waters- surface waters like water courses or groundwater (aquifers).
 - The economy
 - Local waste infrastructure i.e. landfills, recycle and recovery facilities
- 6.11. The likely interaction of effects are summarised below:
- Construction – these may include impacts in terms of ground and water; air, noise and traffic; landscape, ecology and drainage; ecology, air quality and noise; and visual impact and heritage.
 - Operation – these may include proposed use of land and the traffic generated and consequential noise and air quality; landscape, ecology and drainage; cultural heritage and landscape; utilities and landscape.
- 6.12. Details of the likely interactions of effects will be considered further through the environmental assessment work and detailed within the ES Part I Report.

7. Geology and Ground Conditions

Introduction

- 7.1. The Technical Chapter of the ES will be prepared by a Chartered Environmental Scientist from Cundall.
- 7.2. The Technical Chapter will identify how the proposed development will impact soil, rock, groundwater and surface water resources beneath and near the site, and, how the proposed development will affect the site's contaminative status. The Technical Chapter will consider the effects from both the construction and operational phases.
- 7.3. Impacts from and to the proposed development will be considered.
- 7.4. The assessments will be in accordance with National Planning Policy (the Framework) and the relevant baseline information outlined below.
- 7.5. The Environmental Health Officer or Contaminated Land Officer will be consulted as part of the assessment process where required.
- 7.6. This Chapter links closely with the Flood Risk & Drainage Chapter 9 and they should be read in conjunction with one another. In relation to the ground, this Chapter will assess the impact that naturally occurring risks, permanent development and also construction logistics will have on the underlying sub-strata, receiving waters. The Drainage & Flood Risk Chapter also assesses the impact on the underlying sub-strata and receiving waters but from drainage conveyance.

Baseline Information

- 7.7. The Technical Chapter will be based upon the published guidance and documents / surveys identified in this section.
- 7.8. BS10175:2011+A1:2013 Investigation of potentially contaminated sites. Code of practice.
- 7.9. CIRIA C665: Assessing risks posed by hazardous ground gases to buildings.
- 7.10. CIRIA 552: *Contaminated Land* Risk Assessment – A Guide to Good Practice

- 7.11. BS8485:2015 Code of practice for the design of new protective measures for methane and carbon dioxide ground gases for new buildings.
- 7.12. Cundall, September 2017, Phase I Geotechnical and Geoenvironmental Assessment. Report reference I015524.RPT.GL.002.
- 7.13. Cundall, September 2017, Baseline Geotechnical and Geoenvironmental Assessment, Report reference I015524.RPT.GL.003.
- 7.14. In addition the Technical Chapter will be supported by an Exploratory Site Investigation undertaken in general accordance with BS:10175 together with an associated geoenvironmental interpretive Ground Investigation Report (GIR).

Existing Site Status

- 7.15. The Site is currently predominantly undeveloped being in use only for arable and both livestock / cattle production. Historically the site has no recorded use other than agricultural, although anecdotally it is known that part of the Site may have been used as a decoy during the Second World War.

Geological mapping indicates that the site is likely to be underlain by Glacial Till (sandy gravelly clay) which is classified as a Secondary Undifferentiated Aquifer (although in practice is likely to be Unproductive Strata), overlying Mudstone, classified as a Secondary B Aquifer. Given the site's current and historic agricultural uses some topsoil improvement is anticipated at surface, and locally deeper topsoil is anticipated where infilling of ponds or ditches has occurred. Borehole records near the site examined as part of the Baseline Assessment indicate that rockhead is likely to be shallow (typically less than 5m).

Groundwater is unlikely to be present given the mapped geology, however some perched water trapped upon either the Glacial Till or Mudstone is anticipated given the anticipated low permeability of those strata.

No significant widespread sources of contamination or potential contamination other than agrichemicals (which typically have limited persistence) have been identified. There is an unquantified risk that some asbestos containing materials may exist in the building fabric of Bradley Hall Farm, and may have affected the soils in this vicinity.

Alternatives Considered

- 7.16. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

- 7.17. This section sets out the likely environmental impacts likely to be associated with the Proposed Development.

Construction Phase

- 7.18. Potential environmental impacts during the construction phase are identified in this section.
- 7.19. Importation of contaminated fill; there is the potential that additional soils / fill materials will be required for engineering purposes. If this material is from a brownfield / recycled source there is a possibility this material will introduce new contaminants. This would be a transient risk as any unsuitable fill would then have to be immediately removed from site once identified.
- 7.20. Spillages; there is the potential for heavy plant / machinery fuel spillages which could enter the Bradley Brook via surface runoff / overland flow. Note that in this Chapter references to the Bradley Brook also include its tributaries that are either on or adjacent to the site.
- 7.21. Dust; there is the potential for dust migration off-site should stockpiled clay soils become desiccated during the works.
- 7.22. Silt; there is the potential for run-off into the Bradley Brook of silt impacted water due to poor control of earthworks.
- 7.23. There is a theoretical risk of unstable ground associated with gypsum dissolution in the mudstone.
- 7.24. At this point ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.

- 7.25. Agricultural land classifications and status will be assessed upon completion of the relevant investigations.
- 7.26. A Detailed Unexploded Ordnance (UXO) Survey has been carried out by Alpha Associates which identifies the site as a medium risk rating due to the site location being near an airfield and near WWII bombing targets.

Operational Phase

- 7.27. No potential impacts have been identified as no significant sources of contamination or ground gas that represent a risk to receptors during the operational phase have been identified.

Methodology for the Environmental Statement

- 7.28. The ES assessment will be undertaken in accordance with the requirements of the Framework and will assesses ground conditions and contamination to and from the proposed development in addition to any affects to the wider environment. It will also include the mitigation measures considered necessary in the event that further actions are required to contamination and render the site ‘suitable for use’.

Receptors

- 7.29. Potential receptors are limited to those identified in Table 7.1. These are further presented in the Receptor Plan. The receptors are all within the local/neighborhood level and due to the baseline assessment findings, which include the PHI Desk Study (Appendix 7), they are limited to the receiving waters, sub-strata and construction operatives.

Designation	Receptors
International	None identified
National	None identified
Regional	None identified
County	None identified

Designation	Receptors
Borough/District	None identified
Local/Neighbourhood	Bradley Brook, Secondary (B) Aquifer, Construction workers

Table 7.1: Receptors

Environmental Impacts

7.30. Potential environmental impacts are identified in Table 7.2. Where possible these have been aligned with relevant contaminated land assessment guidance such as CIRIA 552.

Magnitude	Environmental Impact
Substantial	Tangible / identified acute and significant harm to surface water, built environment, groundwater and / or human health receptors. Significant improvement to surface water, built environment, groundwater and / or human health receptors, typically would include remediation of a Part IIa site.
High	Tangible / identified chronic and significant harm to surface water, built environment, groundwater and / or human health receptors. Improvement to surface water, built environment, groundwater and / or human health receptors, typically would include some form of remediation.
Moderate	Potential risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors. Limited improvement to surface water, built environment, groundwater and / or human health receptors, may include some form of remediation but it is unlikely to be site wide.
Minor	Limited potential risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors. Limited improvement to surface water, built environment, groundwater and / or human health receptors, may include some form of remediation but it is likely to be passive (i.e. achieved through modern construction methods rather than active remediation).

Magnitude	Environmental Impact
Negligible	Very limited risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors. Discernable improvement to surface water, built environment, groundwater and / or human health receptors very limited, Unlikely to form remediation and it is likely to be passive.
Neutral	No risk of significant harm / damage to surface water, built environment, groundwater and / or human health receptors. No improvement to surface water, built environment, groundwater and / or human health receptors very limited,

Table 7.2: Environmental Impacts

Impact Prediction Confidence

7.31. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below in Table 7.3:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 7.3: Confidence Levels

Significance of Effects

Construction Phase

7.32. The significance of the construction phase impacts is given in Table 7.4. Due to the relatively low risk of pollution, all impacts are seen to only have a minor adverse potential of effect other than the potential settlement which will be assessed as part of the Technical Chapter.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Silt impacted water entering the Bradley Brook during construction.	Borough	Moderate Negative	Minor Adverse	High
Dust migration from site during construction affecting construction workers and adjacent site users.	Local	Moderate Negative	Minor Adverse	High
Spillages from plant / machinery during construction entering the Bradley Brook	Local	Moderate Negative	Minor Adverse	High
Downward migration of spillages from plant and machinery to the Secondary (B) Aquifer.	Local	Minor Negative	Minor Adverse	High
Gypsum dissolution causing excess settlement to new buildings and infrastructure.	Local	Moderate Negative	Moderate Adverse	High

Table 7.4: Significance of Impact - Construction

Operational Phase

7.33. No Operational Phase impacts have been identified for the scheme.

Mitigation

7.34. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

Additive Impacts (Cumulative Impact and their Effects)

7.35. For the purposes of this ES we define the cumulative effects as:

‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’

7.36. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the ground conditions cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000m ² logistics development	Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243) Application to be submitted November 2017	Site lies upstream of the Application Site with potential to impact the same Controlled Waters (Bradley Brook). This may influence the Controlled Waters risk assessments for the scheme.
6	Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY LPA Ref: 2016/28994	Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping. (1,699m ² new build, 180m ² and 265m ² extensions)	Application Approved 17-02-2017 (3 years to implement planning permission)	Site lies upstream of the Application Site with potential to impact the same Controlled Waters (Bradley Brook). This may influence the Controlled Waters risk assessments for the scheme.

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
7	Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN LPA Ref: 2015/25255 Morely Estates	Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building)	Application Approved 16-10-2015 (3 years to implement planning permission)	Site lies upstream of the Application Site with potential to impact the same Controlled Waters (Bradley Brook). This may influence the Controlled Waters risk assessments for the scheme.

Table 7.6: Cumulative Projects

7.37. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

Further Work Required

An Exploratory Investigation and associated Phase II Geoenvironmental Assessment has been undertaken in accordance with BS10175:2011+A1:2013 Investigation of potentially contaminated sites and BS:5930:2015 Code of practice for ground investigations (alongside

other relevant guidance) to support the ES, therefore, no further work will be required other than the assessment of impacts.

Summary

7.38. Identified impacts are highly limited and restricted to the Construction Phase. It is likely that good construction practice and health and safety legislation will mitigate the majority of the risks (e.g. use of PPE and dust control to manage the risk of dust) given the absence of identified significant sources of contamination.

7.39. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Flood Risk & Drainage.

Scoped In

Environmental Issue	Reason for “scoping in”
Ground <i>Temporary flood risk and pollution to receptors and unstable ground.</i>	<i>Construction work will present new risks to the greenfield site.</i>

Scoped Out

Environmental Issue	Reason for “scoping out”
Ground <i>Ground Gas</i>	<i>Ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.</i>

8. Traffic and Transportation

Introduction

- 8.1. This chapter of the Environmental Statement (ES) scoping study has been prepared by Curtins Consulting (Curtins).
- 8.2. Curtins has been commissioned to provide the traffic and transportation advice for the development of Six:56 Warrington.
- 8.3. This chapter of the ES Scoping paper will outline the methodology and data to be used in the preparation of the Traffic and Transportation chapter of the ES as well as the Transport Assessment (TA) and Travel Plan (TP) reports. The TA and TP will be appended to the Traffic and Transport ES Technical Paper.
- 8.4. The primary traffic and transportation impacts associated with the Proposed Development relate to the number of new trips on the transport network in the vicinity of the Site.
- 8.5. The new trips include additional HGVs, LGVs and cars on the highway network as well as additional person trips on the public transport network. The former requires consideration of possible effects upon the capacity and operation of the local road networks (links and junctions), road safety, severance, driver delay and pedestrian delay and amenity.
- 8.6. As a result, Curtins has liaised with the Highways Officers at Warrington Borough Council (WBC) and the regional authority responsible for the Strategic Road Network (SRN); Highways England (North West). This is to discuss the development and scope of any necessary assessment work.
- 8.7. The TA and TP will be prepared in accordance with the principles set out in the Department for Transport document 'Guidance on Transport Assessment' (2007) and National Planning Policy Guidance (NPPG).
- 8.8. The ES Paper will be prepared in accordance with the Institute of Environmental Assessment (IEA) 'Guidelines for the Environmental Assessment of Road Traffic' (1993).
- 8.9. In summary, this section of the ES Scoping Paper considers the traffic and transportation issues relating to the development and identifies environmental effects, the significance of these

effects, mitigation or enhancement measures and the significance of the residual effects of each.

Baseline Information

Planning Policy

- 8.10. This section sets out the key transport policy and guidance documents that are relevant to this application.

National Planning Policy

National Planning Policy Framework, March 2012

- 8.11. The National Planning Policy Framework (The Framework) sets out the current national planning policy and outlines the important role that transport policies have to play in facilitating development. From the outset, the Minister for Planning's Foreword lays the foundations for current policy thinking:

'The Purpose of planning is to help achieve sustainable development...Development means growth. We must accommodate the new ways by which we will earn our living in a competitive world. We must house a rising population, which is living longer and wants to make new choices. We must respond to the changes that new technologies offer us. Our lives, and the places in which we live them, can be better, but they will certainly be worse if things stagnate.'

- 8.12. Paragraph 14 states that at the heart of 'The Framework' is a:

'...presumption in favour of sustainable development, which should be seen as a golden thread running through both plan making and decision making.'

- 8.13. For decision making this means granting permission unless:

'...any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies.'

- 8.14. Paragraph 32 of 'The Framework' states the following in relation to the impacts of the proposed development on the surrounding highway network:

'Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.'

Planning Practice Guidance, March 2014

- 8.15. In addition to 'The Framework', a Planning Practice Guidance (PPG) has been developed by government. Within this document there is a specific section that clarifies the over-arching principles on transport planning for developments.
- 8.16. The 'PPG' has been used in the production of the traffic and transportation chapter of this EIA.

Local Planning Policy

Warrington Borough Council – Adopted Core Strategy (2014)

- 8.17. The Warrington Local Plan Core Strategy was adopted by the council on 21 July 2014. It is the overarching strategic policy document in the Local Planning Framework and sets out the planning framework for guiding the location and level of development in the borough up to 2027.
- 8.18. Some elements of the Local Plan were subject to a High Court Challenge but this only affected certain policies and the key traffic and transport policies remain unaltered.
- 8.19. Policy MPI- General Transport Principles states that:

To secure sustainable development the Council and its partners will support proposals where they:

- reduce the need for private car use through its location, travel planning and marketing (smarter choices) and any other measures to change travel behaviour.
- consider demand management measures including the effective reallocation of road space in favour of public transport, pedestrians and cyclists.
- adhere to locally determined car and cycle parking standards.
- Mitigate the impact of development or improve the performance of Warrington's Transport Network, including the Strategic Road Network, by delivering site specific infrastructure which will support the proposed level of development.

- 8.20. Policy MP5 – Freight Transport states that:

Proposals for freight related development will be supported where they achieve a reduction in road traffic kilometres through their location and/or where they reduce the impact of freight traffic on local or inappropriate routes.

In addition to the provisions set out in Policy CSI I Strategic Opportunity – Port Warrington, the Council will encourage development which generates significant movement of freight to locate on Sites which are served by rail and / or water or where such facilities can be provided as part of the development. Where such opportunities are not available, such development should be located where there is good access to the Primary Road Network.

Proposals should demonstrate that they would not have an adverse impact in terms of;

- heavy goods vehicles using local or residential roads or congested central areas;
- unacceptable problems of noise, vibration, lighting, emissions, or other pollution for neighbouring occupiers.

8.21. Policy MP7 Transport Assessments and Travel Plans states that:

The Council will require all development to:

demonstrate that it will not significantly harm highway safety and that trips generated by the development can adequately be served by Warrington's Transport Network.
identify where there are any significant effects on Warrington's Transport Network and/or the environment and ensure appropriate mitigation measures including any necessary transport infrastructure are in place before the development is used or occupied.

Development proposals which would prejudice the primary function of the Strategic Road Network will not be allowed unless improvements are designed and carried out to provide suitable mitigation to the satisfaction of the local highway authority, having regard to the views of the Highways Agency.

Applications for major developments, developments that are not consistent with the Local Planning Framework or developments that raise specific issues in a locality that consist of housing, employment, retail, leisure, and service uses must be accompanied by a Transport Assessment, Transport Statement, and Travel Plan in accordance with National Planning Policy and national guidance on Transport Assessments.

Warrington Borough Council - Emerging Local Plan

8.22. Following an initial 'call for sites' exercise, WBC published their "Preferred Development Option Regulation 18 Consultation" document, dated July 2017. This sets out the Council's preferred approach to allocating land within central Warrington and to delivering mainly large strategic redevelopment schemes around the rest of the Borough.

8.23. The Site is identified for allocated within this emerging policy as part of the employment zone for the 'Warrington Garden City Suburb'.

- 8.24. The “Preferred *Development Option Regulation 18 Consultation*” document indicates that the Warrington Garden City Suburb will provide for the development of some 7,000 new homes and other facilities along with some 117ha of land set aside for employment uses, centred around 3 garden neighbourhoods.

Other Policies and Guidance

Guidelines for the Environmental Assessment of Road Traffic, 1993

- 8.25. Guidance from the IEA is considered throughout this traffic and transportation chapter. The IEA is now known as the Institute of Environmental Management and Assessment (IEMA). The guidance document entitled “Guidelines for the Environmental Assessment of Road Traffic” has been used to inform the methodology of assessment.

Initial Scoping Discussions

- 8.26. Curtins have recently met with senior representatives from both WBC’s Highway Development Control team and Highways England (HE) in respect of promoting the scheme through the emerging local plan process, with a view to a planning application submission in due course.
- 8.27. Curtins met WBC (Mr Andy Oates) on 19th July 2017 to discuss the scope of the TA work that would be required to accompany any future submissions, and also for WBC to consider the scope more fully.
- 8.28. Curtins also met representatives from HE (Mr Neville McKenzie from WSP and Mr Ben Laverick, Assistant Asset Manager at HE) on 24th July 2017 to discuss the scope of the technical work that would be required to accompany any future submissions from HE’s perspective.
- 8.29. Nonetheless, the scope of the TA / Environmental Impact Assessment (EIA)-related work that will be required is similar for both highway authorities, as summarised below:
- In order to properly consider and agree the list of junctions to be included in the TA (and therefore those locations that need to be surveyed and subject to more detailed capacity assessment), WBC and HE require further work to be carried out. Specifically, they require an indication of the traffic-generating

potential of the scheme and its distribution and assignment throughout the local / strategic road network.

- Both WBC and HE agree that the methodology for estimating the traffic generated by the scheme should be based on trip rates from the industry-standard TRICS Database. Staff-related car journeys and industrial / warehouse-related HGV journeys should be split using the mode split data provided by TRICS within the trip rates.
- To augment and validate the above trip generation methodology, WBC are to provide Curtins with information showing the observed staff drivers:metre² ratio (or similar data) for Omega Park, Warrington. At the time of writing this data has not yet been provided.
- Both WBC and HE agree that the methodology for distributing operational staff and operational HGV-related journeys should differ, with staff-related journeys based on the 2011 census 'journey to work' data (centred on the census output area within which the industrial estate to the west is situated). All HGV journeys should be assigned directly to the M56 / M6 Motorway Lymm Interchange junction and distributed via a suitable methodology through that junction.
- WBC require a number of schemes to be treated as committed development in any traffic impact assessment work, including 3 recently approved HCA housing schemes situated nearby. There is also a proposed 50,000m² logistics scheme situated adjacent to the Site (currently at pre-application stage) that WBC would wish to see included in any assessments, as a 'sensitivity' test to be included as an addition to the baseline position. HE will take WBC's lead (as the LPA) on the list of committed developments to be assessed. These developments are summarized in Table 8.6 of this Paper.
- Without prejudice to the above, and in terms of the local highway network, WBC have confirmed that the TA study area may potentially need to extend (subject to additional discussions and traffic modelling) to the following junctions:
 - The Site access junction/s.
 - **The M6 Motorway Junction 20 Cliff Lane dumbbell roundabouts;**
 - **A50 Cliff Lane / Grappenhall Lane roundabout;**
 - **Grappenhall Lane / Broad Lane roundabout;**
 - **Grappenhall Lane / Barleycastle Lane;**
 - Cat & Lion crossroads (A49 Stretton Road / B5356 London Road);
 - London Road / Lyons Lane roundabout;
 - Witherwins Lane / Lyons Lane roundabout;
 - A49 / A56 at Stockton Heath;
 - Lumb Brook Road canal underpass signals;
 - **Church Lane / A56 Chester Road;**
 - A56 Chester Road / Ackers Road;
 - **Church Lane / Broad Lane;**
 - **A50 Knutsford Road/A56 Chester Road;** and

- Merge / diverge assessments at the variations on-slips / off-slips at the M6 / M56 junction.

(Note those junctions highlighted in bold above have already been surveyed on 6th July 2017. All junctions are shown on the Plan in **Appendix 9**).

- Both WBC and HE agree that the TA Assessment years should include the estimated year of completion and year of completion + 10 years (assumed to be 2031 for the first units), although any growth rates used can be discounted to avoid the double-counting of any committed development trips.
- WBC's consultants are currently carrying out work to update and re-validate the 'Warrington Multi-Modal Transport Model'. This is a large scale high-level theoretical model of the highway network across the Borough that will be used to test the impact of the Council's emerging Local Plan allocation aspirations. This may be another tool that may be employed to assess the impact of the proposed scheme.
- Similarly, HE have their own theoretical Vissim-based model of the strategic network (known as the 'box' model) that extends from the M56 J11, through the M6 J20 up to the Croft Interchange, then across to J7 of the M62. This model is also currently being updated to test WBC's emerging Local Plan aspirations and may be utilised as a tool to assess the scheme in due course.
- WBC have stated that any Site access arrangements should conform to the Design Manual for Roads and Bridges (DMRB) design standards, given the national speed limit on Grappenhall Lane.
- WBC have stated that the internal Site layout should conform to WBC's adopted parking standards Supplementary Planning Document (SPD) (2015) and their Design Guide.
- WBC have stated that the TA should include a review of access by sustainable modes, an appraisal of the accident record at junctions within the agreed study area, a review of relevant highway planning policy, and generally follow the guidance on the preparation of TA's within the National Planning Practice Guidance (NPPG). HE have stated that the TA should also follow the advice within their "The Strategic Road Network: Planning for the Future" 2015 document.
- There is an expectation that the Internal Site Access Roads within the Site will be offered up for adoption.
- Early consultation with WBC's Public Right of Way Officer should ideally be carried out to discuss rights of way through the Site and how they may or may not be affected by the scheme.

Traffic Surveys

- 8.30. As indicated earlier, Curtins recently commissioned traffic surveys at 7 off-site junctions near the Site, including the following:

- The M6 J20 / Cliff Lane partially signalised dumbbell roundabouts;
- The A50 Cliff Lane / Grappenhall Lane roundabout;
- The Grappenhall Lane / Broad Lane roundabout;
- The Grappenhall Lane / Barleycastle Lane priority junction;
- The Church Lane / A56 signalised junction;
- The Church Lane / Broad Lane priority junction; and
- The A50 / A56 signalised crossroads.

8.31. The data was collected independently by the NDC traffic survey consultancy on the 6th July 2017 in the peak periods of 7:00am-10:00am and 16:00pm-18:00pm. The counts were fully classified and recorded all turning movements and queue lengths at the 7 junctions.

8.32. Using this data, the network highway peak hours have been calculated as lying between 07:30-08:30am and 16:30-17:30pm, respectively.

8.33. Curtins have also gathered extensive traffic survey data of the M56 and M6 mainlines and slip roads from the online WebTRIS database resource.

Traffic Growth

8.34. As discussed recently with HE and WBC, all traffic impact assessment work should be undertaken for the assumed year of **completion** of the development and then the year of completion + 10.

8.35. At this stage of the project, it is assumed that the first part of the scheme could potentially be completed in 2021 and therefore the assessment years are 2021 and 2031. The 2021 assessments however assume full completion for simplicity and robustness, and given unknowns regarding future demand and occupation rates.

8.36. In order to quantify the level of background traffic growth that could occur on the local network between the year of the traffic surveys (2017) and the future assessment years, National Traffic Model (NTM) growth factors, modified by TEMPRO local growth factors have been used.

8.37. These factors suggest growth of between 5% and 14% between 2017 and 2031. In due course, and following further scoping discussions / agreement with WBC, the approach to applying traffic growth forecasts will be refined to ensure that trips are not 'double-counted' on the network.

Traffic Generation

8.38. At this stage of the project, the level of trips that could be generated by the scheme have been estimated through reference to average peak hour trip rates obtained from surveys of 'commercial warehousing – B8' and 'general industrial – B2' schemes from within the industry-standard TRICS Database, as agreed with WBC / HE during recent discussions.

8.39. A split of 80% B8 and 20% B2 has been assumed.

8.40. The results indicate that the Proposed Development could generate circa 568 two-way trips in the AM peak period and 415 two-way vehicle in the PM peak period.

8.41. In due course, the above approach may be refined having regard to information to be supplied by WBC on the level of staff vehicle movements observed at Omega Park to the north-west of Warrington, as derived from Travel Plan surveys carried out by WBC.

Traffic Distribution

8.42. As agreed with WBC, staff-related vehicle trips generated by the proposed development will be distributed on the local highway network based on travel-to-work data obtained from the 2011 Census for all 'in-moves' for the Middle Super Output Area (MSOA) in which the nearby Stretton Green Distribution Park is situated.

8.43. The existing travel-to-work trip distribution pattern at the Stretton Green Distribution Park is considered to represent a good proxy for the likely trip distribution of staff at the proposed development given that it is similarly located to the Site and features a similar overall level of employment uses to the proposed development.

8.44. An initial review of this information suggests the following distribution:

- B5356 Grappenhall Lane - 17% of Staff;
- A50 Knutsford Road - 27% of Staff

- A56 Stockport Road - 3% of Staff
- M6 (north) - 31% of Staff
- A50 Cliff Lane - 3% of Staff
- M56 (west) – 14 of Staff

8.45. M6 (south) – 5% of Staff With regard to HGV's and as agreed with HE / WBC during recent discussions, it is assumed that all development-related HGVs will route almost exclusively between the Site and the strategic highway network at the M56 / M6 Lymm Interchange.

8.46. At the M56 / M6 Lymm Interchange, HGV trips have been distributed based on the relative numbers of HGV trips observed to head away from the junction on each mainline during the month of June 2017. This data has been obtained from the online WebTRIS resource (formerly TRADS).

8.47. An initial review suggests the following distribution:

- M6 (north) – 43%
- M56 (west) – 25%
- M6 (south) – 31%
- M56 (east) – 2%

8.48. The above baseline analysis has been used to inform an initial assessment of the impacts, which is summarised later in this Paper.

Alternatives Considered

8.49. A series of masterplan options have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

8.50. The key traffic and transportation impacts associated with the proposed development will either occur during the construction phase or the operational phase, as set out below. The key elements will be covered by the TA and ES will include:

- Severance;
- Driver delay;
- Pedestrian delay, amenity and consideration of fear and intimidation;
- Accidents and road safety; and,
- Public transport users.

Construction Phase

Potential Impact	Assessment
<i>Increase in HGV traffic flows on the strategic and local highway network</i>	<i>The application is for outline consent and therefore an assumption will be made regarding the proposed construction methodology and quantum of traffic generated. However, Curtins will liaise with the team to agree reasonable assumptions regarding the construction impacts.</i>
<i>The HGVs associated with the construction process may result in increased dust and dirt</i>	<i>As above Curtins will liaise with the applicant to agree reasonable assumptions regarding the construction impacts. A Construction Management Plan (CMP) will be produced and this will be designed to mitigate negative construction impacts.</i>
<i>The construction of the Site will create a number of construction jobs over a number of years. These workers will arrive from all over the region and therefore the additional traffic may have an impact on the local and strategic highway network</i>	<i>As above Curtins will liaise with the team to agree reasonable assumptions regarding the construction impacts.</i>
<i>The increase in traffic may impact all road users in terms of severance, delay, amenity, road safety and public transport</i>	<i>Consideration of mitigation measures will form a key part of the TA and ES.</i>

<i>Construction of any mitigation measures on the highway network</i>	<i>Consideration of mitigation measures will form a key part of the TA and ES.</i>
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Operational Phase

Potential Impact	Assessment
<i>Increase in traffic and driver delay on the local highway network</i>	<i>The TA and ES will consider the impact at junctions within the vicinity of the Site (within the geographical study area) by modelling the without development and with development scenarios and consideration will be given to mitigation as appropriate.</i>
<i>Increase in traffic and driver delay on the strategic highway network</i>	<i>The TA will include consideration of junction capacity at the M6/M56 Interchange.</i>
<i>Reductions in driver delay and improvements to highway safety due to highway mitigation measures</i>	<i>Consideration of mitigation measures will form a key part of the TA. It is possible that some of these measures will have benefits beyond 'nil detriment'.</i>
<i>Increases in traffic flows may affect pedestrians, cyclists and public transport</i>	<i>Consideration of severance, pedestrian delay and amenity with mitigation if appropriate.</i>

Methodology for the Environmental Statement

8.51. The methodology for the Environmental Statement will be in accordance with the IEMA method set out in the document 'Guidelines for the Environmental Assessment of Road Traffic' (1993).

8.52. The IEMA guidelines recommend that the environmental effects listed in table 2.1 of the guidance may be considered important when considering traffic from an individual development. These effects include:

- Noise;
- Vibration;

- Visual Impact;
- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity;
- Accidents and safety;
- Hazardous loads;
- Air pollution;
- Dust and dirt;
- Ecological impact; and
- Heritage and conservation.

8.53. Of these effects, many are considered in chapters elsewhere in this document due to the specialist skills required; namely noise, vibration, visual impact, air pollution, ecological effects and heritage and conservation.

8.54. With regard to the remaining effects the guidance states that the following rules should be used as a screening process to delimit the scale and extent of the assessment:

- Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGV) will increase by more than 30%); and
- Include any other specifically sensitive areas where traffic flows have increased by 10%, or more.

8.55. The IEMA guidelines go on to state that any increases in traffic flows of less than 10% are generally accepted as having no discernible environmental impact as daily variance in traffic flows can be of equal magnitude.

8.56. The 30% threshold relates to the level at which humans may perceive change and there may therefore be an effect. Impacts above this level therefore do not suggest that there is a significant impact, only that further consideration is required to assess the significance.

Transport Assessment

8.57. To determine whether the traffic flows at the junctions listed in Section 8.27 of this paper exceed the 10% or 30% threshold the TA will include:

- Assessment of the local highway network in the geographic study area described earlier;
- Assessment of the strategic highway network including the junctions of the M6 and M56 as described earlier;
- Consideration of the development traffic generation and distribution; and
- Consideration of the without development and with development at future year (2031), the difference is the highway impact, expressed as a percentage.

Travel Plan

8.58. A framework Travel Plan will be prepared and appended to the ES Technical Paper. This will be an overarching document, from which each individual development plot can, in due course, provide a Site-specific Travel Plan for each occupier. The TP will:

- Identify the objectives of the TP and how it will link with the occupiers of the Site;
- Provide targets which will need to be achieved and maintained in order to reduce the overall traffic and transportation impact of the Site;
- Identify the measures and initiatives to achieve the objectives of the TP to increase travel to the Site sustainably: on foot, by cycle and/or using public transport;
- Provide details of how the TP will be marketed for staff and visitors;
- Set out realistic and achievable preliminary targets for reducing travel to Site by private car and identify specific timescales to be agreed with the local authorities; and
- Derive a monitoring schedule to assess the effectiveness of the TP.

8.59. The TP is a live document that will apply throughout the lifecycle of the project.

Other Assessments

8.60. Once the above assessments have been undertaken and mitigation measures have been considered any links with a predicted increase above 30% (or 10% in sensitive areas) will be

assessed in accordance with IEMA guidelines. As mentioned previously this will include consideration of:

- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity; and
- Accidents and safety.

8.61. With regard to severance, the IEMA guidelines indicate that traffic flows would have to increase by more than 30% in order for a 'slight' change in severance to occur, 60% for a 'moderate' change to occur and 90% for a 'substantial' change to occur.

8.62. Driver delay can occur as a result of increased traffic flows on the network as a result of development. This generally occurs at junctions where turning traffic flows increase. As part of the TA, junction capacity assessments will be undertaken at all of the key junctions in the vicinity of the Site and the wider agreed geographical study area.

8.63. With regard to pedestrian delay and amenity, changes in the volume, composition or speed of traffic may affect the ability of people to cross roads and increases in traffic generally lead to greater increase in delay for pedestrians.

8.64. The IEMA guidance indicates that a two-way link flow of approximately 1,400 vph (vehicles per hour) broadly equates to a 10 second pedestrian delay in crossing a single carriageway road. Based on the above guidance the actual delay can be calculated for each link road.

8.65. As part of the TA highway safety and accessibility by sustainable modes of travel will be considered in detail and a summary will be provided therein.

Receptors

8.66. Receptors are required to be assessed to assess the effect magnitude and sensitivity of each that are within the vicinity of the Site. The following hierarchy is used to assess the how receptors are considered:

- International

- National
- Regional
- County
- Borough/District
- Local/Neighbourhood

8.67. Below sets out the receptors around the Site and which designation that they fall into.

Designation	Receptors
International	N/A
National	Existing traffic on the M6 Motorway
Regional	Existing traffic on the M56 Motorway
County	Existing traffic on the A50
Borough/District	Existing traffic on the local highway network
Local/Neighbourhood	Residential Housing in the vicinity of the Site Existing traffic on the local highway network in the vicinity of the Site Pedestrians and cyclists on the local highway network Public transport users in the vicinity of the Site

Table 8.1: Receptors

8.68. The above table shows that there are no international receptors in the vicinity of the development. However, the M6 and M56 motorways are considered national and regional receptors, respectively. The county and local level receptors would be the existing traffic on the local highway network in Warrington. A plan showing the locations of receptors is shown on the drawing “Traffic and Transportation – Receptor Plan” at Appendix 4.

8.69. Other key receptors would be Residential Housing in the vicinity of the Site, Pedestrians and cyclists on the local highway network and Public transport users in the vicinity of the Site. The previously mentioned receptors will be assessed by their allotted designation level to assess their environmental impacts.

Environmental Impacts

8.70. The exact impact on the receptors is yet to be determined and will not be known until the TA and ES is completed.

8.71. The magnitude and environmental impacts will be assessed against the parameters as presented in Table 8.2 below, where the percentages quoted represent increases.

Magnitude	Environmental Impact
Substantial	Construction – Significant number of construction vehicles over a protracted period (over 35% increase) Operational – Sustainable Travel – No provision for pedestrians, cyclists or public transport Operational – HGVs – Significant number of HGVs on a permanent basis (over 35% increase) Operational – Traffic – Significant number of cars on a permanent basis (over 35%)
High	Construction – High number of construction vehicles over a protracted period (30% to 34% increase) Operational – Sustainable Travel – Limited access to sustainable modes of travel Operational – HGVs – High number of HGVs on a permanent basis (30% to 34% increase) Operational – Traffic – High number of cars on a permanent basis (30% to 34% increase)
Moderate	Construction – Moderate number of construction vehicles over a protracted period (15% to 29% increase) Operational – Sustainable Travel – Some access to either walking, cycling or public transport but not all three Operational – HGVs – Moderate number of HGVs on a permanent basis (15% to 29% increase) Operational – Traffic – Moderate number of cars on a permanent basis (15% to 29% increase)
Minor	Construction – Small number of construction vehicles over a protracted period (6% to 14% increase) Operational – Sustainable Travel – Some access to walking, cycling and public transport facilities Operational – HGVs – Small number of HGVs on a permanent basis (6% to 14% increase) Operational – Traffic – Small number of cars on a permanent basis (6% to 14% increase)
Negligible	Construction – Occasional access required (less than 5% increase) Operational – Sustainable Travel – Dedicated access to walking, cycling and public transport facilities Operational – HGVs – Immaterial number of HGVs on a permanent basis (less than 5% increase) Operational – Traffic – Immaterial number of cars on a permanent basis (less than 5% increase)
Neutral	No change

Table 8.2: Environmental Impacts

8.72. Some of the above parameters are subjective; for robustness the worst case scenario will be taken initially with due consideration of the realistic and practical range of impact.

Impact Prediction Confidence

8.73. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels

Table 8.3: Confidence Levels

Significance of Effects

8.74. The significance of effect is determined using the significance matrix in **Section 3** of this Scoping Request Report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

8.75. At this stage of the project it is not possible to advise on the significance of the impacts in a detailed manner. The following provides a broad summary, although the impacts, significance and confidence level are subject to change following further work as outlined later in this chapter.

Construction Phase

8.76. The Proposed Development consists of both industrial and storage and distribution buildings and their vehicle aprons together with secondary internal Site access roads connecting to the primary internal Site access road that joins the surrounding local highway network at the B5356 Grappenhall Lane.

8.77. The current construction phasing is described earlier in this ES Scoping document.

8.78. There are three main construction related impacts; deliveries to Site, workers commuting to Site and Site operation during the construction phase.

8.79. Construction traffic is likely to have a moderate impact. It is anticipated that the volume of construction traffic will be below the 10% increase threshold set out in the IEA “Guidelines for the Environmental Assessment of Road Traffic” whereby additional assessment is necessary.

Site

8.80. It is anticipated that construction access will initially be gained from the existing farm access from the A50 Cliff Lane in order to form Site compounds and to construct the new Site entrance from the B5356 Grappenhall Lane. Once the access point and associated access road from Grappenhall Lane is constructed, this will be utilised by construction traffic to develop the rest of the Site.

8.81. The Construction Traffic Management Plan will direct that construction traffic will operate outside peak hours where possible and abnormal or oversize vehicles will be escorted as appropriate. All unloading will be within the Site and within the Site operating hours and therefore will have minimal effect on adjacent occupiers.

8.82. All Site works will be undertaken to the Environment Agency’s Pollution Prevention Guidance Note 6 “Working at Construction and Demolition Sites”. Plant will be maintained in order to minimise noise, vibration and pollution (air and ground). Measures will be in place to minimise the risk of hydrocarbon contamination. Plant will only be active within the hours of Site operation and only when required.

8.83. Highway mitigation measures are being considered and the environmental impact of these will be assessed as part of the EA. The following table shows the initial assessment without mitigation being taken into consideration:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Increase in HGV traffic flows on the M6 may impact on driver delay due to construction traffic	National	Minor Negative	Moderate Adverse	Low
Increase in HGV traffic flows on the M56 may impact on driver delay due to construction traffic	Regional	Minor Negative	Moderate Adverse	Low
Increase in HGV traffic flows on the local highway network may impact on driver delay, road safety, pedestrian amenity and public transport	Local/ Neighbourhood, Borough, County	High Negative	Moderate Adverse	Low
The HGVs associated with the construction process may result in increased dust and dirt	Local/ Neighbourhood	Minor Negative	Minor Adverse	Low

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
<p>The construction of the Site will create a number of construction jobs over a number of years. These workers may have an impact on the local network in terms of driver delay, pedestrian amenity, road safety and public transport</p>	<p>Local/ Neighbourhood</p>	<p>Minor Negative</p>	<p>Minor Adverse</p>	<p>Low</p>
<p>The construction of the Site will create a number of construction jobs over a number of years. These workers may have an impact on key roads.</p>	<p>Borough</p>	<p>Minor Negative</p>	<p>Minor Adverse</p>	<p>Low</p>

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
The construction of the Site will create a number of construction jobs over a number of years. These workers will arrive from all over the region and therefore the additional traffic may have an impact on the M6 and M56 in terms of driver delay	County	Minor Negative	Moderate Adverse	Low

Table 8.4: Significance of Impact – Construction

8.84. The low confidence level is on the basis that scoping discussion with Highways Officers are ongoing and the traffic analysis is at a preliminary stage.

Operational Phase

8.85. The Site, once constructed will consist of circa 3.5 M sq. ft. of B8/B2 uses; the operational traffic will be related to this level of development. As a result of the ongoing traffic and transportation studies in the TA, it is considered that a series of junction improvements may be necessary. These improvements are likely to be linked to a series of development triggers and more information will be provided in the TA as the scoping discussions, proposals and mitigation evolve.

8.86. The environmental impacts of the junction improvements considered in the TA will be assessed as part of the EA.

8.87. The table below gives the nature of the impact without mitigation unless stated otherwise.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Increase in traffic on the local network impacting on driver delay, road safety, pedestrian amenity and public transport users.	Local/Neighbourhood	High Negative	Moderate Adverse	Low
Increase in traffic and driver delay on the M56 impacting on driver delay	Regional	High Negative	High Adverse	Low
Increase in traffic and driver delay on the M6 impacting on driver delay	National	High Negative	High Adverse	Low
Increase in traffic on the A50 impacting on driver delay, road safety, pedestrian amenity and public transport users	County	Moderate Negative	Moderate Adverse	Low

Table 8.5: Significance of Impact – Operation

8.88. The low confidence level is on the basis that scoping discussion with Highways Officers are ongoing and the traffic analysis is at a preliminary stage.

Mitigation

8.89. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements, a series of junction improvements to offset the operational highway impact as

mentioned above, will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

Additive Impacts (Cumulative Impact and their Effects)

8.90. For the purposes of this ES we define the cumulative effects as:

‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’

8.91. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report.

8.92. The projects to be considered in respect of the Traffic and Transportation technical topic area cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA REF:2016/28807 Applicant - HCA	Outline Planning Application for 180 dwellings	Planning permission granted by WMBC 28-09-2017	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.
2	Land bounded by Green Lane & Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant HCA	Outline Planning Application for 370 dwellings	Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.
3	Land South of Astor drive, East of Lichfield Avenue & South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3lg Lpa Ref:2017/29929 Applicant - HCA	Outline Planning Application for 400 dwellings	Resolution to grant planning permission by WMBC Development Management	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000sqm Logistics Development	Pre-application stage	Agreed with Warrington Highways that would be included as a sensitivity test within the baseline.

Table 8.6: Cumulative Projects

- 8.93. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

Further Work Required

- 8.115 Consultation is still on-going with the local authorities responsible for traffic and transportation within the geographic study area.
- 8.116 The geographical study may need to be increased to include further junctions which will require new traffic surveys. This will be confirmed via additional scoping discussions with WBC and HE and the results of modelling work which they are undertaking.
- 8.117 Ongoing work that will be completed for the Environmental Statement includes the TA and TP.

Summary

- 8.118 This EIA Scoping Technical Chapter 'Traffic and Transportation has been prepared by Curtins and considers the scope of the proposed Six:56 Warrington development upon the traffic and transportation conditions within the vicinity of the Site.
- 8.119 At the junctions the impact in terms of capacities, queues and driver delays will be assessed as part of the TA.
- 8.120 This chapter sets out the Traffic and Transportation methodology to be used in the ES which includes identification of receptors, a methodology to identify the severity of the environmental impacts and a methodology for identifying the significance of the impacts.
- 8.121 The methodology is based on 'Guidelines for the Environmental Assessment of Road Traffic' (1993) and in accordance with the guidance the following rules will be used as a screening process to delimit the scale and extent of the assessment:
- "Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and

- Include any other specifically sensitive areas where traffic flows have increased by 10%, or more.”

8.122 The TA will determine the highway impact of the traffic and transportation aspects of the Proposed Development and will consider these and make recommendations for junction improvements and other highway mitigation as appropriate. Any such mitigation will be developed through close liaison with the relevant highway authority in order to ensure the proposals are appropriate.

8.123 The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Traffic and Transportation.

Scoped In

Environmental Issue	Reason for “scoping in”
<p>Traffic and Transportation</p> <p><i>Construction:</i></p> <p>Driver Delay</p> <p>Pedestrian Amenity and Delay</p> <p>Road Safety</p> <p>Public Transport</p> <p>Severance</p> <p><i>Operation:</i></p> <p>Driver Delay</p> <p>Pedestrian Amenity and Delay</p> <p>Road Safety</p> <p>Public Transport</p> <p>Severance</p>	<p>State reason eg:</p> <p>The development is likely to result in additional traffic on the highway network during the construction and operational phase. This may impact on all of the environmental issues listed.</p>

8.124 No environmental issues have been scoped out at this stage of the project.

9. Flood Risk and Drainage

Introduction

- 9.1. The Technical Chapter of the ES will be prepared by a Chartered Engineer from Cundall.
- 9.2. Cundall will be undertaking the Drainage and Flood Risk assessment to identify how the proposed development may impact local water resources, the surface water regime and the surrounding area.
- 9.3. From the baseline, the potential impact can be identified and the effects that may occur as a result of the proposed development will be assessed. The detailed assessment will, where required, recommend mitigation measures to reduce any adverse effects of the development.
- 9.4. Impacts from and to the proposed development will be considered. These will include the capacity of receiving waters or infrastructure, fluvial impact, pluvial impact and groundwater impact.
- 9.5. A Flood Risk Assessment (FRA) and Drainage Strategy (DS) will be provided as part of the planning application and these findings will form the basis of the environmental assessment and ES Technical Chapter.
- 9.6. The assessments will be in accordance with National Planning Policy (the Framework) and the Local Authorities Local Plan and Core Strategy. Reference will also be made to the local Strategic Flood Risk Assessment (SFRA) and relevant Environment Agency (EA) Plans to identify any wider risks.
- 9.7. The Lead Local Flood Authority (LLFA), the Environment Agency (EA) and United Utilities (UU) will be consulted as part of the assessment process.
- 9.8. This Chapter links closely with the Geology and Ground Conditions Chapter 7 and they should be read in conjunction with one another. In relation to the ground, this Chapter will assess the impact that temporary and permanent drainage conveyance will have on the underlying sub-strata and receiving waters. The Ground Chapter also assesses the impact on the underlying sub-strata and receiving waters but from naturally occurring risks and also construction logistics.

Baseline Information

- 9.9. Information available on flood risk related to the Site from Government and Local Authority publications will be collated and reviewed as part of the impact assessment.
- 9.10. The following documents will be consulted as part of the assessment;
- National Planning Policy Framework (The Framework), 2012
 - Flood risk and coastal change PPG, Revision date: 6 March 2014
 - Climate change PPG, Revision date: 12 June 2014
 - Water supply, wastewater and water quality PPG, Revision date: 23 March 2015
 - Sustainable drainage systems: non-statutory technical standards Guidance by Department for Environment, Food and Rural Affairs (DEFRA), Revision date: 23 March 2015
 - Non-Statutory Technical Standards for Sustainable Drainage Practice Guidance by Local Authority SuDS Officer Organisation (LASOO), 05 2015
 - Flood & Water Management Act (FWMA), 2010
 - Water Framework Directive, 23 October 2000
 - Living on the edge, the Environment Agency (EA), 2016
 - Site specific documents referred to in Section 5, Baseline.
 - Additional relevant guidance identified during the assessment process
- 9.11. The Site sits within National Flood Zone 1 land and is not at risk of flooding from rivers or seas.
- 9.12. A main EA river network is present on the southern boundary of the Site. A tributary of Bradley Brook originates from Barleycastle Lane flowing west to east before joining Bradley Brook prior to being culverted under the M6 Motorway. The river continues north through Lymm with eventual connection to the Manchester Ship Canal network.

- 9.13. There are no formal foul or storm artificial drainage connections offsite from the existing development buildings. The storm water appears to discharge back to the ground regime with eventual discharge to the Bradley Brook Network. The foul water appears to be collected locally in tanked cess pits.
- 9.14. The closest adoptable sewer network is located in the industrial estate to the west, under the responsibility of United Utilities. The closest adoptable sewer network with available connection to processing plants is found further south-west within the outer regions of Appleton.
- 9.15. The natural drainage patterns on the Site indicate mainly greenfield runoff toward Bradley Brook. There are also a series of onsite ponds which collect and store water for sub-catchments without positive artificial connections. Bradley Gorse also has an independent natural drainage network which includes ponds and overland connectivity with eventual connection back to Bradley Brook.
- 9.16. Beneath the site, the superficial Glacial Till is classified as a Secondary Aquifer (Undifferentiated) and the underlying Bollin Mudstone Member bedrock is classified as a Secondary Aquifer B by the Environment Agency. This is generally capable of storing only limited amounts of groundwater.
- 9.17. The site is not located within an Environment Agency groundwater Source Protection Zone and there is no groundwater abstraction points within 250m of the site.
- 9.18. The baseline drainage setting will be derived from the United Utilities public sewer record, EA maps and topographical and geoenvironmental information.
- 9.19. The baseline assessment for Flood Risk and Drainage is included in Appendix 9. This baseline assessment includes initial liaison with Statutory Consultees and although liaison will continue through the impact assessment, the baseline will not be updated as this is the basis for review. For up to date consultation records, these will be included in the body of the Technical Chapter.
- 9.20. The existing Site Flood Risk exposure will be identified and confirmed in the ES.
- 9.21. The existing drainage regime for the existing properties will be defined and confirmed in the ES.

- 9.22. The likely evolution of the environment without implementation of the development in relation to flood risk and drainage would stay neutral with no change to the existing. Without intervention the drainage and flood risk patterns would remain albeit with slightly elevated pond levels due to increase in rainfall intensity due to climate change

Alternatives Considered

- 9.23. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

- 9.24. This section sets out likely potential environmental impacts from the Proposed Development.

Construction Phase

- 9.25. Groundwater ponding from large excavations during construction causing flood risk and potential pollutant pathways from construction activities.
- 9.26. Storm water flows overland during the installation of impermeable surfaces or removing topsoil and vegetation prior to installing storm water drainage connections, attenuation or a live connection, creating a potential flood risk and pollution pathway during the works.
- 9.27. Pollution pathway to Bradley Brook network.
- 9.28. Pollution of the Bradley Brook Network by conveyed storm water with silt and sediment (dealing with solids with low settleability) from any potential spills during construction or any surface water flows.
- 9.29. Excessive ponding from intense storms leading to additional infiltration to the ground.

Operational Phase

- 9.30. Risk of flooding to the Site from offsite sources from overland routes.

- 9.31. Risk of flooding from the Site to offsite sources due to the increased development causing increased surface water runoff.
- 9.32. Future impact of climate change on increased storm events creating more intense rainfall periods with additional surface water to deal with.
- 9.33. Potential increase in flow to receiving waters from increased hard standing areas and newly generated waste.
- 9.34. Potential increase in pollutants to receiving waters from the new storm water system from the type of surfacing and operation in relation to water quality.
- 9.35. Potential increase in pollutants to the below aquifer in relation to water quality from rainfall over new impermeable areas.

Methodology for the Environmental Statement

- 9.36. The ES assessment will be undertaken in accordance with the requirements of the Framework and will assesses flood risk to and from the proposed development in addition to any water quality changes. It will also include the mitigation measures provided by the proposed drainage strategy which will be designed and detailed in accordance with the LLFA requirements.

Receptors

- 9.37. The receptors identified as susceptible to potential impact from the development are the receiving waters and sewers for the drainage and adjacent neighborhoods for flood risk, all within the local area as shown on the Receptor Plan.

Designation	Receptors
International	
National	
Regional	
County	

Designation	Receptors
Borough/District	
Local/Neighbourhood	United Utilities Sewers, Bradley Brook network, Bradley Gorse, adjacent lower lying site, ground water regime/aquifer, Bradley View, Bradley Hall Cottages, site users

Table 9.1: Receptors

Environmental Impacts

9.38. The below table outlines the definition of the magnitude of environmental impact in relation to Flood Risk and Drainage effects. The environmental impacts outline the the level of change to water quality and flood risk associated to the relevant magnitude assessment.

Magnitude	Environmental Impact
Substantial	<p>A very large change in water quality which could result in exceedance of statutory objectives and/or breaches of legislation</p> <p>A substantial change to flood risk off site resulting in the flooding of properties</p> <p>A substantial change off site resulting in improving flood risk</p>
High	<p>A large change in water quality within 1000m of the site</p> <p>A large change to flood risk off site resulting in the flooding of properties</p> <p>A large change off site resulting in improving flood risk</p>
Moderate	<p>An intermediate change in water quality within 500m of the site</p> <p>An intermediate change to flood risk to properties or infrastructure off site</p> <p>An intermediate change off site resulting in improving flood risk</p>

Magnitude	Environmental Impact
Minor	<p>A small change in water quality within 100m of the site.</p> <p>A small change to the flood risk within the site boundary</p> <p>A small change on site resulting in improving flood risk</p>
Negligible	No noticeable change in water quality / flood risk
Neutral	No detectable change in water quality / flood risk

Table 9.2: Environmental Impacts

Impact Prediction Confidence

- 9.39. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 9.3: Confidence Levels

Significance of Effects

- 9.40. The impacts below have been assessed without mitigation. Relevant mitigation will neutralize or look to neutralize the impact and will be considered during scheme evolution and further ES assessment work.

Construction Phase

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Groundwater ponding in excavations causing flood risk	Local	Minor Negative	Minor Adverse	High
Increase in impermeable areas leading to increased flood risk on and offsite	Local	Minor Negative	Minor Adverse	High
Pollution through existing drainage systems to the Bradley Brook network	Local	High Negative	Minor Adverse	High
Pollution through conveyed storm water with silt/sediment	Local	High Negative	Minor Adverse	High
Excessive ponding leading to additional infiltration to ground	Local	Moderate Negative	Minor Adverse	High

Table 9.4: Significance of Impact - Construction

Operational Phase

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Overland flows originating offsite flooding the site	Local	Moderate Negative	Negligible	High
Increased development leading to increased flood risk offsite	Local	High Negative	Minor Adverse	High
Climate change impact on storm intensity	Local	High Negative	Minor Adverse	High
Increased storm and foul water flow to receiving waters	Local	High Negative	Minor Adverse	High
Increased pollution to receiving waters due to increased industrial surfaces	Local	High Negative	Minor Adverse	High

Potential pollutants to below underlying aquifer	Local	High Negative	Minor Adverse	High
Potential pollutants to below ground strata	Local	High Negative	Minor Adverse	High

Table 9.5: Significance of Impact – Operation

Mitigation

- 9.41. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES but are thought at this stage to include the following:
- 9.42. All large and deep construction excavations should be avoided as far as possible. Where this is not possible, they should be covered, especially in periods of heavy rain. As a last resort, they should be managed in accordance with Pollution Prevention Guideline (PPG) 5 and potentially pumped out under controlled fashion. No connection from excavations should be made to the watercourse unless treatment processes are put in place.
- 9.43. Haul roads or matting should be provided as part of the construction works to prevent consolidation of the Site which will reduce permeability and increase runoff but will limit the amount of disturbed sediment/soils from reaching surface waters.
- 9.44. A portion of surface water attenuation should be developed prior to increasing the impermeable area, where necessary, to utilize as storage. Water management on site is to be in accordance with PPG5.
- 9.45. A suitable surface water management system should be developed as part of any construction plans which should include the use of temporary drainage where required.
- 9.46. If existing live flows (that are required to be retained) are to be cut off by the works (either overland or underground) temporarily these are to be maintained in a like for like scenario without hindering the course of flow or adding to it. This will be closely linked to the proposed detailed design for retention of any existing flow conveyance routes.

- 9.47. Potential pollution spills should be managed and monitored. This should include providing bunds around at risk areas, particularly handling oils and fuels and these areas should be isolated and away from potential water pathways.
- 9.48. Disturbance of ground should be limited to works required for the permanent scheme, otherwise haul roads, lay down or matting should be used to prevent consolidation and increase potential runoff with silts/solids entering existing drainage pathways. Disturbance of ground through major earthworks should be planned, designed and phased to ensure that it is not a direct source for stormwater to convey silts/solids overland.
- 9.49. In order to minimise the risk of sediment on the construction site, vegetation should only be removed from areas that need to be removed and stockpiles should be seeded or covered.
- 9.50. Any drainage ditches, swales or basins to be excavated are to be sealed or finished immediately to prevent the conveyance of silts and solids to receiving waters.
- 9.51. Any vehicles accessing the site and tracking through the disturbed ground are to be removed of potential debris that could pollute offsite waters prior to them leaving site.
- 9.52. All works should follow the EA's Pollution Prevention Guidelines.
- 9.53. If any waters onsite are known to be polluted, treatment may be necessary before disposal to the surface water receptor. Treatment should include settlement.
- 9.54. A Flood Risk Assessment will be undertaken to assess the flood risk to and from the proposed development in accordance with the Framework.
- 9.55. The increased impermeable/developable area is to be drained via a new foul and storm water system and conveyed to new outfalls.
- 9.56. The foul water network will be sized and designed to accept all flows from the Proposed Development Site with a new connection to the United Utilities combined sewer network. The exact connection point is under negotiation with United Utilities, however they have confirmed that their system can accommodate the proposed flows.
- 9.57. The storm water network will be sized and designed to accept all flows from the Proposed Development Site with additional flood protection including climate change allowances and a

new connection to the Bradley Brook system at a restricted rate of discharge (Greenfield Runoff Rate).

- 9.58. The storm water design will be in accordance with the LLFA Flood Risk/Drainage design guidance and the Framework.
- 9.59. In order to provide flood risk protection to the Site and to the surrounding neighbourhood to manage the limited storm water discharge, onsite attenuation will be provided both in the main infrastructure and within the plots. This will be to the required return periods as required by the LLFA including allowances for climate change in accordance with the Framework. All storm water flows for the 1 in 30 year storm events will be contained below ground with all flows for the 1 in 100 year events plus climate change allowance of 40% being contained safely within the Site boundaries overland and/or underground.
- 9.60. All new impermeable surfacing (roads, car parks, roofs etc.) will be drained to the new storm water drainage network and conveyed to the new outfall to the Bradley Brook system. As part of the main network, Sustainable urban Drainage Systems (SuDS) will be included to improve water quality prior to the discharge to the receiving waters. SuDS will naturally filter the water and remove pollutants and solids prior to discharge.
- 9.61. No infiltration is proposed to the sub-strata below due to the low permeability at the surface. As all developable/impermeable areas will be drained, treated and discharged to Bradley Brook there will be no risk of pollution to the underlying aquifer.
- 9.62. Limiting re-entry of fallen stormwater onto the Development Site over the underlying aquifer and recharging the groundwater will have no adverse effect. Areas of proposed landscaping will still slowly infiltrate to ground as they do now. Areas of new impermeable surfacing will intercept stormwater that previously discharged to ground although this will have a negligible impact on water resources due to the impermeable Glacial Till and aquifer classification. Similarly, any rainwater will be collected and conveyed to discharge to Bradley Brook on the southern boundary of the Site which closely follows the regional groundwater model. The brook lies lower than the sites existing and finished levels. There are also no groundwater abstraction zones or source protection zones within the vicinity of the site further declassifying risk.

9.63. No works will restrict access to the banks of the Bradley Brook system and the responsibility for general maintenance responsibilities will lie with the Riparian land owner to further ensure the working condition. The riparian land owner and the responsibilities are outlined in the EA document Living on the edge (2016).

Additive Impacts (Cumulative Impact and their Effects)

9.64. For the purposes of this ES we define the cumulative effects as:

‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’

9.65. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Drainage and Flood Risk cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000m ² logistics development	Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243) Application to be submitted November 2017	Site lies upstream of the Application Site with potential to drain and contribute to the same Bradley Brook waterway network. This could influence flood risk and water quality assessments.

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
6	<p>Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY</p> <p>LPA Ref: 2016/28994</p>	<p>Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping.</p> <p>(1,699m² new build, 180m² and 265m² extensions)</p>	<p>Application Approved 17-02-2017 (3 years to implement planning permission)</p>	<p>Site lies upstream of the Application Site with potential to drain and contribute to the same Bradley Brook waterway network. This could influence flood risk and water quality assessments.</p>

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
7	Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN LPA Ref: 2015/25255 Morely Estates	Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building)	Application Approved 16-10-2015 (3 years to implement planning permission)	Site lies upstream of the Application Site with potential to drain and contribute to the same Bradley Brook waterway network. This could influence flood risk and water quality assessments.

Table 9.6: Cumulative Projects

- 9.66. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

Further Work Required

- 9.67. As part of the ES, a Flood Risk Assessment and Drainage Strategy will be completed for the development.

- 9.68. An outline drainage design, hydraulic calculations and model will be completed to inform the Drainage Strategy.
- 9.69. Liaison with the LLFA, EA and United Utilities is still ongoing and will be further developed as part of the FRA and DS process.

Summary

- 9.70. Drainage and Flood Risk impacts have been identified and require further detailed analysis through a formal Flood Risk Assessment and Drainage Strategy which will inform the environmental assessment.
- 9.71. The main impacts to be assessed are the potential increase to flood risk of receiving waters and adjacent streets and the potential pollutants created as part of the Proposed Development.
- 9.72. Potential mitigation measures have been outlined and these will be further specified as part of the ES.
- 9.73. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Flood Risk & Drainage that may not (or would normally in respect of the scoping out) form part of a standard assessment.

Scoped In

Environmental Issue	Reason for “scoping in”
<p>Flood Risk & Drainage</p> <p><i>Construction:</i> Temporary flood risk and pollution to watercourse due to incomplete systems/spills.</p> <p><i>Operation:</i> Flood risk, pollution to watercourse and impact to aquifer.</p>	<p><i>The sites previous greenfield classification and the potential for increased flows, collection, concentration and conveyance of stormwater during construction and operational uses. The increased pathways for contamination and the location of the underlying Aquifer as well as the potential impact on adjacent uses, construction workers and future site users.</i></p>

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Flood Risk & Drainage</p> <p>Construction: Hydromorphological changes</p> <p>Operation: Hydromorphological changes</p>	<p>The Development does not change the physical form or functioning of a waterbody. The brook system to the southern boundary will be retained in its current form with no more than greenfield runoff being discharged. The Development will have no effect on the flow dynamics of the river.</p>
<p>Flood Risk & Drainage</p> <p>Construction: Moat around Bradley Hall - Hydrology</p> <p>Operation: Moat around Bradley Hall - Hydrology</p>	<p>There will be no implications from the development on the hydrology of the moat. The moat is not a permanent water feature and the conveyance of storm water to the moat from surrounding areas (other than internally) is very limited and the development will have no impact on the operation/quality of the moat or its waters. There is no physical connectivity to the moat from the surrounding site.</p>

10. Landscape and Visual Impact

Introduction

- 10.1. This chapter of the ES Scoping Report has been produced by Munro and Whitten Ltd a registered practice of the Landscape Institute, to provide an evaluation of the predicted Landscape and Visual Impacts resulting from the Proposed Development.
- 10.2. The purpose of the Chapter is to describe the baseline landscape character and visual amenity of the Site and then the resulting landscape and visual effects predicted as a result of the Proposed Development on the receiving landscape and visual resources.
- 10.3. A baseline landscape and visual review was carried out in October 2017 following a site visit. An accompanying Arboricultural Survey and Assessment of the Site was carried out during September 2017.

Legislative and Policy Context

- 10.4. **Warrington Borough Council Local Plan Core Strategy (2014)**
Current planning policy relating to matters of landscape character and visual amenity has been considered and will be reviewed further in the ES. This section provides a summary with extracts of issues relevant to landscape and visual matters. Not all policies are referred to or listed in full but insofar as they are relevant to the Proposed Development and this assessment.

Policy CS 5

The Council will maintain the general extent of the Green Belt for as far as can be seen ahead and at least until 2032.

Policy QE 6

The Council, will only support development which would not lead to an adverse impact on the environment or amenity of future occupiers or those currently occupying adjoining or nearby properties, or does not have an unacceptable impact on the surrounding area. The Council will take into consideration the following:

'Levels of light pollution and impacts on the night sky'

Policy QE7

The Council will look positively upon proposals that are designed to;

- 'be sustainable, durable, adaptable and energy efficient'
- 'function well in relation to existing patterns of movement and activity'
- 'maintain and respect the landscape character and, where appropriate, distinctiveness of the surrounding countryside'
- 'be visually attractive as a result of good architecture' and the inclusion of appropriate public space.

Policy QE 8

The Council will ensure that the fabric and setting of heritage assets are appropriately protected and enhanced in accordance with the principles set out in National Planning Policy.

Development proposals which affect the character and setting of all heritage assets will be required to:

- 'avoid the unnecessary loss of and any decay to the historic fabric which once lost cannot be restored'.
- 'recognise and enhances the asset's contribution to the special qualities, local distinctiveness and unique physical aspects of the area';
- 'includes suitable mitigation measures'.

Policy CC 2

Development proposals in the countryside which accord with Green Belt policies set out in national planning policy will be supported provided that; the detailed siting and design of the development relates satisfactorily to its rural setting, in terms of its scale, layout and use of materials; they respect local landscape character, both in terms of immediate impact, or from distant views; unobtrusive provision can be made for any associated servicing and parking facilities or plant, equipment and storage; they relate to local enterprise and farm diversification; and it can be demonstrated that there would be no detrimental impact on agricultural interests.

10.5. Following the adoption of the Local Plan Core Strategy in 2014 a legal challenge was made which resulted in the housing allocation being removed from the adopted Local Plan. In 2016 the Warrington Green Belt land was assessed independently to understand how Warrington's Green Belt contributes to the five purposes of Green Belt, as set out in national policy. The report and final site-specific assessment of the Green Belt Parcels (**Appendix 11 - LVI**) identified parcel **R108/106** (within which the site is located) as:

- Having no contribution to check the unrestricted sprawl of large built-up areas.
- Having a weak contribution to preventing Warrington urban area and the town of Lymm from merging into one another.
- Having a strong contribution to assist in safeguarding the countryside from encroachment due to its openness and the non-durable western and southern boundaries.

- Offering no contribution to preserving the setting and special character of historic towns.
- Making a moderate contribution to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.
- Overall the site has been judged to make a Moderate Contribution.

10.6. The Site, forms part of a managed release of Green Belt land proposed for future employment development forming part of the South Eastern Urban Extension, within the emerging new Local Plan (Preferred Options Consultation (July 2017).

Baseline Information

Introduction

10.7. The landscape and visual baseline study reviews the Landscape Character of the Site and it's Visual Influence (with a preliminary Zone of Theoretical Visibility).

10.8. The baseline review covers a 5km study area centred on the Site and has been appraised at a desktop and field-based level to understand the potential implications of the Proposed Development on potential local visual receptors and on the local landscape character.

10.9. The Landscape and Visual Assessment and the ES Chapter will consider the evolution of the Baseline Information without the development.

Landscape Character

10.10. 'The Character of England' produced by Natural England places the site within the **Mersey Valley**: National Character Area 60 (**Appendix 11 - LV2**).

10.11. Many of the regional landscape characteristics are recognisable elements (emphasised in bold) within the study area;

Mersey Valley: National Character Area 60

- Trees and woodland are mainly associated with settlements, occasional parkland and **isolated woodland blocks**;
- **Large-scale, open, predominantly flat**, high-quality farmland occurs between developments;

- The field pattern is **regular and large-scale**, often defined by hedgerows with isolated hedgerow trees; many hedgerows are intermittent and have been replaced by post-and-wire fencing;
- Densely populated urban and suburban areas;
- There is **large-scale, highly visible** industrial development;

10.12. It is considered that the above statements are an accurate overview of the landscape character around the Site and how this affects views to the Site.

10.13. Statements of Environmental Opportunity (SEO) now form part of NCA profiles. Of the four SEOs in the NCA60 profile SEO1 and SEO2 are relevant to the Site:

SEO 1: *“Promote the Mersey Valley’s historic environment and landscape character and positively integrate the environmental resource with industry and development, providing greenspace within existing and new development, to further the benefits provided by a healthy natural environment, as a framework for habitat restoration and for public amenity.”*

For example by:

Carefully designing and integrating green infrastructure within housing, business, transport and industrial development, linking new developments with the wider countryside;

Developing networks of linear habitats, corridors and stepping stones within housing and industrial development, linking developments with the wider countryside, making a more permeable landscape to enable species movement and to enable urban populations to engage with the natural environment through better access provision.

Creating new woodlands and planting individual trees in appropriate urban and industrial areas and settlements;

Conserving the NCA’s heritage assets, including archaeological sites, historic buildings and the character of the parkland and villages and ensuring high-quality design;

Developing Sustainable urban Drainage Systems (SuDS) in new and existing development to improve infiltration and manage surface water;

SEO 2: *“Manage the arable and mixed farmland along the broad linear Mersey Valley, and create semi-natural habitats, woodlands and ecological networks, to protect soils and water, enhance biodiversity, increase connectivity and improve the character of the landscape, while enabling sustainable food production.”*

For example by:

Planning to link and connect fragmented habitats into a more cohesive whole, providing corridors and stepping stones for wildlife, enabling movement of species, and enhancing the landscape.

Seeking opportunities to restore and enhance hedgerows, field boundary trees and field margins to encourage a network of habitats to link fragmented habitats, to act as a windbreak and bind/filter out the soil in times of flood.

10.14. To the south of the site, the study area is placed within National Character Area **NCA61: Shropshire, Cheshire and Staffordshire Plain**.

10.15. Many of the regional landscape characteristics are recognisable elements (emphasised in bold) within the study area;

- Few woodlands, confined to the area around Northwich and to estates, cloughs and deciduous and mixed woods on the steeper slopes of the wind-swept sandstone ridges. Locally extensive tracts of coniferous woodland and locally distinctive orchards scattered throughout.
- Strong field patterns with generally well-maintained boundaries, predominantly hedgerows, with dense, mature hedgerow trees. Sandstone walls occur on the ridges and estate walls and Cheshire-style (curved topped) metal railing fences occur locally on estates in Cheshire.
- The field pattern is **regular and large-scale**, often defined by hedgerows with isolated hedgerow trees; many hedgerows are intermittent and have been replaced by post-and-wire fencing;
- Densely populated urban and suburban areas;
- There is **large-scale, highly visible** industrial development;

10.16. Statements of Environmental Opportunity (SEO) now form part of NCA profiles. Of the four SEOs in the NCA61 profiles SEO2 and SEO3 are relevant to the site;

SEO 2: *“Protect the landscape of the plain, recognising its importance to food production and incorporating well-maintained hedgerows, ponds and lowland grassland margins within agricultural systems, to secure resource protection and maintain productivity, while reducing fragmentation of semi-natural habitats to benefit a wide range of services, such as landscape character, sense of place, water quality and biodiversity.”*

For example by:

Ensuring that new development is informed by and sympathetic to landscape character and quality and contributes, as appropriate, to the conservation of the landscape, having regard to visual impact and local vernacular.

SEO 3: *“Manage and restore lowland heathland and ancient and plantation woodland, support partnerships to plan appropriately scaled new woodland cover, particularly where this will link and extend existing woodlands, restore and reinstate traditional orchards and increase biomass*

provision to mitigate the impact of climate change, where this will benefit biodiversity, landscape character and enhance the experiential qualities of the area.”

For example by:

Planting trees around settlements, along motorways and major highway corridors to screen the visually intrusive urban areas from the surrounding landscape.

- 10.17. It is considered that the above statements are a reasonable overview of the landscape character around the sites southern setting and how this affects views to the site.

District Landscape Character

Warrington Borough Council Landscape Character Assessment 2007

- 10.18. In 2007, Warrington Borough Council undertook a district landscape character assessment of the Borough and a broad assessment of the landscape character types and the key sensitivities and change affecting the landscape character. The assessment identified an **Undulating Enclosed Farmland** landscape type (**Appendix 11 - LV3**).

- 10.19. The characteristics of **Undulating Enclosed Farmland** identified were:

- Undulating enclosed farmland
- Sweeping views from higher ground
- Mainly medium to often large-scale mainly arable fields
- Sparsity of hedgerow trees
- Hedgerows field boundaries often fragmented

- 10.20. The study then sub-divided the landscape type further in which the majority of the site falls within **Ib Undulating Enclosed Farmland – Appleton Thorn**.

- 10.21. The characteristics of **Ib Undulating Enclosed Farmland – Appleton Thorn** identified were:

- Broad expansive agricultural landscape lacking hedgerows
- Strong visual and audible effect of M56
- Noticeably gently sloping land to the south
- Views of Pennine skyline to the east
- Skyline imposition of commercial development on ridgeline at Appleton Thorn

- Ridgeline feature of Appleton Thorn church tower

10.22. The study outlines the key elements of landscape sensitivity as being:

- Skyline location
- Remaining hedgerows
- Remaining views of Appleton Thorn Church on the skyline
- Marl pit ponds

10.23. The study outlines the key elements of landscape change which include:

- Past impact of M56 Motorway
- Substantial reduction in hedgerows and hedgerow trees
- Decline in management of remaining hedgerows and hedgerow trees
- Encroachment of housing and development imposing onto the skyline

10.24. The study concludes with its recommended management and landscape objectives:

“The restoration and management of hedgerows, together with the re-introduction of hedgerow trees, would greatly strengthen the landscape structure and improve the visual appearance of the area”. “Native woodland screen planting should also be considered for the more obtrusive aspects of the industrial estate, together with the more exposed sections of the M56.”

10.25. In 2008, Cheshire East Council undertook a district landscape character assessment of the borough and identified a **Lower Farms and Woodland** landscape type.

10.26. The characteristics of **Lower Farms and Woodland** identified were:

- Low lying gently rolling topography.
- Hedgerow boundaries and standard trees in a mix of medieval and post-medieval re-organised fields (irregular, semi-regular and regular up to 8ha) but with a loss of boundaries leading to the formation of large fields and a large proportion of fences adding to this impression.
- Horsiculture – fenced horse paddocks.
- High density of woodland – blocks, coverts and riparian
- Medium settlement density - mix of dispersed farms and nucleated hamlets/ villages

- Mosses and some meres resulting from glacial deposits
- Large number of water bodies

10.27. The study then sub-divided the landscape type further in which the southern tip of the site lies within **LFW 3: Arley Character Area**.

10.28. The study concludes with “*Fundamentally this is a rural character area, with a network of minor roads and settlement. However, the M6 bisects the centre of the type and the M56 cuts across the northern portion. The visual impact increases locally where the motorway is raised upon embankment or where over-bridges allow a number of minor roads to cross over the motorway.*”

10.29. The assessments recognise the presence of large-scale industrial development within the local landscape character and identify a series of recommendations which are considered to be positive to development, which are achievable through the masterplan development process. These include:

- Carefully designing and integrating green infrastructure
- Creating new woodlands and planting individual trees
- Developing sustainable urban drainage systems (SUDS) the restoration and management of hedgerows.

Summary

10.30. Based on the landscape and visual baseline review, observations in the field and published landscape character assessments at a local and regional level it is reasonable to summarise the site and its local landscape as being:

- In a series of large contained fields to the east of the Barleycastle Trading Estate, bounded by the M56 to the south, the M6 to the east and Grappenhall Lane to the north.
- Predominantly pastoral farmland giving a coherent landscape.
- Adjacent mature hedgerows and nearby small woodlands offer mature tree cover.
- In an area of gently undulating topography restricting views locally
- The rural character of the landscape is strongly influenced by the proximity of the motorways both visually and audibly, and the visual presence of the Barleycastle Trading Estate to the west.

Zone of Theoretical Visibility

- 10.31. A desktop study has been carried out using a 3D computer model of the 5km study area to produce a Zone of Theoretical Visibility (ZTV) based on the topographical OS data for the study area. The ZTV is used to ascertain locations from within the study area where the proposed development is theoretically visible from an observers eye level (2m above the ground).
- 10.32. The ZTV analysis was then modified to take into account intervening screening by woodland (nominal 10m height) and buildings (nominal 7.5m height) The ZTV was run using three different building heights for the proposed development with the following results:

ZTV Modified, (Appendix 11 - LV4, 5 & 6)

- 14-17m High Units: **23.68%** theoretically visible within the study area.
 - 14-22m High Units: **29.66%** theoretically visible within the study area.
 - 14-43.5m High Units: **35.29%** theoretically visible within the study area.
- 10.33. The identified ZTV for the study area could be broken down into six broad geographical zones. With the relatively limited Public Rights of Way network within the study area and with mature tree and hedgerow cover, it is considered that the extent of the ZTV can be refined when tested in the field.
- 10.34. The site and study area was visited during early October 2017. Local roads were driven and nearby Public Rights of Way to the site were walked to determine the actual extent of visibility of the site in the surrounding landscape from the Field Work Zones (**Appendix 11 - LV7**).

The Study Area Landscape Character

- 10.35. The landscape character of the study area is of an agricultural landscape with small to medium size villages to the south of the large town of Warrington. The patchwork of small-scale settlements, isolated farms and a gently rolling landscape is cut through by the route of the M6 (north/south) and M56 (east/west) motorways which dominate the landscape visually and audibly, diminishing the scenic quality and tranquillity of the local landscape.
- 10.36. There is good tree cover within the local landscape with strong field boundaries of mature hedgerows and hedgerow trees along with frequent small to medium scale woodland blocks. Local roads, particularly around the smaller villages are more often winding with mature hedgerows and hedgerow trees offering infrequent views into the wider landscape.

10.37. Light industry focused around the Barleycastle Industrial Estate has increased HGV traffic and further diminished the scenic character of the landscape to the east of Appleton Thorn.

Views from within and adjacent to the site (Appendix 11 - LV8)

10.38. The landscape character of the Site is that of a green, open, pastoral landscape with medium to large size fields bounded by mature hedgerows with hedgerow trees. However, the rural countryside character, scenic quality and tranquillity are greatly diminished by the noise from the nearby M6 and M56 motorways which pass within 300m of the site boundary.

10.39. Views from residences on Barleycastle Lane and the start of footpath FP00015/23/1 (**Appendix 11 - LV9, Picture 1**) travelling north towards the Site, is of a gently sloping field leading down to Bradley Brook and then rising up towards Bradley Hall Farm to the northeast with the edge of Barleycastle Industrial Estate in view to the west. Views into the Site are viewed through the mature foliage of trees along Bradley Brook on the Site boundary.

10.40. Footpath FP00015/23/1 does not appear to be well-used with mature overgrown vegetation impeding the route (**Appendix 11 - LV9, Picture 2**) and field conditions severely limiting the passage of movement and any enjoyment of the route (**Appendix 11 - LV9, Picture 3**). Views from the footpath are of a broad pastoral landscape with mature field boundaries with vehicles travelling at speed along Grappenhall Lane partially in view on the horizon. Two-storey industrial units on the edge of the Barleycastle Industrial Estate are in view to the west (**Appendix 11 - LV10, Picture 4**).

10.41. The presence of fast-moving traffic including HGVs on Grappenhall Lane (B5356) along with the industrial units in view and the noise from the nearby motorways significantly reduces the scenic qualities of the landscape and the enjoyment received from using the PROW.

10.42. Footpath FP00015/28/1 running west from Bradley Hall Farm appears to be no longer in use and finishes in the middle of a field, probably cut off during the development of the Barleycastle Industrial Estate.

10.43. Views from Bradley View, the private dwelling north of Bradley Hall (along the PROW) across the site are extensive both east and west (**Appendix 11 - LV10, Picture 5**) and will require significant mitigation during the development of the masterplan.

Field Work Zone 1: Grappenhall South (Appendix 11 - LV11)

- 10.44. Zone I covers an area south of the village of Grappenhall to Grappenhall Lane and the M6 to the east. The area is typified by isolated farms in a broad agricultural landscape with occasional woodland blocks intersected by country lanes and the busy A50 trunk road heading north-west from J20 (M6) towards Warrington. Public rights of way (PROWs) connect from the edge of Grappenhall towards the villages of Wright's Green and Appleton Thorn to the south.
- 10.45. Fields are predominantly medium to large-scale defined by mature hedgerows and occasional mature hedgerow trees. Views out across the landscape when driving the lanes and larger roads are often contained by the established vegetative cover and undulating ground.
- 10.46. The land rises up from the edge of Grappenhall (30m AOD) towards Grappenhall Lane (60m AOD) which prevents views towards the Site from the edge of residential areas, the A50 and Broad Lane until circa 1km from the northern edge of the site. Picture 9 (**Appendix 11 - LV13**) from bridleway 00129/17/1 illustrates the view experienced by users on the PROW and is similar to those experienced by vehicles travelling at speed on the A50 south towards Grappenhall Lane.
- 10.47. Footpath FP00129/5/1 north of the Site, heading north/south towards Grappenhall was walked from Barry's Covert towards the site (**Appendix 11 - LV12, Picture 6**). The footpath follows the line of the covert with houses and farms along Cartridge Lane in view on the horizon, viewed through the foliage of mature hedgerows and occasional hedgerow trees. Development within the site will be viewed against a backdrop of dwellings and agricultural units (some two storey) and established vegetative cover.
- 10.48. First storey windows from properties along Cartridge Lane look out over Grappenhall Lane into the edge of the site (**Appendix 11 - LV12, Picture 7**). Ground floor views and those of vehicles passing at speed along Cartridge Lane and Grappenhall Lane will be partially screened by mature hedgerows and occasional hedgerow trees (**Appendix 11 - LV12/LV13, Picture 7 & 8**) with open views only possible through gaps in the hedge line.
- 10.49. Partial, middle distance views from Broad Lane (**Appendix 11 - LV14, Picture 10**) to the site will be possible on the horizon set against the backdrop of mature hedgerows with isolated hedgerow trees and moving traffic along Grappenhall Lane.
- 10.50. Views towards the western edge of the Site from the footpath leading from Wright's Green towards the Barleycastle Industrial Estate will likely be limited and seen on the horizon against

a backdrop of two-storey industrial units and the movement of HGVs on Grappenhall Lane (**Appendix 11 - LV14, Picture 11**).

Field Work Zone 2: M6 East (Appendix 11 - LV15)

- 10.51. Zone 2 covers an area east of the M6 (north/south), north of the M56 (east/west) and south of the edge of the large village of Lymm. The landscape is a predominantly gently undulating agricultural character of often medium to large fields with isolated farms and small villages. Lymm Dam lies within a small valley to the south of the village of Lymm with well-wooded valley sides with the established tree cover extending along the course of Bradley Brook and Mag Brook tributaries leading south-east and south-west towards the M56. The valley slopes and thick woodland effectively screens views from the east of the area towards the site.
- 10.52. The B5158 leads north-east from J20 (M6) towards Lymm, characteristically the road is a tree-lined route with isolated farms and a network of agricultural fields in the view. Views out to the wider countryside and towards the site when travelling along the road at speed are limited with the predominant view being a tree-lined country lane (**Appendix 11 - LV16, Pictures 12 & 13**).
- 10.53. Views out from Crouchley Lane on the road to Deansgreen are limited with woodland blocks and undulating landform around Lymm Dam and Bradley Brook preventing long distance views towards the Site.
- 10.54. Views towards the Site are further screened by mature woodland planting along the edge of J20 (M6).

Field Work Zone 3: M6 West (Appendix 11 - LV17)

- 10.55. Zone 3 covers an area to the south-west of the village of High Legh and between the M6 and M56 motorways. The area is a predominantly open, flat landscape of small to medium agricultural fields with occasional woodland blocks. Small groups of dwellings and isolated farms are set within a network of narrow, quiet country lanes, often bounded by mature hedgerows and hedgerow trees.
- 10.56. To the east mature woodland belts along the edge of the M6 forms a strong visual edge of middle to long distance views (**Appendix 11 - LV18, Picture 15**).

- 10.57. Lanes within the area are narrow, winding and often bounded by mature hedgerows with hedgerow trees which limits views across the broader landscape.
- 10.58. Middle to long distance views to the site (**Appendix 11 - LV18, Pictures 14 & 15**) are screened by intervening woodland blocks and mature tree cover and views of the site are unlikely.

Field Work Zone 4: M56 South (Appendix 11 - LV19)

- 10.59. Zone 4 covers an area to the south of the M56 and to the west of the M6. It covers a number of hamlets, isolated farms and the small village of Arley. The area includes a number of listed buildings and estates including Crowley Hall and Arley Hall with a listed park and garden. To the north of the area adjacent to the M56 is a disused airfield with small two storey light industrial units along its north-eastern edge.
- 10.60. The area is characterised by a patchwork of small to medium scale agricultural fields set within a network of rural, narrow country lanes. Traffic is generally light on the lanes often bounded by mature hedgerows and hedgerow trees with views out into the wider landscape often restricted to small gaps or gates in hedgerows.
- 10.61. Middle to long distance views towards the Site are not direct and appear to be well screened by intervening vegetation (**Appendix 11 - LV20, Pictures 16 & 17**).

Field Work Zone 5: A533 North East (Appendix 11 - LV21)

- 10.62. Zone 5 covers an area to the east of the A559 and south of the M56 and includes a number of hamlets and the village of Antrobus. The area is predominately an agricultural landscape with isolated farms covering a range of field sizes with a network of winding country lanes. The lanes are more often bounded by mature hedgerows with hedgerow trees with small-scale woodland blocks.
- 10.63. Views towards the Site (**Appendix 11 - LV22/23, Pictures 18, 19 & 20**) are long-distance, well screened by the intervening vegetation and the tree belts along the edge of the M56.

Field Work Zone 6: River Mersey (Appendix 11 - LV24)

- 10.64. Zone 6 covers an area to the south of Manchester Road (A57) and to the east of the A50 on the edge of Warrington. It covers a short section of the River Mersey and Paddington Meadows, a Local Nature Reserve.

- 10.65. Views from Paddington Meadows (**Appendix 11 - LV25, Picture 21**) towards the Site are of a meadow landscape viewed through mature vegetation along the banks for the River Mersey with industrial works in the view. No views of the Site are afforded from this location.

Fieldwork Summary

- 10.66. Visiting the Site, walking the nearby PROWs and driving the local roads and lanes within the identified field work zones (established by the modified ZTV) has determined the actual extent of the visibility of the Site in the surrounding landscape and refine potential visual receptors.
- Long views; due to the extent of intervening tree and hedgerow cover and the undulating landform, views to the Site are effectively screened from most of the study area (Field Work Zones 2, 3, 4, 5 and 6).
 - Medium views; towards the Site from north and north-west (Field Work Zone 1) are possible over a backdrop of mature screening vegetation and busy roads, however, views will be screened from the east, south-east and south-west (Field Work Zones 2, 3, 4, 5 and 6) by intervening vegetation and topography.
 - Short distance views; there are short distance views towards the Site from nearby roads and PROWs (Field Work Zone 1) and these will need to be mitigated during the development of the masterplan.

Arboricultural Assessment

- 10.67. The Arboricultural Survey and Assessment was carried out on site in September 2017 (**Appendix 11 - LV26 (The Report) LV27-33 (The Plans)**). The findings of the survey were that the tree stock across the Site is broadly made up of moderate trees (Category B) with some high landscape value (Category A) trees and woodland, which are generally in a good condition. It is likely that the implementation of the development will incur the removal of Category B to C value trees including individual trees and groups found around existing field ponds.
- 10.68. The report recommends a minimum width of 20m buffer zones between landscape features (of managed grassland swaths and/or shrub planting) including Wrights Covert, Bradley Gorse, Bradley Farm Moat and Scheduled Ancient Monument and Bradley Brook and construction. Trees along other boundaries should be protected by 5-10m landscape buffer zones and in general, trees to be retained should be protected to the British Standard BS 5837:2012 'Trees in relation to Design, Demolition and Construction – Recommendations'.

Lighting

10.69. The baseline Light Spill Assessment carried out by CUNDALL in September 2017 (see **Appendix I4**) concluded that:

- *proposed working lights, site safety and security lighting located within the development area will not have an effect on the residential properties to the north or the south of the development if the correct lighting techniques are adhered to.*
- *The use of trees will act as an obstruction to the site and will, therefore, limit any light spill and sky glow.*
- *Lighting in relation to Bradley View will require careful consideration and further tree planting maybe required to mitigate light spill.*

Landscape Value

10.70. Valued landscapes are referenced in NPPF however, the value of a landscape is not defined. However, case law precedent (Stroud District Council v Secretary of State for Communities and Local Government, 2015) established that a landscape was only valued if it had physical attributes which took it out of the ordinary rather than being a landscape which has a designation or is simply popular.

10.71. The Site and its immediate surrounds are currently designated as within the Green Belt land by Warrington Borough Council. However, Warrington Borough Councils Preferred Option has identified the area for future employment land as an extension of the Barleycastle Trading Estate within the emerging Local Plan (Preferred Options Consultation (July 2017)).

10.72. The landscape of the site is not considered to be rare, unspoilt or out of the ordinary and the landscape character is typical of the LCA 1b Undulating Enclosed Farmland – Appleton Thorn. The Appleton Thorn LCA is effected by the strong visual and audible effects of the M56 and M6 motorways and the imposition of housing and commercial development including the nearby Barleycastle Trading Estate on the skyline.

10.73. The condition of the landscape is considered to be fair. The Sites internal boundaries are largely intact and are predominantly mature hedgerows with hedgerow trees. There are several small woodland blocks and copses within the site including Bradleys Gorse and Wrights Covert. These woodland blocks, located to the south-east of the Site are established woodlands of a fairly uniform age structure. The Site is comprised predominantly of farmland which is currently grazed, with mature hedgerow field margins. Of note are the mature field trees found along the course of Bradley Brook, and along the boundaries of the Site and those associated with Bradley Hall Farm and Moat.

- 10.74. Given this combination of factors, the landscape is not considered to be of value, The Site does have some conservation interest with the potential for enhancement through new Green Infrastructure provision.

Potential Environmental Impacts

Introduction

- 10.75. The Proposed Development will be for the construction of employment and associated landscaping, internal roads and areas of open space. The site will be accessed from a new highway connection off Grappenhall Lane, which will necessitate the removal of stretches of existing mature hedgerows.
- 10.76. The introduction of Green Infrastructure, including new woodland belts (minimum 20m width on earth mounding) to the boundaries of the site and planting belts along internal roads, new SuDS hollows and ponds, will enhance biodiversity.

Construction Phase

- 10.77. It is considered that the short-term effects upon landscape character and resources arising from construction of the development might include:
- the stripping and storage of topsoil
 - the construction of new roads off Grappenhall Lane.
 - the construction of units and internal roads;
 - the loss of farmland, including the removal of internal field boundaries including hedgerows and hedgerow trees;
 - new tree and shrub planting and habitat creation;
 - earthworks for the creation of development plateaus and the new SuDS system
 - materials storage, importing new topsoil, (the removal off-site of existing topsoil), the erection of site compounds, hoarding and the use of working lights and security lighting.
 - Vehicle movements on existing roads for the importation of bulk materials, delivery of building materials and general construction traffic.

10.78. Whilst these impacts will be temporary in nature, the works noted above would adversely affect NCAs 60 & 61 and LCAs Undulating Enclosed Farmland 1B– Appleton Thorn and LFW 3: Arley Character Area for the duration of construction.

Operational Phase

10.79. Long-term effects upon landscape character and resources arising from completion of the scheme might include:

- new units and internal roads;
- 24 hour working lights
- new road connections off Grappenhall Lane;
- new areas of open space with open grassland, new tree and shrub planting with habitat creation and the creation of a SuDS system assessed at Year 0 and Year 15
- the loss of farmland, including the removal of internal field boundaries including hedgerows and hedgerow trees
- new buffer planting belts along the edge of the Grappenhall Lane and the site boundaries and alongside internal roads assessed at Year 0 and Year 15
- new areas of woodland planting assessed at Year 0 and Year 15.

10.80. There will be a change of land use from farmland to employment, woodland belts, and open space. These changes would be permanent and would result in the change in character from a predominantly open and rolling rural landscape influenced by the nearby motorways, to an employment development character. Impacts would directly affect both NCAs 60 & 61 and LCAs Undulating Enclosed Farmland 1B– Appleton Thorn and LFW 3: Arley Character Area.

Methodology for the Environment for the Environmental Statement

Receptors

10.81. The potential impacts of development can affect both landscape and visual receptors. Landscape receptors consider the effect of the proposals on the physical character and quality of the landscape. Visual receptors consider the likely changes that the proposals will have within the views of receptors. Visual receptors have been identified and refined by the modified ZTV and by further fieldwork to take place during the assessment stage.

Landscape Sensitivity

10.82. The sensitivity of the landscape type will be assessed followed by determining the extent of the impact on the landscape. These are then combined in a table to determine the Magnitude of the Impact:

Sensitivity

Sensitivity of the landscape is defined by the following.

High	Key features and characteristics of a landscape of distinctive character, susceptible to relatively small changes. National Parks and Areas of Outstanding Beauty.
Medium	Moderately significant features and characteristics in a distinctive landscape or a landscape of moderately distinctive character reasonably tolerant of changes.
Low	Unimportant features or characteristics or distinct landscape types potentially tolerant of substantial change.

Landscape Change

10.83. When considering the magnitude of landscape change the following will be applied;

Major adverse	At considerable variance to the landscape degrading its integrity
Moderate adverse	Is out of scale with the landscape or at odds with the pattern and landform
Minor adverse	It does not quite fit into the landform or pattern of the landscape
Neutral	Fits well with the existing landscape character and any negative effects are offset by beneficial aspects or fully mitigated.
Minor beneficial	Fits well with the existing landscape character and results in a positive change of a minor scale.
Moderate beneficial	Fits well with the existing landscape character and results in a positive change of a moderate scale.
Major beneficial	Major scale positive change which increases the value of the landscape.

Visual Sensitivity

10.84. The sensitivity of the visual receptor will be important for the purposes of the visual assessment, the sensitivity of the visual receptors to a development proposal is described as High, Medium or Low based on the criteria below.

High

Residential properties with views towards the proposals from the ground floor windows and/or the gardens.

Important public sites used by many people; parks.

Public rights-of-way and public open spaces in regular use

Other locations where the view is the main reason for being at that place.

Medium

Residential properties with views towards the proposals from the first-floor windows (bedroom, bathroom or others with limited daily use).

Schools, colleges or universities.

Hospitals, rest homes or similar care establishments.

Public rights-of-way and public open spaces infrequently used Playing fields.

Other areas where the view is not a key reason for being at that place.

Low

Commercial and industrial premises.

Infrastructure and associated ancillary areas and buildings

Roads and rail with views towards the development where the viewer passes at speed

Other areas where the view is not a reason for being at that place

Visual Change

10.85. The magnitude of visual change will be described by reference to:

High*

A considerable change in the existing view

Medium*

A noticeable change in the existing view

Low*

A barely perceptible change in the existing view.

Negligible*

No discernible deterioration or improvement in the existing view.

* Please note that the magnitude of visual change can be considered to be either beneficial or adverse.

Significance Change

- 10.86. The overall significance of landscape impact is determined by cross-referencing the sensitivity of the landscape receptor or the visual receptor with the magnitude of change. A table in the assessment will determine the significance from Substantial through Moderate and Slight to No Change. Professional judgement will be used to determine the overall significance of effects. The outcomes from the assessment level of significance will then be cross-referenced against the ES common methodology matrix.

Impact Prediction Confidence

- 10.87. It will also be of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 10.1: Confidence Levels

Significance of Effects

Construction Phase:

Nature of Possible Effects	Landscape Receptors	Visual Receptors	Anticipated Significance of Effect	Confidence Level
Increase of traffic movement	Highway corridor including impact on and setting of hedgerows and trees	Users of local roads; walkers and cyclists particularly. Dwellings adjacent the roads.	Moderate to Slight Adverse	Low
The loss of farmland	Removal of internal field boundaries including hedgerows and hedgerow trees.	Users of local PRoW's passing users on adjacent highways	Substantial to Slight Adverse	Low
Construction buildings and mechanical plant	Anomalous features in the landscape	Users of local PRoW's passing users on adjacent highways	Substantial to Slight Adverse	Low
New tree and shrub planting and habitat creation.	Improvements to the fabric of the landscape	Users of local PRoW's passing users on adjacent highways	Slight Beneficial to Neutral	Low
Earthworks for development plateaus and the creation of new SuDS system	Changes to the form and topography of the landscape locally	Users of local PRoW's passing users on adjacent highways	Slight Adverse to Neutral	Low
Materials storage, importing new topsoil, (the removal off-site of existing topsoil), the erection of site compounds, hoarding and the use of security lighting.	notional changes in the night sky, loss of dark sky, mollified by presence of Motorway and Services lighting	Limited due to lack of use of PRoW's, noticeable to passing motorists	Slight Adverse to Neutral	Low

Table 10.2: Significance of Impact – Construction: Units 14-43.5m

Operational Phase:

Nature of Possible Effects	Landscape Receptors	Visual Receptors	Anticipated Significance of Effect	Confidence Level
The increase of vehicular movement	Highway corridor including impact on and setting of hedgerows and trees	Users of local roads; walkers and cyclists particularly. Dwellings adjacent the roads.	Moderate to Slight Adverse	Low

Nature of Possible Effects	Landscape Receptors	Visual Receptors	Anticipated Significance of Effect	Confidence Level
New internal roads and a new access onto Grappenhall Lane.	Removal of internal field boundaries including hedgerows and hedgerow trees.	Users of local PRow's passing users on adjacent highways	Slight Adverse to Neutral	Low
New areas of open space with species-rich grassland, new tree and shrub planting with habitat creation and balancing ponds and hollows;	Improvements to the fabric of the landscape	Users of local PRow's passing users on adjacent highways	Minor Beneficial to Neutral	Low
New built forms	Anomalous features in the landscape	Users of local and possibly distant PRow's, passing users on adjacent highways	Substantial to Slight Adverse	Low
The planting of new woodland belts along internal roads and along the site boundary.	Improvements to the fabric of the landscape	Users of local PRow's passing users on adjacent highways	Slight Beneficial to Neutral	Low
The loss of farmland, including the removal of internal field boundaries including hedgerows and hedgerow trees;	Removal of internal field boundaries including hedgerows and hedgerow trees.	Users of local PRow's passing users on adjacent highways	Substantial to Slight Adverse	Low
New lighting for 24 hour working	notional changes in the night sky, loss of dark sky, mollified by presence of Motorway and Services lighting	Limited due to lack of use of PRow's, noticeable to passing motorists	Slight Adverse to Neutral	Low

Table 10.3: Significance of Impact – Operation: Units 14-43.5m

- 10.88. All will need to be tested during the Landscape and Visual Impact Assessment prepared as part of the Environmental Statement (ES).

Mitigation

- 10.89. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any

effects where considered necessary. These mitigation measures will be confirmed in the ES but might include;

Green Infrastructure

- 10.90. The development of the proposals includes the provision of new woodland belts (minimum 20m width to the boundaries of the Site) and planting along the edges of internal roads to screen views of the new units, enhanced by earth bunds, along the edge of Grappenhall Lane to elevate new woodland planting. New tree and shrub planting to open space areas and around SuDS hollows and ponds will help to establish new habitats and enhance biodiversity.
- 10.91. The material choices, texture and colours of the elevations of the new units will be considered to establish opportunities for mitigating views of the new units against the existing and proposed landscape fabric.
- 10.92. The layout and design of lighting especially reducing overspill for the new units and service yards and will be considered to limit their impact on nearby landscape and visual receptors.
- 10.93. A landscape management plan will be drawn up to manage the establishment of new tree and woodland planting and existing woodland.

Additive Impacts (Cumulative Impact and their Effects)

- 10.94. For the purposes of this ES, we define the cumulative effects as:

‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’
- 10.95. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Landscape and Visual Impacts cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
4	Land off Barleycastle Lane, Appleton, Warrington	50,000m2 logistics development	Pre-application discussions with WMBC	Will form part of the view towards the Site from views to the south.
8	Former Stretton Airfield, Warrington, WA4 4RG	Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.	Application Approved 23-06-2015	Will form part of the view towards the Site from the south and south west.

Table 10.4: Cumulative Projects

- 10.96. Both Construction and Operational phases will be considered and the short, medium and long-term impacts assessed.

Further Work Required

- 10.97. A full Landscape and Visual Impact Assessment for the Site will need to be carried out as part of the Environmental Assessment, including the agreement with the local planning authority on the locations of viewpoints representing visual receptors.
- 10.98. The Site and Proposed Development will need to be modelled in detailed 3D in order to review and refine mitigation measures.
- 10.99. The post pre-app submission of the development application on land to the southwest of the Site will need to be reviewed to consider its implication on the proposed development and views from identified visual receptors and the modified ZTV for the cumulative assessment.

Summary

- 10.100. The 5km study area is predominantly a gently undulating, rural agricultural landscape lying to the south of the large town of Warrington, in the Mersey Valley. The study area includes the

southern urban fringe of Warrington, the villages of Grappenhall, Lymm and Appleton-Thorn and a number of hamlets set within in a generally well-wooded landscape. The presence of woodland blocks, belts, copses and tree-lined roads with mature hedgerow field boundaries limits long-distance views from the surrounding area towards the site.

- 10.101. The landscape character of Site and its local landscape setting is heavily influenced by the visual and audible presence of the nearby M56 and M6 motorways. Local, fast-moving traffic including HGVs on Grappenhall Lane and the presence of the Barleycastle Trading Estate to west of the site contribute to the loss of tranquillity and scenic quality of the countryside locally.
- 10.102. It is a landscape of limited value, albeit currently designated as Warrington Green Belt. However, the area has been identified for future employment land by Warrington Borough Council in its emerging Local Plan and will be released from the Green Belt.
- 10.103. The Landscape and Visual baseline including the modified ZTV and fieldwork, has confirmed that only local receptors will be affected by the proposed development of the site, which will be seen in the context of potential proposed development on land to the southwest of the site.
- 10.104. The local PRoW network is fragmented by the intersection of fast-moving traffic on Grappenhall Lane to the north, the M6 and M56 motorways to the east and south, and the Barleycastle Trading Estate to the west; with footpath FP00015/23/1 heading north from Barleycastle Lane through the site, appearing to be unused. There are, however, limited views towards the site from well-used PRoWs to the north and the development of the masterplan should include mitigation to reduce the adverse impacts of development upon these views.
- 10.105. The baseline Arboricultural Survey and Assessment has established that the Green Infrastructure Assets across the Site including small woodland blocks, copses and mature trees are in a good condition and made up of either moderate or high landscape value trees. These assets should be retained and protected where possible within the proposed development.
- 10.106. The tables below confirm the details to be Scoped In and Scoped Out of the landscape and visual impact assessment in respect of Chapter 10 – Landscape and Visual Impacts.

Scoped In

Environmental Issue	Phase	Reason for “scoping in”
Visual receptors on roads, PRoW's, in local open space, educational locations and dwellings identified within the 5km study area.	Construction Operational	The significance of the effect will potentially be greater than Slight.
Landscape receptors identified within the 5km study area, especially where there is a distinct change in character or type to the current landscape;	Construction Operational	The significance of the effect will potentially be greater than Slight
Security and compound lighting.	Construction Operational	The significance of the effect will potentially be greater than Slight.

Scoped Out

Environmental Issue	Reason for “scoping out”
Visual receptors beyond the 5km study area.	Receptors over 5km will not be affected by the proposed development.
Visual receptors in airplanes passing overhead on flight path into or out of Manchester airport	Airplanes passing over will not be effected by the proposed development as the site will be seen in the context of the nearby motorways and the Barleycastle Trading Estate.
Visual receptors travelling along the M6 & M56 motorways	Views towards the site are well screened and the impact upon views travelling at speed (70mph) by both passengers and drivers will be negligible.
Visual receptors at Barleycastle Industrial Estate.	The sensitivity of views towards the site from the Barleycastle Trading Estate will be low, given the context of the existing light industrial units.

11. Ecology and Nature Conservation

Introduction

- 11.1. This chapter will be prepared by Tyler Grange LLP.
- 11.2. The chapter will assess the impacts of the Proposed Development on ecological resources including protected sites, habitats and protected and priority species. The approach outlined in this Scoping Report has been informed by desk-based study, site survey work and published guidance.
- 11.3. An 'extended' Phase I habitat survey and desk-based study were undertaken in November 2016. Based on the findings a number of protected species surveys have also been undertaken, or will be completed prior to submission of the outline planning application.
- 11.4. Where necessary, the scope of detailed species surveys was agreed with the Warrington Metropolitan Borough Council ecologist.
- 11.5. A review of relevant legislation, and local and national planning policy, including those listed below, will be undertaken as part of the assessment of impacts.

Legislation

- 11.6. Specific habitats and species are afforded protection in the UK under the following legislation:
- The Conservation of Habitats and Species Regulations 2010 (as amended) (The Habitat Regulations);
 - Wildlife and Countryside Act (WCA) 1981 (as amended);
 - The Countryside and Rights of Way (CRoW) Act 2000;
 - Natural Environment and Rural Communities (NERC) Act 2006;
 - The Protection of Badgers Act (PBA) 1992; and
 - Hedgerow Regulations 1997.

National Policy

- 11.7. Chapter 11 of the National Planning Policy Framework (NPPF) 2012, Conserving and Enhancing the Natural Environment, sets out the relevant adopted policy at the national level.
- 11.8. The Government Circular 06/2005 accompanies the NPPF and sets out the application of the law in relation to planning and nature conservation.

Local Policy

- 11.9. The following policies contained in the Warrington Metropolitan Borough Council Local Plan Core Strategy (adopted July 2014) are considered to be of relevance:
- Policy QE3 – Green Infrastructure; and
 - Policy QE5 – Biodiversity and Geodiversity.
- 11.10. A small area in the south of the site lies within Cheshire East Council (CEC). Therefore, a number of policies in the CEC Local Plan (adopted July 2017) are also considered to be of relevance:
- Policy SE3 Biodiversity and Geodiversity;
 - Policy SE5 Trees, Hedgerows and Woodland; and
 - Policy SE6 – Green Infrastructure.
- 11.11. The Cheshire Region Biodiversity Action Plan (BAP) lists a number of habitats and species which are subject to ongoing conservation action in the region. The potential impacts on these habitats and species should be considered when designing new developments.

Baseline Information

Protected Sites

- 11.12. A desk-based study was undertaken in November 2016, see **Appendix 12** for Preliminary Ecological Appraisal (Tyler Grange LLP) for full details. The data search has been undertaken

for a 10km radius around the site for international statutory sites, a 2km radius for national statutory and non-statutory sites and a 1km radius for protected and priority¹ species records.

11.13. There are no statutory designated sites within the Site boundary. However, four such sites are present within the study area:

- Rixton Clay Pits Special Area of Conservation (SAC), located 5.5km northeast;
- Manchester Mosses SAC, located 6.3km north;
- Midland Meres and Mosses Phase I Ramsar, located 7.2km east; and
- Rostherne Mere Ramsar, located 7.4km east.

11.14. There are no non-statutory designated sites within the site boundary. However, four such sites are present within the study area:

- The Bongs and The Gorse Local Wildlife Site (LWS), located 1.3km northeast;
- The Dingle and Ford's Rough LWS, located 1.7km northwest;
- Grappenhall Heys LWS, located 1.7km northwest; and
- Stretton Moss LWS, located 2km southwest.

11.15. SACs and Ramsar sites are of international importance for nature conservation and are legally protected in the UK by The Habitat Regulations. LWSs are of county importance. All protected sites are considered under Policy QE5 of the WMBC Local Plan and Policy SE3 of the CEC Local Plan.

Habitats

11.16. An 'extended' Phase I habitat survey undertaken in November 2016 identified features of ecological importance comprising:

¹ UK priority species and habitats are those subject to conservation action and referred to as Species of Principal Importance (SoPIs) or Habitats of Principal Importance (HoPIs). They are listed at Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act states that local planning authorities must have regard for the conservation of both SoPIs and HoPIs.

- Broadleaved woodland;
- Hedgerows;
- Ponds;
- Scattered trees and scrub; and
- Watercourses (Bradley Book and tributary adjacent to site boundary, and agricultural ditches).

11.17. Hedgerows, woodland, ponds and rivers are all listed as Habitats of Principal Importance (HoPI) in the NERC Act 2006. All of these except rivers are also included in the Cheshire BAP. Priority habitats are considered under Policy QE5 of the WMBC Local Plan.

11.18. Other habitats comprise improved grassland and arable fields, scrub and tall ruderal. Please refer to **Appendix 12** for full details of the habitats present within the site.

Protected Species

11.19. Based on the habitats present, and the findings of the desk study, a number of protected and priority species surveys have been undertaken, or will be completed prior to submission of the outline planning application. These are listed below (survey timescales in brackets):

- Badger survey (April 2017);
- Bat Activity survey (May – October 2017);
- Bat Preliminary Roost Assessment (PRA) of Buildings (late 2017);
- Bat Roost Surveys of Buildings, if required (to be completed);
- Bat Preliminary Roost Assessment (PRA) of Trees, and follow-up aerial inspections, if required (to be completed);
- Breeding Bird (including Barn Owl) Survey (April – June 2017);
- Great Crested Newt (GCN) Survey (April - June 2017); and
- Wintering Bird Survey (October 2017 – March 2018, ongoing).

In accordance with Schedule 4 (3) of the EIA Regulations the likely evolution of the environment without implementation of the development will be assessed as far as possible based on the availability of environmental information and scientific knowledge.

Alternatives Considered

- 11.20. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

- 11.21. The following sections identify the likely environmental impacts during construction and operational phases of the Proposed Development. The potential impacts will consider the effects resulting from changes identified in other chapters, e.g. air quality, noise etc. This section will also consider the impact that predicted changes in climate and biodiversity will have on the proposed project, potentially over a long timescale, and the project's resilience and capacity to cope.

Construction Phase

Statutory Sites

- 11.22. No significant impacts to statutory sites are expected as a result of the Proposed Development due to physical distance from the development site.

Non-statutory Sites

- 11.23. No significant impacts to non-statutory sites are expected as a result of the Proposed Development due to physical distance from the site.

Habitats

- 11.24. Permanent loss, or fragmentation, of habitats of ecological importance include;
- Broadleaved woodland;
 - Hedgerows;

- Ponds and agricultural ditches;
- Scattered trees and scrub; and
- Tall Ruderal.

11.25. Other habitats present (arable land, buildings, hardstanding, and improved grassland) are of negligible ecological importance, so no significant impacts are expected as a result of habitat loss.

11.26. Habitat degradation of retained habitats (including woodland, watercourse, hedgerows and trees) due to damage caused by site vehicles, storage of materials, or pollution.

Invasive Non-native Species (INNS)

11.27. Spread of an INNS (*Rhododendron ponticum*) outside of the site, which is present in the woodland, which would breach WCA 1981 legislation.

Protected and Priority Species

11.28. Loss of habitat with the potential to support protected and priority species as a result of the Proposed Development, and disturbance (e.g. noise and construction light) of species present, including:

- Badger;
- Bats, roosting and foraging/commuting;
- Breeding birds, including barn owl;
- Brown hare;
- GCN and other amphibians;
- Hedgehog;
- Otter (if development impacts Bradley Brook); and
- Wintering birds.

11.29. Direct killing / injury of protected and priority species during demolition and site clearance including:

- Badger, if present on the site;
- Bats (roosting), if present on the site;
- Birds (nesting); and
- GCN, if present on the site.

Operational Phase

Statutory Sites

11.30. No significant impacts to statutory sites are expected as a result of the Proposed Development due to physical distance from the development site, and non-residential development type.

Non-statutory Sites

11.31. No significant impacts to non-statutory sites are expected as a result of the Proposed Development due to physical distance from the site, and non-residential development type.

Habitats

11.32. Degradation of retained habitats (woodland, trees, hedgerows and watercourse) due to changes in management, or pollution from the development.

Protected and Priority Species

11.33. Displacement as a result of disturbance due to increased human activity, traffic, noise, and lighting, of species including:

- Bats, roosting (if present) and foraging/commuting (particularly due to increased lighting);
- Breeding birds (including barn owl);
- Brown hare;
- GCN and other amphibians, if present;

- Otter; and
 - Hedgehog.
- 11.34. Direct killing/ injury of GCN and other amphibians, if present on the site, as a result of becoming trapped in unsuitable drainage features on new roads.

Methodology for the Environmental Statement

Baseline Methodology

- 11.35. A desk-based study and initial Site survey were used to identify important ecological features (sites, habitats and species) which may be affected by the development proposals, to determine the potential 'zone of influence'² (Zol), and to inform the scope of further survey work required.
- 11.36. The study area extends beyond the site boundary to include a 10km radius for international statutory site designations, a 2km radius for national statutory site designations; and a 1km radius for all protected and priority species records. See **Appendix 12** for details of resources included in the desk study.

Receptors

- 11.37. The results of the initial desk study, site surveys and data gathered during detailed surveys will be used to evaluate the importance of ecological resources within the Zol in accordance the CIEEM Ecological Impact Assessment (EclA) guidance³.
- 11.38. The guidance provides a framework for the evaluation of features that considers the direct biodiversity importance of habitats and species, the indirect importance of features which help support the ecological integrity of key features, legal protection for both sites and species, and evaluation against national and local planning guidance and objectives. It uses a geographic frame of reference for identifying important ecological features according to the scale in Table 11.1.

² Defined as the areas over which ecological features may be subject to significant effects as a result of the proposed development and associated activities.

³ Chartered Institute of Ecology and Environmental Management. (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. 2 nd ed. CIEEM, Winchester.

Designation	Receptors
International	<p>An ecological feature (species, designated site or habitat) which is important at an international level.</p> <p>A population that would meet the published selection criteria as a qualifying feature for designation of a SAC.</p> <p>An internationally designated site or candidate site, i.e. an SPA, proposed SPA (pSPA), SAC, candidate SAC (cSAC), Ramsar site, or an area which would meet the published selection criteria for such designation. Other significant areas of Annex I priority habitats listed in the Habitats Directive, the loss of which would significantly change the overall range and area at the European scale in the long term.</p>
National	<p>Nationally significant populations of species identified in the Natural Environment and Rural Communities (NERC) Act 2006 Section 41 as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the national scale. A population that would meet the published selection criteria as a qualifying feature of a SSSI.</p> <p>A nationally designated site, i.e. SSSI, NNR or discrete area which would meet the published selection criteria for national designation (e.g. SSSI selection guidelines). A significant area of a non-designated habitat type identified in the NERC Act 2006, Section 41 as being of principal importance for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the national scale in the long term. Such habitat should be a major component of areas that are at near-equivalence to SSSIs, meeting most of the published SSSI selection criteria.</p>
Regional (north-west)	<p>Regionally significant populations of species identified in the NERC Act 2006 Section 41 as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the regional scale.</p> <p>A significant area of a non-designated habitat type identified in the NERC Act 2006, Section 41 as being of principal importance for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the regional level in the long term.</p> <p>Significant areas of semi-natural ancient woodland that do not meet the national value criteria (above) should be considered at this scale due to the irreplaceable nature of such habitat.</p>

Designation	Receptors
County (Cheshire)	Significant populations of species identified in the NERC Act 2006 Section 41 as being of principal importance for the conservation of biodiversity in England, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), or priority species in the County BAP the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the County scale. Sites formally recognised by local authorities, e.g. SBI, or considered to meet published ecological selection criteria for such designation. A significant area of a non-designated habitat type identified in the NERC Act 2006, Section 41 as being of principal importance for the conservation of biodiversity in England, the loss of which would significantly change the overall range and area of that habitat at the county scale in the long term. A significant area of key habitat identified in the County BAP.
Local (Warrington Metropolitan Borough)	Species listed on any of the above-mentioned priority lists, that appreciably enrich District/Borough biodiversity, but which are not in themselves of District/Borough importance or greater. Semi-natural habitats, listed on any of the above-mentioned priority lists, that appreciably enrich local biodiversity, but which are not in themselves of District/Borough importance or greater.
Site	Species populations of limited ecological importance due to their size, composition or lack of threat/rarity. The loss of such features would have no discernible impact on the species'/habitat's overall range and conservation status at any administrative scale in the long term. Areas of habitat of limited ecological importance due to their size, species composition or lack of threat/rarity. The loss of such features would have no significant impact on the habitat's overall range and conservation status at any administrative scale in the long term.

Table 11.1: Importance of Ecological Features

11.39. Habitat features of ecological importance within the site are shown on Plan I0682/P01a in **Appendix 4**.

Environmental Impacts

11.40. The assessment should consider impacts including direct loss of habitats, fragmentation and isolation of habitats, disturbance or killing / injury of species, changes to key ecological features, and changes to the local hydrology or water quality.

11.41. The following factors are considered when describing ecological impacts:

- Positive or negative – an impact can improve or reduce the quality of the environment, evaluated against nature conservation objectives and policy;

- Extent - this is the area over which an effect occurs;
- Magnitude - the size or amount of an effect, determined on a quantitative basis where possible;
- Duration - the time for which an effect is expected to last prior to recovery or replacement of the resource or feature;
- Timing and frequency - some effects are only likely if they happen to coincide with a critical life-stage or seasons. Others may occur if the frequency of an activity is sufficiently high;
- Reversibility - an irreversible (permanent) effect is defined as one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is possible or for which effective mitigation is both possible and enforceable; and
- Cumulative effects - where consideration is given to any other developments within the Zol, together with the proposed development, may result in significant effects.

Magnitude	Environmental Impact
Substantial	An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a national level or above.
High	An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a regional level.
Moderate	An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a county level.
Minor	An effect which will have a positive or negative impact on the integrity or conservation status of an ecological feature that is significant at a local or site level.
Negligible	An effect which will have an insignificant impact on an ecological feature.
Neutral	No effect which will impact an ecological feature.

Table 11.2: Environmental Impacts

Significant Effects

- 11.42. The significance of an effect is the product of the magnitude of the impact and the importance or sensitivity of the ecological feature affected. The EclA Guidance provides a complex framework for the consideration of impacts to ecological features and the reader is referred to the actual guidance for full details. However, in summary, greater levels of significance are generally ascribed to large impacts on features of higher ecological importance and lesser levels of significance are generally ascribed to small impacts on features of higher ecological importance, or larger impacts on features of lower ecological importance.
- 11.43. In accordance with professional guidance and terminology, a significant effect, in ecological terms, is defined as an effect (positive or negative) on the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. Insignificant effects are those that would not result in such changes.
- 11.44. The importance of any features that would be significantly affected is then used to identify geographical scales at which the effect is significant. This value relates directly to the consequences, in terms of legislation, policy and/or development control at the appropriate level. So, a significant negative effect on a feature of importance at one level would be likely to trigger related planning policies and, if permitted, generate the need for development control mechanisms as described in those policies.
- 11.45. Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with the guidance derived from policies applied at the scale relevant to the feature or resource.
- 11.46. Effects are unlikely to be significant where features of local importance or sensitivity are subject to small scale or short-term effects. However, where there are a number of small scale effects that are not significant alone, it may be that, cumulatively, these may result in an overall significant effect.
- 11.47. The assessment of effects uses the terminology described above. However, to provide consistency with the terminology throughout the ES, potential and residual effects (positive or negative) are also described using the terms set out in Table 11.2.

Impact Prediction Confidence

- 11.48. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 11.3: Confidence Levels

Significance of Effects

Construction Phase

- 11.49. Potential impacts during the construction phase, in the absence of mitigation, are summarised in Table 11.4.

Feature / Nature of Impact	Importance	Environmental Impact	Significance of Effect	Confidence Level
Protected Sites				
Statutory Sites – direct / indirect impacts	International	Negligible	Negligible	High
Non-statutory Sites – direct / indirect impacts	County	Negligible	Negligible	High
Habitats				
Broadleaved Woodland – permanent loss, fragmentation or degradation	Local	Minor Negative	Minor Adverse	High
Hedgerow - permanent loss, fragmentation or degradation	Local	Minor Negative	Minor Adverse	High
Ponds - permanent loss or degradation	Local	Minor Negative	Minor Adverse	High
Scattered Trees and Scrub - permanent loss, or degradation	Site	Minor Negative	Minor Adverse	High

Feature / Nature of Impact	Importance	Environmental Impact	Significance of Effect	Confidence Level
Tall Ruderal - permanent loss or degradation	Site	Negligible	Negligible	High
Watercourses – degradation	Local	Minor Negative	Minor Adverse	High
Arable and Improved Grassland – permanent loss	Negligible	Negligible	Negligible	High
Buildings and Hardstanding – permanent loss	Negligible	Neutral	Neutral	High
Invasive Non-native Species (INNS)				
Spread of Rhododendron	Negligible	Minor Negative	Minor Adverse	High
Species				
Badger - disturbance, killing / injury	Negligible	Neutral (but legislative requirement)	Neutral	Low*
Bats – loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	Low*
Birds - loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	Low*
Brown Hare – loss / fragmentation of habitat, disturbance	Local	Minor Negative	Minor Adverse	High
GCN (and other amphibians) - loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	Low*
Hedgehog - loss / fragmentation of habitat.	Local	Minor Negative	Minor Adverse	High
Otter – disturbance, killing / injury	Local	Minor Negative	Minor Adverse	High
*The assessment of impacts to these species will be confirmed following completion of surveys and analysis of ecological data and as such this assessment is currently identified as having a low confidence level.				

Table 11.4: Significance of Impact - Construction

Operational Phase

11.50. Potential impacts during the operation phase, in the absence of mitigation, are summarised in Table 11.5.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Protected Sites				
Statutory Sites – direct / indirect impacts	International	Negligible	Negligible	High
Non-statutory Sites – direct or indirect impacts	County	Negligible	Negligible	High
Habitats				
Broadleaved Woodland – habitat degradation	Local	Minor Negative	Minor Adverse	High
Hedgerow - habitat degradation	Local	Minor Negative	Minor Adverse	High
Ponds - habitat degradation	Local	Minor Negative	Minor Adverse	High
Scattered Trees and Scrub - habitat degradation	Site	Minor Negative	Minor Adverse	High
Watercourses – habitat degradation	Local	Minor Negative	Minor Adverse	High
Improved Grassland – habitat degradation	Negligible	Negligible	Negligible	High
Species				
Badger – none expected	Negligible	Neutral (but legislative requirement)	Neutral	High
Bats – disturbance / displacement from retained habitats	Local	Minor Negative	Minor Adverse	Low*
Birds – disturbance / displacement from retained habitats	Local	Minor Negative	Minor Adverse	Low*
Brown Hare – disturbance / displacement from retained habitats	Local	Minor Negative	Minor Adverse	High*
GCN (and other amphibians) – displacement / displacement from retained habitats, direct killing/injury	Local	Minor Negative	Minor Adverse	Low*
Hedgehog – disturbance / displacement from retained habitats, habitat fragmentation	Local	Minor Negative	Minor Adverse	High

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Otter – none expected	Local	Neutral	Neutral	High
*The assessment of impacts to these species will be confirmed following completion of surveys and analysis of ecological data gathered, and as such this assessment is currently identified as having a low confidence level.				

Table 11.5: Significance of Impact – Operation

Mitigation

- 11.51. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.
- 11.52. The area identified for ecological mitigation in the south of the site will contribute to the mitigation of impacts to species and habitats. Additional mitigation for any losses incurred will be provided within the green infrastructure as part of landscaping proposals, where possible.
- 11.53. Refer to Section 4 of **Appendix 12** for recommendations regarding mitigation of impacts to habitats and species.
- 11.54. Mitigation will be considered where necessary to reduce the significance of the impacts identified.

Additive Impacts (Cumulative Impact and their Effects)

- 11.55. For the purposes of this ES we define the cumulative effects as:
- ‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***
- 11.56. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Ecology and Nature Conservation cumulative assessment are listed in the table below. The other sites listed in Section 6 are not relevant to ecology and nature conservation for various reasons, including distances from the Site, nature of the development or no connectivity to the Site.

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000m ² logistics development	Scoping Request (LPA Ref: 2017/30243) Application to be submitted November 2017.	<p>Directly adjacent to the southern boundary of the Site. Bradley Brook forms the boundary between the two sites.</p> <p>Potential impacts to species and habitats on site will require consideration in the cumulative assessment where they occur on both sites.</p>

Table 11.6: Cumulative Projects

11.57. Both Construction and Operational phases will be considered, and the short, medium and long-term impacts assessed.

Further Work Required

11.58. Detailed survey work and the analysis of ecological data gathered is still ongoing. Full details of the following surveys will be included with the Ecology and Nature Conservation ES Technical Paper, and will be used to inform the assessment of impacts:

- Badger survey;
- Bat activity survey;
- Bat roost surveys of buildings and trees;
- Breeding bird survey (including barn owl assessment);
- GCN survey; and
- Wintering bird survey.

11.59. Where necessary, the scope of detailed surveys was agreed in advance with WMBC.

11.60. Where mitigation is required in respect of protected species, including GCN and bats, the details will need to be agreed with WMBC and Natural England.

Summary

11.61. The proposed development has the potential to impact protected site, habitats and species as detailed above. The extent of impacts will be confirmed through the environmental assessment process and appropriate mitigation identified where required.

11.62. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Ecology and Nature Conservation.

Scoped In

Environmental Issue	Reason for “scoping in”
<p>Ecology and Nature Conservation</p> <p><i>Construction:</i></p> <p>Impacts to habitats e.g. loss or damage</p> <p>Impacts to protected and priority species e.g. loss of habitat that supports them or disturbance</p> <p>Spread of invasive non-native species</p> <p>Impacts to badgers</p> <p><i>Operation:</i></p> <p>Impacts to protected sites e.g. recreational disturbance/degradation</p> <p>Impacts to habitats e.g. degradation</p> <p>Impacts to protected and priority species e.g. disturbance</p>	<p>Impacts to habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p> <p>Spread of INNS is prohibited under in the WCA 1981.</p> <p>Badgers are afforded legal protection from disturbance, killing and injury under the PBA 1992.</p> <p>Impacts to protected sites, habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p>

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Ecology and Nature Conservation</p> <p><i>Construction:</i> Arable, improved grassland and tall ruderal habitats</p>	<p>Habitats are of low value and do not need to be considered further. However, the protected species that they may host will be considered further in the fauna section of the ES chapter.</p>

12. Socio Economic

Introduction

- 12.1. AMION Consulting will be undertaking the ES Technical Paper on socio-economics. Through the construction and occupation of B8 and B2 floorspace, the Proposed Development is expected to generate a range of socio-economic impacts, both during the Construction Phase and Operational Phase, including direct, indirect and induced impacts such as increased employment and economic output (defined in terms of Gross Value Added (GVA))⁴.
- 12.2. The key objectives of the socio-economic assessment are as follows:
- To review the local economy and determine the associated socio-economic issues in the context of the Proposed Development.
 - To identify the principal socio-economic impacts (both positive and negative) that may result from the Proposed Development and assess the significance of these effects.
 - To recommend measures for avoiding or reducing any identified adverse effects, and/or enhancing positive effects, where possible.
 - To highlight the significance of any residual effects that would remain after mitigation.
- 12.3. Baseline socio-economic data was collected to inform an initial assessment of the economic impact of the Proposed Development. This economic impact assessment is being updated, along with the baseline data, and will be issued as part of the EIA.

Baseline Information

- 12.4. Prior to considering the socio-economic effects, it is necessary to establish a clear understanding of baseline socio-economic conditions within the geographical areas relevant to the Site. The baseline analysis will focus on the Borough of Warrington, as well as the neighbouring Boroughs of Cheshire East, Cheshire West and Chester, Halton, St Helens and

⁴ Gross Value Added is a measure of the economic value of goods and services produced in an area.

Wigan. Trends in the change over time of key socio-economic indicators will be analysed compared to those for the North West and nationally.

12.5. The socio-economic assessment will detail local socio-economic conditions, including a full analysis of the following issues:

- Employment (economic activity rate and sectoral employment analysis).
- Local labour market (resident employment by occupation, resident earnings and qualifications).
- Commuting patterns.
- Unemployment and worklessness.
- Capacity of social infrastructure (local education and health facilities).
- Deprivation.

12.6. As part of the baseline analysis within the ES Technical Paper, consideration will be given to how the baseline would evolve in the absence of the Proposed Development, albeit recognising the impact of wider macro-economic factors.

12.7. Baseline data for Warrington has been collected across the key indicator groups and is summarised below. Comparable data is currently being collated for the other key local authority areas.

Economic activity

12.8. The number of economically active people aged between 16 and 64 in Warrington stood at 105,300 as at July 2016 to June 2017. This represents 79.8% of the total working age population of Warrington.

12.9. Economic activity rates for Warrington and comparator areas between July 2012 and June 2017 are provided in the following table.

Economic Activity (% of resident population aged 16-64)	Jul 2012- Jun 2013	Jul 2013- Jun 2014	Jul 2014- Jun 2015	Jul 2015- Jun 2016	Jul 2016- Jun 2017
Warrington	82.4%	83.6%	80.8%	80.7%	79.8%
Cheshire and Warrington LEP	80.0%	78.0%	77.6%	78.3%	79.3%
North West	75.3%	74.7%	74.6%	75.8%	76.0%
United Kingdom	76.9%	77.1%	77.4%	77.7%	77.9%

Table 12.1: Economic Activity, source: ONS annual population survey

Employment

12.10. In 2016, total employment in Warrington stood at 133,000. A breakdown of sectoral employment is provided within Table 12.2, showing the absolute employment levels by broad industry group for Warrington, together with the proportion of employment in each industrial group for comparator areas.

Breakdown of sectoral employment (2015)	Warrington Total Employment	Warrington (%)	Cheshire and Warrington LEP (%)	North West (%)	Great Britain (%)
Agriculture, forestry & fishing	30	0.0%	0.3%	1.1%	1.6%
Mining, quarrying & utilities	3,000	2.3%	1.4%	1.3%	1.2%
Manufacturing	8,000	6.0%	9.0%	9.7%	7.9%
Construction	6,000	4.5%	3.8%	4.1%	4.7%
Motor trades	2,500	1.9%	1.8%	1.4%	1.8%
Wholesale	6,000	4.5%	3.2%	3.5%	3.9%
Retail	12,000	9.0%	10.4%	10.4%	9.5%
Transport & storage (inc postal)	9,000	6.8%	5.8%	5.5%	4.8%
Accommodation & food services	9,000	6.8%	8.2%	7.9%	7.4%
Information & communication	5,000	3.8%	3.0%	2.7%	4.1%
Financial & insurance	2,000	1.5%	4.2%	2.9%	3.5%
Property	2,000	1.5%	1.6%	1.7%	1.7%
Professional, scientific & technical	15,000	11.3%	11.4%	8.5%	8.7%
Business admin & support services	21,000	15.8%	9.6%	8.4%	8.8%
Public admin & defence	5,000	3.8%	3.0%	4.3%	4.2%
Education	7,000	5.3%	7.2%	8.7%	8.6%
Health	17,000	12.8%	12.0%	14.1%	13.0%
Arts, entertainment, recreation & other services	4,500	3.4%	4.0%	3.8%	4.6%
TOTAL	133,000	100.0%	100.0%	100.0%	100.0%

Table 12.2: Sectoral employment, source: ONS Business Register and Employment Survey

Occupations

- 12.11. The proportion of resident employment by occupation (2017) is set out in the following table for Warrington and comparator areas.

Occupational level (% of all persons in employment, 2016)	Warrington	Cheshire and Warrington LEP	North West	Great Britain
Managers, directors and senior officials	11.4%	13.7%	9.8%	10.6%
Professional occupations	19.6%	20.0%	18.6%	20.3%
Associate prof & tech occupations	15.6%	16.0%	13.6%	14.1%
Administrative and secretarial occupations	11.8%	10.8%	10.7%	10.3%
Skilled trades occupations	9.4%	10.2%	10.4%	10.4%
Caring, leisure and other service occupations	7.7%	7.1%	10.0%	9.2%
Sales and customer service occupations	8.9%	7.5%	8.5%	7.6%
Process, plant and machine operatives	5.8%	5.6%	7.0%	6.4%
Elementary occupations	9.6%	8.7%	11.2%	10.6%

Table 12.3: Occupational profile, source: ONS annual population profile

Earnings

- 12.12. Median gross weekly earnings between 2015 and 2017 for Warrington and comparator areas are shown in Table 12.4.

Median resident earnings (£ per week)	2015	2015	2017	Change 2015-2017 (%)
Warrington	£542.3	£537.7	£577.6	6.5%
Cheshire and Warrington LEP	£536.6	£545.3	£561.3	4.6%
North West	£491.5	£502.5	£514.5	4.7%
United Kingdom	£527.1	£538.6	£550.4	4.4%

Table 12.4: Earnings, source: ONS annual survey of hours and earnings – resident analysis

Qualifications

- 12.13. The proportion of residents with particular National Vocational Qualification (NVQ) levels in 2016 is shown in the following table for Warrington and comparator areas.

Qualification level (% of resident population aged 16-64)	NVQ4+	NVQ3	NVQ2	NVQ1	Other qualifications	No qualifications
Warrington	37.7%	18.2%	18.7%	11.7%	7.2%	6.6%
Cheshire and Warrington LEP	39.1%	17.3%	21.2%	9.7%	5.4%	7.3%
North West	34.0%	19.7%	19.3%	11.8%	5.7%	9.5%
Great Britain	38.2%	18.7%	17.4%	11.0%	6.6%	8.0%

Table 12.5: Qualifications, source: ONS annual population survey

Commuting Patterns

- 12.14. Origin destination data from the 2011 Census has been used to provide an indication of the likely commuting patterns of people who will work at the Site once the Proposed Development is complete. The Site is located within the Lower Super Output Area (LSOA) Warrington 024A. According to ONS Business Register and Employment Survey data, this area already contains a reasonable amount of employment, including employment in the transport and storage sector. It is therefore considered to represent an appropriate basis against which to reflect potential commuting patterns for future workers.
- 12.15. As of the 2011 Census, around 38% of those working within LSOA 024A live within Warrington. A further 8% live within Wigan, with 7% living in Halton and 6% living within Cheshire West and Chester.
- 12.16. The overall commuting patterns for the LSOA area are shown in Figure 12.1. While this does provide an indication of the commuting in-flows that might be associated with the Proposed Development, it is important to note that it does not reflect any interventions to increase the proportion of local employees working at the Site. Discussions will be held with local partners about how to maximise the potential for local people from within Warrington to access the employment opportunities that will be generated by the Proposed Development.

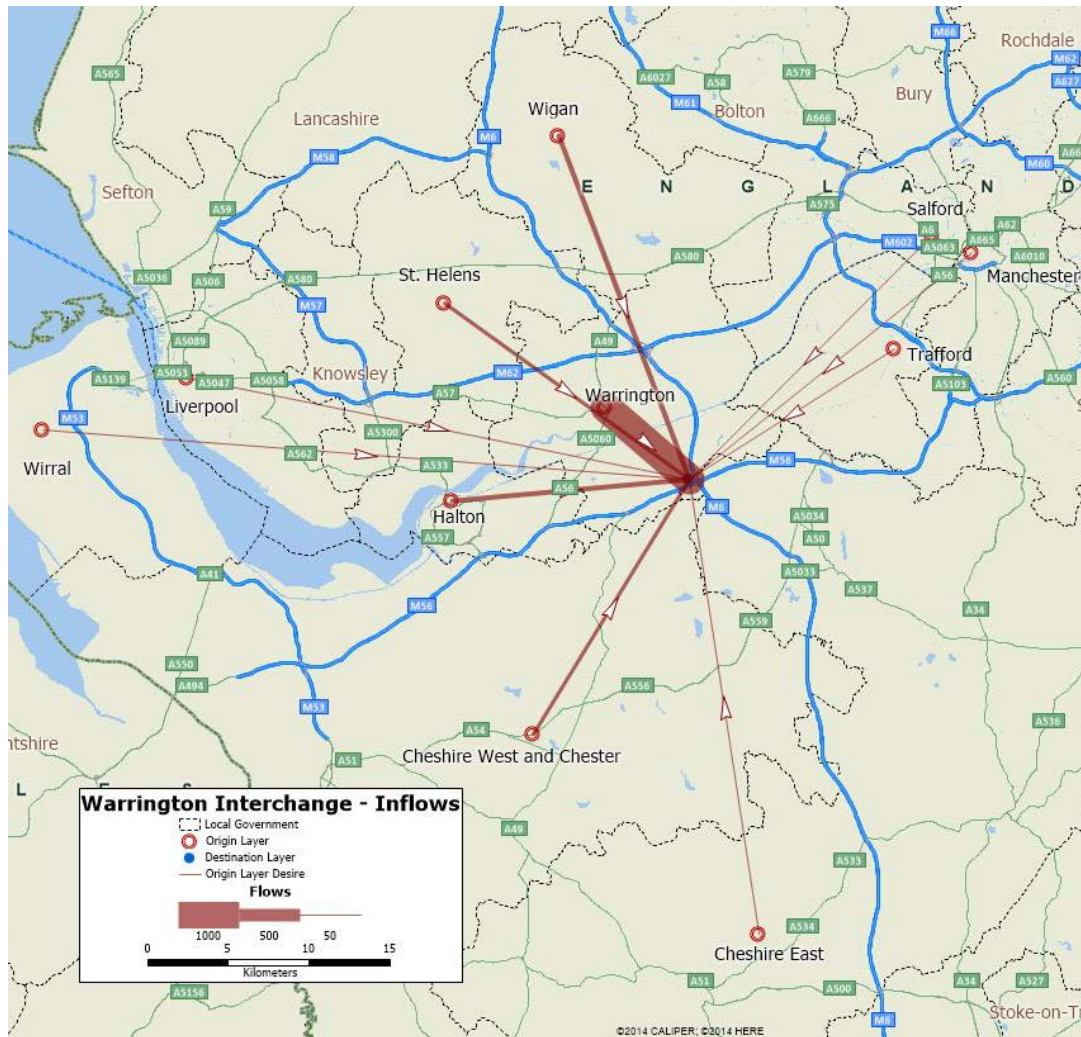


Figure 12.1: Commuting flows, source: ONS Census 2011

Unemployment

12.17. As at October 2017, there were 2,880 out-of-work benefit claimants residing in Warrington (2.2% of the resident population aged 16-64). This represents an increase of 835 claimants since October 2016, although the claimant rate is still below the regional average.

12.18. The claimant rate between October 2014 and October 2017 is shown in the following table for Warrington and comparator areas.

Claimant rate (% of resident population aged 16-64)	Oct 2014	Oct 2015	Oct 2016	Oct 2017
Warrington	2.2%	1.9%	1.6%	2.2%
Cheshire and Warrington LEP	1.6%	1.4%	1.3%	1.6%
North West	2.5%	2.3%	2.3%	2.4%
Great Britain	2.1%	1.8%	1.8%	1.9%

Table 12.6: Claimant rate, source: ONS claimant count

Education (Primary and Secondary schools)

12.19. There are 68 local authority Primary schools located within Warrington. The capacity of these schools to accommodate the increased Primary school age population within Warrington as a result of the scheme will be tested.

12.20. There are 13 local authority Secondary schools located within the Warrington Local Authority District. The capacity of these schools to accommodate the increased Secondary school age population within Warrington as a result of the scheme will be tested.

Health (GP surgeries)

12.21. There are 28 member GP Member Practices within the Warrington Clinical Commissioning Group. The capacity of these Practices to accommodate the increased population residing within Warrington as a result of the scheme will be tested.

Deprivation

12.22. The overall levels of deprivation within Warrington have been assessed using the DCLG's English Indices of Deprivation (2015). As a whole, the Borough of Warrington does not demonstrate particularly high levels of deprivation, with it ranked as 176 out of 326 English local authority districts (a rank of 1 representing the most deprived local authority). However, there are many parts of the Borough that do suffer from high levels of deprivation, as demonstrated by Warrington's rank of 90 in terms of the proportion of LSOAs in the most deprived 10% nationally. There are also particularly high levels of deprivation in other parts of the wider impact area, such as in St Helens.

Policy Context

12.23. As part of the baseline analysis and to inform the assessment of potential socio-economic impacts, a review has been undertaken of the national, regional and local policy context. This has encompassed the following key policy documentation:

- National Planning Policy Framework (The Framework).
- Northern Powerhouse Strategy (2016).
- Cheshire and Warrington Strategic Economic Plan (2017)
- Gateway to the Northern Powerhouse (Cheshire and Warrington Devolution – A Growth Deal Bid Summary (2015).
- Warrington Adopted Core Strategy (2014).
- Warrington Local Plan Preferred Options (2017).
- Warrington’s Economic Growth & Regeneration Programme (Warrington Means Business) (2017).
- Warrington Economic Development Needs Study (2016).

12.24. Within the ES Technical Paper on socio-economics, the Proposed Development’s fit and contribution to national, regional and local policy will be assessed.

Alternatives Considered

12.25. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

12.26. It is anticipated that the Proposed Development will result in a range of potentially significant socio-economic impacts during both the Construction and Operational Phases. These impacts may occur as a direct result of the Proposed Development or indirectly, such as through those employed on the Application Site spending their wages in the local economy.

12.27. The likely socio-economic impacts during the Construction Phase and Operational Phase of the Proposed Development are set out in turn below.

Construction Phase

12.28. The socio-economic assessment will consider the following potential impacts during the Construction Phase:

- Temporary employment generated as a result of the construction works – this will include direct employment associated with site remediation and redevelopment, as well as indirect and induced employment (multiplier effects) from supply chain expenditure and the expenditure in the local economy of workers employed during the Construction Phase.
- Short-term increase in economic output (GVA) – in line with the temporary employment impact, this will again take account of the direct, indirect and induced economic output impact during the Construction Phase.
- Creation of training and apprenticeship opportunities during the Construction Phase.
- Effect on local labour market during the Construction Phase.
- Commuting and migration impacts resulting from the creation of temporary employment opportunities.
- Effects on local facilities and services, specifically schools and healthcare facilities, from the increase in construction workforce.
- Wider socio-economic impacts – this will include those impacts, which although difficult to quantify, are important in understanding the overall socio-economic effect of the Proposed Development. For example, consideration will be given to wider impacts such as image and perceptions of the local area and crime/security.

Operational Phase

12.29. The socio-economic assessment will consider the following potential impacts during the Operational Phase:

- Creation of direct, indirect and induced long-term employment opportunities from the proposed B8 and B2 uses on the Application Site.
- Long-term increase in economic output (GVA) resulting from the direct, indirect and induced impacts of the Proposed Development during the Operational Phase.
- Increase in business rate revenue generated due to the provision of new B8 and B2 floorspace on the Application Site.
- Creation of training and apprenticeship opportunities during the Operational Phase.

- Effect on local labour market, specifically in terms of the employment opportunities generated by the Proposed Development for local residents within Warrington.
- Commuting and migration impacts resulting from the creation of long-term employment opportunities.
- Effect on local facilities and services, such as schools and healthcare facilities, due to the increase in workforce in the local economy.
- Wider socio-economic impacts - consideration will be given to wider impacts such as health and wellbeing, image and perceptions of the local area, crime/security and catalytic regeneration effects.

Methodology for the Environmental Statement

Overall approach

12.30. The assessment of socio-economic impacts will be undertaken using the following methodology:

- A review of the strategic policy context to provide an outline of the relevant national and sub-national / local social and economic objectives of the area.
- Identification of the impact area, in relation to each potential socio-economic impact, for the assessment of the Proposed Development.
- A desktop review of all publicly available information on current socio-economic and labour market conditions in the study area to establish the baseline using accepted Government sources, such as the Census and Office for National Statistics (ONS) data, including the baseline indicator groups and assembled data outlined above.
- Assessment of likely significant socio-economic effects of the Proposed Development during the Construction and Operational Phases, based on sensitivity value of receptor and magnitude of effect.
- Recommendation of mitigation measures where necessary.
- Assessment of significance of residual effects assuming that the mitigation measures are implemented.
- Identification of likely significant additive / cumulative effects with regard to other consented schemes in the local area.
- Consideration of synergistic effects including the in-combination / interaction of socio-economic effects with other ES topic areas.

- 12.31. Qualitative and quantitative assessments will be undertaken using assessment methodologies from published guidance, including the Homes and Communities Agency's (HCA's) Additionality Guide and Employment Densities Guide, and professional judgement.
- 12.32. Key to understating the socio-economic effects of the Proposed Development will be determining its net additional impact or 'additionality'. This is the extent to which activity takes place at all, on a larger scale, earlier or within a specific designated area or target group as a result of the intervention. The approach to assessing the net additional impact of a project is shown diagrammatically in Figure 12.2.

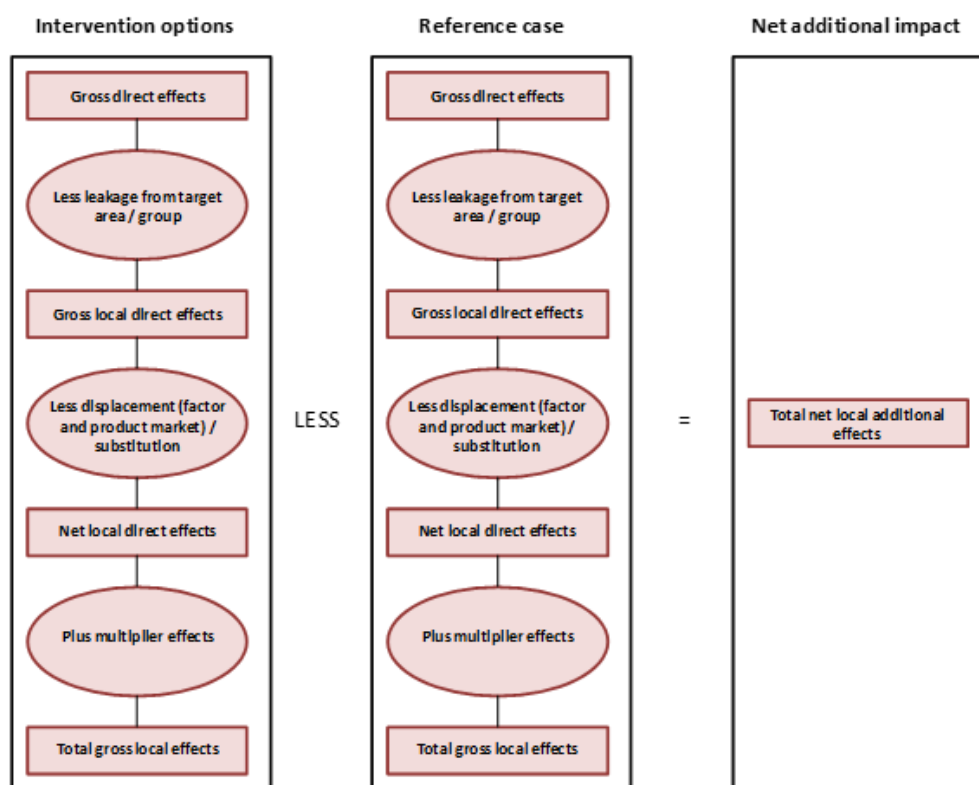


Table 12.2: Approach to calculating net additional impact

- 12.33. In order to assess the additionality of the Proposed Development, the following factors will be considered:
- Leakage – the proportion of outputs that benefit those outside of the area of impact.
 - Displacement – the proportion of outputs accounted for by reduced outputs elsewhere in the area of impact. Displacement may occur in both the factor and product markets.

- Multiplier effects – further economic activity associated with additional local income and local supplier purchases.
- Deadweight – outputs which would have occurred without the Proposed Development. This is referred to as the reference case.

12.34. The above approach to assessing the additional impact of a project is consistent with central Government guidance for physical development projects, including the recently published Appraisal Guide (2016) by the Department for Communities and Local Government (DCLG).

Receptors

12.35. Table 12.7 sets out a definition of the receptor criteria that will be used to inform the significance of effects.

Designation	Receptors
International	<ul style="list-style-type: none"> • The receptor is of international importance • It has Socio-economic value outside of the UK
National	<ul style="list-style-type: none"> • The receptor is of national importance • It is identified as a key priority within national policy
Regional	<ul style="list-style-type: none"> • The receptor is of regional importance • It is identified as a key priority within regional policy
County / sub-region	<ul style="list-style-type: none"> • The receptor is of importance at the county / sub-regional level • It is identified as a key priority within policy for the county / sub-region
Borough/District	<ul style="list-style-type: none"> • The receptor is of importance to the Borough of Warrington • It is identified as a key priority within policy for Warrington
Local/Neighbourhood	<ul style="list-style-type: none"> • The receptor is of importance locally • It is identified as a key priority locally

Table 12.7: Receptors

12.36. Based on the initial identified receptors, the area of impact is expected to principally extend to the Boroughs of Warrington and its constituent wards. The wider area of impact will also incorporate the Boroughs of Cheshire East, Cheshire West and Chester, Halton, St Helens and Wigan, as outlined within Figure 12.2 and at **Appendix 4**.

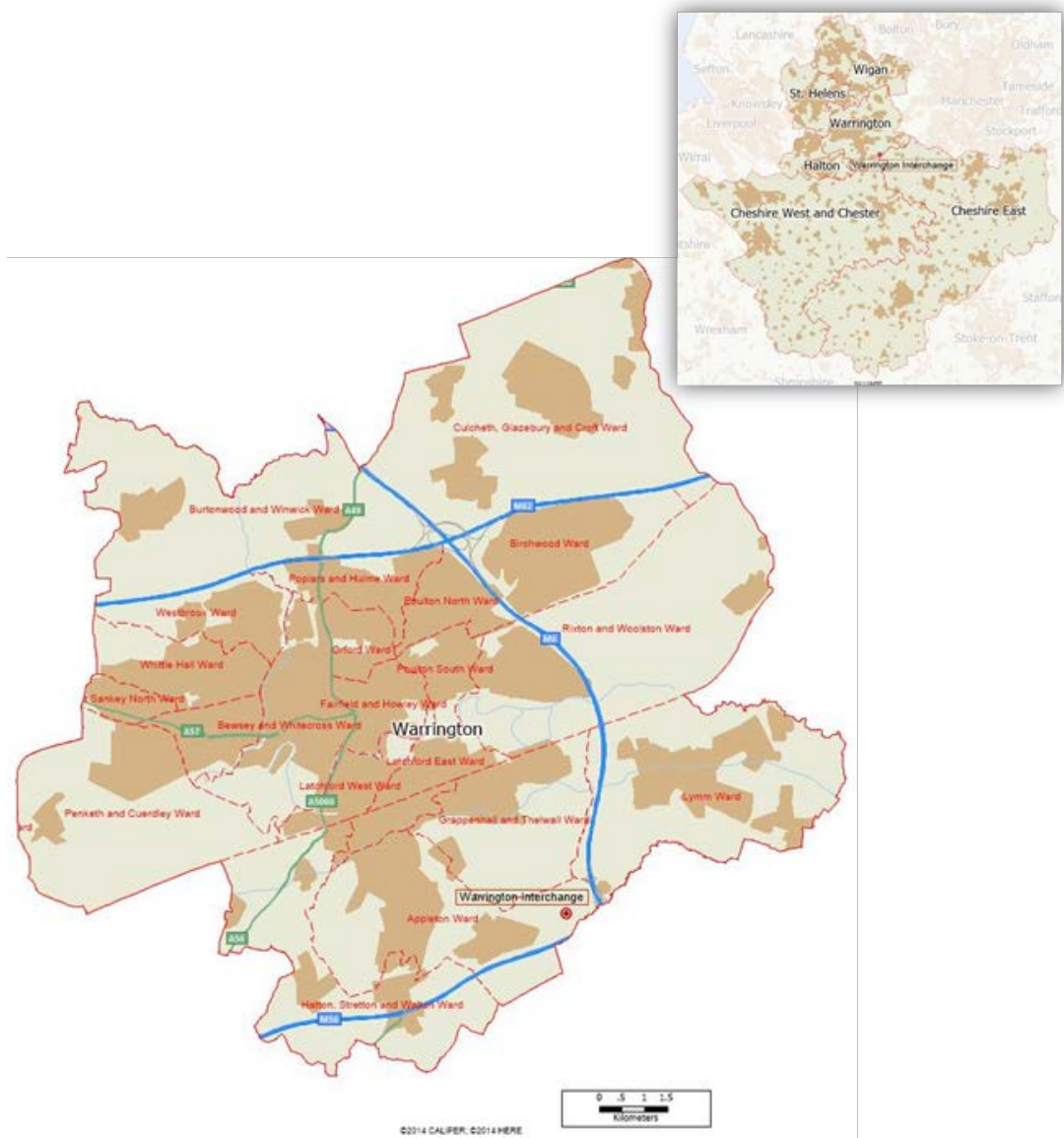


Figure 12.3: Receptor Plan

Environmental Impacts

- 12.37. In relation to socio-economics, there are no published standards against which the predicted impacts of a development can be assessed in terms of defining the magnitude of effect. The approach adopted therefore takes account of the socio-economic profile of the area and industry knowledge of similar projects being brought forward across the sub-region. As set out in Table 12.8, for a number of the socio-economic impacts, thresholds have been identified to categorise the magnitude of effect. For other impacts, such as wider socio-economic effects, it has been necessary to make a more subjective judgement.

Magnitude	Environmental Impact							
	Employment effects	Economic output effects	Business rates revenue	Training & apprenticeship	Effect on local labour market	Commuting & migration impacts	Effect on local facilities and services	Wider socio-economic effects
Substantial	A substantial change in net number of jobs at the county / sub-regional level of more than 1,000 jobs	A substantial change in net economic output at the county / sub-regional level of more than £50m per annum	A substantial change in business rates revenue within Warrington of more than £5m per annum	A substantial change in training and apprenticeship opportunities at the county / sub-regional level of more than 1% of current provision	A substantial change in local labour market conditions, with an impact equivalent to more than 1% of the resident workforce (economically active) in Warrington	A substantial change in net out commuting from within Warrington	Substantial restriction or increase in local facilities or services for a period of at least five years	Substantial wider socio-economic effects within the Borough area for a period of at least five years
High	A high level of change in net number of jobs at the county / sub-regional level of between 500 and 1,000 jobs	A high level of change in net economic output at the county / sub-regional level of between £25m and £50m per annum	A high level of change in business rates revenue within Warrington of between £2.5m and £5m per annum	A high level of change in training and apprenticeship opportunities at the county / sub-regional level of between 0.75% and 1% of current provision	A high level of change in local labour market conditions, with an impact equivalent to between 0.75% and 1% of the resident workforce (economically active) in Warrington	A high level of change in net out commuting from Warrington	High degree of restriction or increase in local facilities or services for a period of at least three years	High occurrence of wider socio-economic effects within the Borough for a period of at least three years

Magnitude	Environmental Impact							
	Employment effects	Economic output effects	Business rates revenue	Training & apprenticeship	Effect on local labour market	Commuting & migration impacts	Effect on local facilities and services	Wider socio-economic effects
Moderate	A moderate change in net number of jobs at the county / sub-regional level of between 100 and 500 jobs	A moderate change in net economic output at the county / sub-regional level of between £5m and £25m per annum	A moderate change in business rates revenue within Warrington of between £1m and £2.5m per annum	A moderate change in training and apprenticeship opportunities at the county / sub-regional level of between 0.5% and 0.75% of current provision	A moderate change in local labour market conditions, with an impact equivalent to between 0.5% and 0.75% of the resident workforce (economically active) in Warrington	A moderate change in net out commuting from within Warrington	A moderate restriction or increase in local facilities or services for a period of at least two years	Moderate wider socio-economic effects within the Borough for a period of at least two years
Minor	A small, but measurable, change in net number of jobs at the county / sub-regional level of less than 100 jobs	A small, but measurable, change in net economic output at the county / sub-regional level of less than £5m per annum	A small, but measurable, change in business rates revenue within Warrington of less than £1m per annum	A small, but measurable, change in training and apprenticeship opportunities at the county / sub-regional level of less than 0.5% of current provision	A small, but measurable change in local labour market conditions, with an impact equivalent to less than 0.5% of the resident workforce (economically active) in Warrington	A small, but measurable, change in net out commuting from within Warrington	A small, but noticeable, restriction or increase in local facilities or services for a period of at least one year	Small, but noticeable, wider socio-economic effects within the Borough for a period of at least one year

Magnitude	Environmental Impact							
	Employment effects	Economic output effects	Business rates revenue	Training & apprenticeship	Effect on local labour market	Commuting & migration impacts	Effect on local facilities and services	Wider socio-economic effects
Negligible	No noticeable change in net number of jobs at the county / sub-regional level	No noticeable change in economic output at the county / sub-regional level	No noticeable change in business rates revenue within Warrington	No noticeable change in training and apprenticeship opportunities at the county / sub-regional level	No noticeable change in local labour market conditions	No noticeable change in net out commuting from within Warrington	Not a noticeable difference in the provision of local facilities or services	No noticeable wider socio-economic effects within the Borough
Neutral	No change in net number of jobs at the county / sub-regional level	No net change in economic output at the county / sub-regional level	No change in business rates revenue within Warrington	No change in training and apprenticeship opportunities at the county / sub-regional level	No change in the local labour market	No change in net out commuting from within Warrington	A neutral effect on the provision of local facilities and services	Neutral wider socio-economic effects within the Borough area

Table 12.8: Environmental Impacts

Impact Prediction Confidence

12.38. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 12.9: Confidence Levels

Significance of Effects

- 12.39. Having determined the nature of the impact, its level of receptor (International to Local) and level of environmental impact (Substantial to Neutral and positive or negative), within the ES Technical Paper on socio-economics a significance matrix will be utilized to determine the significance of effect and a level of confidence assigned (included in Section 2 of this Scoping Request Report).
- 12.40. As part of this Scoping Paper, an initial assessment of the significance of effect has been undertaken for the Construction Phase and Operational Phase. It is important to note, however, that even where the confidence level is identified as 'high', the assessment will be subject to revision as the EIA is developed.

Construction Phase

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Temporary increase in employment	County / sub-region	Moderate Positive	Moderate Benefit	High
Short-term increase in economic output (GVA)	County / sub-region	Moderate Positive	Moderate Benefit	High
Training and apprenticeship opportunities	County / sub-region	Minor Positive	Minor Benefit	Low*
Effects on local services and facilities	Local	Negligible	Negligible	Low**
Wider socio-economic impacts	Borough	Negligible	Negligible	Low***

Table 12.10: Significance of Impact - Construction

*Further work is to be undertaken, in partnership with local stakeholders, to explore the potential for training and apprenticeship opportunities.

**In relation to the effect on local services and facilities during the Construction Phase, further work will be undertaken to determine the potential demand from the construction workforce on local services and facilities. This will also be informed by the Traffic and Transportation assessment in terms of disruption to local services and facilities.

***Further work is to be undertaken in terms of public access and security/crime management methods as part of the EIA

Operational Phase

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Creation of long-term employment opportunities	County / sub-region	Substantial Positive	High Benefit	High
Long-term increases in economic output (GVA)	County / sub-region	Substantial Positive	High Benefit	High
Increase in business rate revenue	Borough	High Positive	Moderate Benefit	High
Training and apprenticeship opportunities	County / sub-region	Minor Positive	Minor Benefit	Low*
Effect on local labour market	Borough	Substantial Positive	Moderate Benefit	High
Commuting and migration impact	Borough	Minor Positive	Minor Benefit	High
Effect on local services and facilities	Local	Negligible	Negligible	Low**
Wider socio-economic impacts	Borough	High Positive	Moderate Benefit	High

Table 12.11: Significance of Impact – Operation

*Further work is to be undertaken, in partnership with local stakeholders, to explore the potential for training and apprenticeship opportunities.

**In relation to the effect on local services and facilities during the Operational Phase, further work will be undertaken to determine the potential demand from the workforce on local services and facilities. This will also be informed by the Traffic and Transportation assessment in terms of disruption to local services and facilities.

Mitigation

- 12.41. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

Additive Impacts (Cumulative Impact and their Effects)

- 12.42. For the purposes of this ES we define the cumulative effects as:

'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.'

- 12.43. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Socio Economic cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 Applicant – HCA	Outline Planning Application for 180 dwellings	Planning permission granted by WMBC 28-09-2017	Expected to generate socio-economic effects, including further job creation through construction expenditure
2	Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant - HCA	Outline Planning Application for 370 dwellings	Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017	Expected to generate socio-economic effects, including further job creation through construction expenditure
3	Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 Applicant - HCA	Outline Planning Application for 400 dwellings	Resolution to grant planning permission by WMBC Development Management	Expected to generate socio-economic effects, including further job creation through construction expenditure
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000m2 logistics development	Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243) Application to be submitted November 2017	Expected to generate socio-economic effects, including further job creation
6	Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY LPA Ref: 2016/28994	Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping. (1,699m2 new build, 180m2 and 265m2 extensions)	Application Approved 17-02-2017 (3 years to implement planning permission)	Expected to generate socio-economic effects, including further job creation

7	Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN LPA Ref: 2015/25255 Morley Estates	Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building)	Application Approved 16-10-2015 (3 years to implement planning permission)	Expected to generate socio-economic effects, including further job creation
8	Former Stretton Airfield, Warrington, WA4 4RG LPA Ref: 2014/2332 Hensmill Property	Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.	Application Approved 23-06-2015 (3 years to implement planning permission)	Expected to generate socio-economic effects, including further job creation

Table 12.12: Cumulative Projects

12.44. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

Further Work Required

12.45. The analysis of baseline information is ongoing and is being expanded to include comparable data for the wider impact area. As part of the ES, a review of the Proposed Development's strategic fit and contribution to national, regional and local policy will also be undertaken.

12.46. A full economic impact model will be developed, informed by the above baseline and contextual analysis, to assess the net additional impact of the Proposed Development, building on initial assessment work already undertaken.

- 12.47. Further work also needs to be carried out to support the assessment of impact on local facilities and services and to explore the potential for training and apprenticeship opportunities. The latter will be informed by discussions with local partners.
- 12.48. A cumulative assessment will be undertaken as part of the ES, encompassing the projects outlined above.
- 12.49. The Socio Economic assessment will need to take into consideration the results and feedback from the proposed consultation process.

Summary

- 12.50. This Scoping Paper has summarised existing baseline data and outlined the potential impacts that will be considered as part of the Socio Economic assessment, including the following:
- New temporary and long-term employment opportunities.
 - Increased economic output (GVA).
 - Increased business rate revenue.
 - Local labour market effects.
 - Effect on local services and facilities.
 - Wider socio-economic impacts.
- 12.51. The Paper has then presented the proposed ES methodology, setting out the framework for assessing the significance of potential effects.
- 12.52. An initial assessment of the significance of effects has been provided, demonstrating that the impacts of the Proposed Development are expected to be largely positive.
- 12.53. Further work will be undertaken as part of the ES, including confirmation of mitigation measures and an assessment of additive (cumulative) impact.
- 12.54. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Socio Economics.

Scoped In

Environmental Issue	Reason for “scoping in”
<p>Socio Economic</p> <p><i>Construction:</i></p> <ul style="list-style-type: none"> • Temporary increase in employment • Short-term increase in economic output (GVA) • Training and apprenticeship opportunities • Effects on local services and facilities • Wider socio-economic impacts <p><i>Operation:</i></p> <ul style="list-style-type: none"> • Creation of long-term employment opportunities • Long-term increases in economic output (GVA) • Increase in business rate revenue • Training and apprenticeship opportunities • Effect on local labour market • Commuting and migration impact • Effect on local services and facilities • Wider socio-economic impacts 	<p>The provision of new B8 and B2 floorspace through the Proposed Development will support the creation of a significant number of new employment opportunities, both during the Construction Phase and Operational Phase. This is expected to lead to further impacts relating to training and apprenticeship opportunities, demand for local services and wider socio-economic impacts, along with potential effects on the local labour market and commuting patterns during the Operational Phase.</p>

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Socio Economic</p> <p><i>Construction:</i></p> <p>Effect on local labour market</p> <p>Commuting and migration impact</p>	<p>Commuting and migration impacts and the effect on the local labour market will be considered in relation to the Operational Phase. However, these impacts have not been considered as part of the Construction Phase, given the temporary and transient nature of construction related employment.</p>

13. Noise and Vibration

Introduction

- 13.1. This Chapter, prepared by Cundall, presents the potential noise and vibration effects of the Proposed Development.
- 13.2. The chapter describes: the measured baseline conditions at the Site and surroundings; the assessment methodology; the anticipated significant environmental effects; and the outline mitigation measures required to prevent, reduce or offset any significant adverse effects.
- 13.3. In order to assess the prevailing levels of environmental noise affecting nearby noise-sensitive receptors to the site, environmental noise surveys have been undertaken at six different locations in August 2017.

Planning Policy Context

- 13.4. The overarching planning policy document which applies to the Proposed Development in respect of noise is the National Planning Policy Framework (the Framework) (March 2012).
- 13.5. The key statements of the Framework relevant to the assessment are:
- 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;
 - Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
 - Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of planning conditions;
 - Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
 - Identify and protect areas of tranquility which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

- 13.6. With specific reference to noise effects, the Framework refers to the Noise Policy Statement for England (NPSE) (2010). The NPSE provides guidance which enables decisions to be made regarding the acceptable noise burden to place on society, using three key phrases – the No Observed Effect Level (NOEL), the Lowest Observed Effect Level (LOAEL) and the Significant Observed Adverse Effect Level (SOAEL).

Relevant British Standards and Guidance

- 13.7. The effects of the Proposed Development upon the existing noise sensitive receptors are to be assessed by reference to the relevant British Standard and relevant guidance as set out in the table below:

Source	Description
BS5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites (BS 5228)	Recommendations for basic methods of noise and vibration control relating to construction sites where work activities may generate significant noise and / or vibration. It also provides guidance on methods of predicting and measuring noise and vibration, and assessing its impact on receptors.
BS8233:2014 Guidance on sound insulation and noise reduction for buildings (BS 8233)	Recommendations for desirable internal and external ambient noise levels in dwellings that should not be exceeded for steady external noise sources.
BS4142:2014 Methods for rating and assessing industrial and commercial sound (BS 4142)	Methods for determining, at the outside of a building, noise levels from industrial and manufacturing premises, fixed installations and other associated activities. The rating method takes into account specific source characteristics, such as tonality, impulsivity and intermittency.
Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 7 Noise and Vibration (DMRB)	Advice on the assessment of noise and vibration impacts due to road traffic. The guidance provides a classification of magnitude of impacts related to changes in road traffic noise levels.
The Department of Transport/Welsh Office Memorandum 'Calculation of Road Traffic Noise' (CRTN)	Describes procedures for traffic noise calculation, and is suitable for environmental assessments of schemes where road traffic noise may have an impact.

Source	Description
British Standard 7385 'Evaluation and Measurement for Vibration in Buildings' (BS 7385).	Presents guide values or limits for transient vibration, above which there is a likelihood of cosmetic damage.
The World Health Organisation 'Guidelines for Community Noise' (WHO 1999).	Provides evidence based research on the effect of environmental noise on communities / residential occupants.

Table 13:1 - Relevant British Standards and Guidance

Consultation with Local Authority

13.8. Cundall are progressing discussions with Warrington Borough Council (WBC) in respect of noise and vibration.

13.9. The following table summarises the initiated consultation to date:

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
Noise assessment methodology	14-11-17	Steve Smith – Principal Officer (Environmental Protection) at Warrington Borough Council	Email	Project summary with proposed site uses. Provided a red line boundary drawing with identified nearest noise sensitive receptors. Proposed a noise assessment methodology for review and confirmation of acceptance.	The proposed assessment methodology has been accepted, with attention being drawn on two additional receptors to the south west of the proposed site, and on assessment of operational noise specifically from the B2/B3 uses of the new development during night-time, which are close to existing receptors.
	23-11-17			Confirmation of the location of the additional noise sensitive receptors was sought.	Their location was clarified.

Table 13:2 - Summary of Consultations and Discussions

Baseline Information

Baseline Noise Survey

- 13.10. In order to assess the prevailing levels of environmental noise affecting noise-sensitive receivers, continuous unattended noise logging measurements have been undertaken at six different locations.
- 13.11. The following subsections provide a summary of the recorded baseline data. Full details of the baseline survey measures (including meteorological data, single figure measurement results, subjective assessments of noise climates etc.) are detailed within the Cundall Baseline Results Survey Report presented in **Appendix 13**.
- 13.12. Table 13:3 below documents the monitoring positions and the corresponding measurement type / period.

Monitoring position	Monitoring location	Measurement duration
MP 1	North-west corner of the site, approximately 3m from the boundary hedge to Grappenhall Lane. Assumed to be representative of the prevailing background noise climate at the Grappenhall Lodge, approximately 45m away.	Unattended measurement undertaken between 16 and 17 August 2017.
MP 2	North boundary of the site, approximately 3m from the boundary hedge to Grappenhall Lane. Assumed to be representative of the prevailing background noise climate at the dwellings on Cartridge Lane, approximately 40m away.	Unattended measurements undertaken between 17 and 18 August 2017.
MP 3*	North-east corner of the site, approximately 3m from the boundary hedge to Cliff Lane. Assumed to be representative of the prevailing background noise climate at Howshoots Farm approximately 16m away.	Unattended measurements undertaken between 24 and 30 August 2017.
MP 4	South-east corner of the site, on the site boundary. Assumed to be representative of the prevailing background noise climate at Tan House Farm on Barleycastle Lane, approximately 150m away.	Unattended measurements undertaken between 24 and 30 August 2017.
MP 5	On the south boundary of the site. Assumed to be representative of the prevailing background noise climate at Barleycastle Farm on Barleycastle Lane, approximately 150m away.	Unattended measurements undertaken between 24 and 30 August 2017.

Monitoring position	Monitoring location	Measurement duration
MP 6*	Near the eastern pond in the centre of the site, on the boundary to Bradley View Cottages.	Unattended measurements undertaken between 24 and 30 August 2017.

*The monitoring position representative of the prevailing background noise climate at Bradley View Cottage is to be identified at the next stage of the acoustic assessment.

Table 13:3 - Monitoring Positions and Measurement Periods

13.13. A figure detailing the approximate location of each unattended measurement position is presented in Figure 13:1 below.

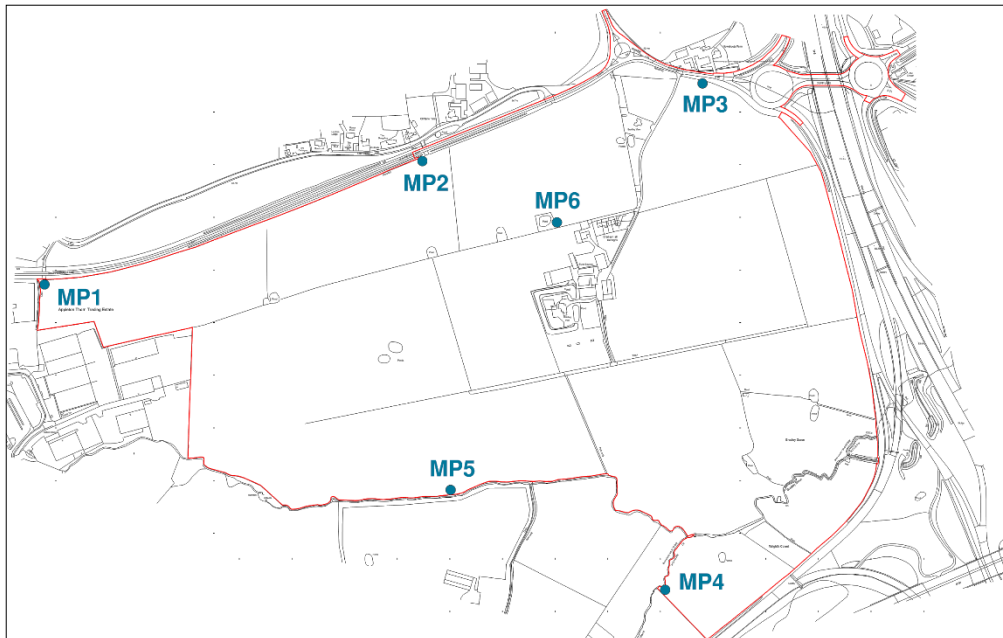


Figure 13:1 - Noise measurement positions mark-up, adapted from "Cliff Lane, Warrington – Red Line Boundary Plan" drawing no. P002 Rev-, issued by Stephen George & Partners LLP in November 2017

13.14. A summary of the average daytime (07:00 – 23:00 hours) and night-time (23:00 – 07:00 hours) ambient noise levels recorded is detailed within Table 13:4. The values are the logarithmically averaged $L_{Aeq,15min}$, the maximum $L_{AFmax,15min}$ and range of $L_{A90,15min}$ dB values measured. All values have been rounded to the nearest integer value (as fractions of a decibel are imperceptible) and are given in dBA.

Period	Location	Average L _{Aeq,15min} (dB)	Highest L _{AF,Max} (dB)	Highest L _{AF10,15min} (dB)	Range L _{AF90,15min} (dB)
Daytime (measurements between 07:00 – 23:00 hours)	MP1	68	106	81	43 – 58
	MP2	66	93	73	46 – 56
	MP3	69	100	82	48 – 68
	MP4	59	89	69	48 – 66
	MP5	56	97	73	40 – 58
	MP6	47	96	72	36 – 47
Night-time (measurements between 23:00 – 07:00 hours)	MP1	65	100	73	46 – 57
	MP2	64	87	73	44 – 54
	MP3	66	96	75	44 – 66
	MP4	59	96	69	47 – 66
	MP5	53	74	60	40 – 59
	MP6	42	65	56	36 – 47

Table 13:4 - Summary of Baseline Monitoring Results

- 13.15. Based on statistical analysis of measured L_{AF90,15min} dB values (see Baseline Results Summary Report in **Appendix I3**), Table 13:5 below presents a summary of assumed representative background levels at each monitoring location during the daytime and night-time:

Period	Location	Average L _{A90,15min} (dB)
Daytime (measurements between 07:00 – 23:00 hours)	MP1	52
	MP2	51
	MP3	59
	MP4	56
	MP5	50
	MP6	38

Period	Location	Average LA90,15min (dB)
Night-time (measurements between 23:00 – 07:00 hours)	MP1	49
	MP2	47
	MP3	57
	MP4	54
	MP5	48
	MP6	37

Table 13-5 - Measured Representative Background Noise Levels

13.16. Committed Developments that will potentially be considered part of the future baseline are detailed in the following Table:

Committed Developments
<p>Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 (HCA)</p>
<p>Land bounded by Green Lane, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 (HCA)</p>
<p>Land South of Astor Drive, East of Lichfield Avenue, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 (HCA)</p>
<p>Land off Barleycastle Lane, Appleton, Warrington LPA Ref: 2017/30243 (Liberty Properties) Note – this development is expected to be submitted imminently and will be assessed as part of a transport sensitivity check. Assuming the applicant provides data in a suitable format the operational road traffic flows will be used to consider the affect of the scheme on the baseline noise conditions at nearby receptors.</p>

Table 13-6 - Summary of Committed Developments

Alternatives Considered

- 13.17. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

- 13.18. There are a number of likely significant noise and related environmental impacts, which will be fully assessed at sensitive receptors. Most of these relate to the impact of noise on existing residential receptors in the locality of the site at both Construction and Operational phases.
- 13.19. It is understood that the developer will seek to avoid the use of piling for buildings within the Proposed Development. However, it is understood that the need for piling (albeit in a limited number of locations) cannot be ruled out at this stage. To this end, it is also necessary to consider the potential vibration impacts associated with any piling activities.
- 13.20. It is not considered that any element of the Operational Phase is likely to result in any significant vibration impacts, as vibration levels from HGVs travelling to / from the Application Site would not be expected to be greater than any impacts from existing HGV movements on the local road network. On this basis, it is proposed that the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.

Construction Phase

- 13.21. Potential noise related environmental impacts which may arise during the Construction Phase are considered to be as follows:
- Noise impacts associated with construction related fixed and mobile plant;
 - Vibration impacts associated with construction related fixed and mobile plant (e.g. piling); and
 - Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles.

Operational Phase

- 13.22. Potential noise related environmental impacts which may arise during the Operational Phase are considered to be as follows:

- Noise impact associated with the “industrial” noise emissions from the Proposed Development based on an 80/20 split between B8/B2 use classes. Examples of anticipated noise generating activities include movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant; and
- Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development.

Methodology for the Environmental Statement

Receptors

- 13.23. Noise-sensitive and vibration-sensitive receptors in proximity to the site which have been taken into consideration in this assessment are detailed in the following table:

Designation	Receptors
International	n/a
National	n/a
Regional	n/a
County	n/a
Borough/District	Receptors adjacent to roads assessed as part of transport assessment will be considered. These may be situated on the wider highway network.
Local/Neighbourhood	Residential receptors at: A. Grappenhall Lodge B. Dwellings on Cartridge Lane: – Southott – Hunters Lodge and Hunters Croft – Manors Farm with The Old Stables – Croftside – The Bungalow – 5 Cartridge Lane – 7 Cartridge Lane C. Bradley View Cottage D. Howshoots Farm E. Tan House Farm F. Barleycastle Farm G. Bradley Hall Cottages H. Beehive Farm I. Booth's Farm

Table 13:7 – Receptors

- 13.24. The approximate location of noise-sensitive receptors highlighted in the above table is presented in Figure 13:2 and **Appendix 13**.



Figure 13:2 - Noise Sensitive Receptors

Environmental Impacts - Construction Phase

Construction Noise

- 13.25. BS 5228 provides practical information on demolition and construction noise and vibration reduction measures, and promotes a 'Best Practice Means' approach to control noise and vibration. The calculation method provided in BS 5228 is based on the numbers and types of equipment operating, their associated Sound Power Levels (SWL), and the distance to receptors, together with the effects of any screening. The types and numbers of construction plant will be based on information presented within the Construction Programme.
- 13.26. There are no current national standards or guidelines that give noise limits for construction sites. However, as a guide, typical daytime levels for noisy temporary works at neighbouring premises usually lie in the range of 70 – 80 dB L_{Aeq} .
- 13.27. It is therefore recommended that the following good practice limits apply to construction noise:

- 70 dB L_{Aeq,T} Monday – Friday; and
- 70 dB L_{Aeq,T} Saturday – Sunday.

13.28. The Magnitude criteria for construction noise have been derived from BS 5228 guidance. A semantic scale for description of the magnitude of construction noise effects is shown in Table 13:8.

Magnitude	Description
Substantial	Daytime noise levels greater than 75 dB L _{Aeq} for a total of more than 10 days in any 15-day period, or for a total of days more than 40 in any 6-month period
High	Daytime noise levels greater than 75 dB L _{Aeq} for a total of less than 10 days in any 15-day period, or for a total of days less than or equal to 40 in any 6-month period
Moderate	Daytime noise levels between 70 and 75 dB L _{Aeq}
Minor	Daytime noise levels between 65 and 70 dB L _{Aeq}
Negligible	Daytime noise levels less than or equal to 65 dB L _{Aeq}
Neutral	Daytime noise levels more than 10 dB below existing background levels

Table 13:8 - Construction Noise Magnitude Criteria

13.29. Construction hours have been set as follows:

- 08:00 – 18:00 hours on Monday to Fridays, and
- 08:00 – 13:00 hours on Saturdays;
- No working on Sundays or Bank Holidays, unless first agreed with the Local Planning Authority.

Construction Traffic Noise

13.30. Construction traffic will be assessed by considering the short-term increase in traffic flows during works, following the principles of CRTN and DMRB.

13.31. The criteria for the assessment of the magnitude of effect of traffic noise changes arising from construction works have been taken from Table 3.1 of DMRB and are provided in Table 13:9.

Description (change in dBA)	Magnitude of Impact
15 dBA or more	Substantial
10 – 14.9 dBA	High
5.0 – 9.9 dBA	Moderate
3.0 – 4.9 dBA	Minor
0.1 – 2.9 dBA	Negligible
0 dBA	Neutral

Table 13:9 - Construction Traffic Noise Magnitude Criteria

Construction Vibration

- 13.32. BS 5228 Part 2 provides further guidance on the perception of vibration resulting from construction activities within occupied buildings. This provides a simple method of determining annoyance alongside evaluation of cosmetic damage associated with vibration.
- 13.33. The table below details potential vibration levels measured in terms of ‘Peak Particle Velocity’ (PPV), and provides a semantic scale for description of construction vibration impacts on human receptors.

Peak Particle Velocity Level	Description	Magnitude of Impact
15 mm/s	Vibration will be intolerable	Substantial
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.	High
1.0 mm/s	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.	Moderate
0.3 mm/s	Vibration might be just perceptible in residential environments.	Minor
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.	Negligible

Peak Particle Velocity Level	Description	Magnitude of Impact
0 mm/s	No vibration perceptible	Neutral

Table 13:10 - Guidance on Effects of Construction Vibration (PPV) Levels

13.34. Construction activities that produce vibration may impact on adjacent buildings. The criteria used in this assessment relate to the potential for cosmetic damage, not structural damage. The principal concern is generally transient vibration due to piling, which at this stage cannot be ruled out as necessary. Cosmetic damage is most likely to occur within the first 20 metres (m) of piling activities; at greater distances damage is less likely to occur. Likely levels of vibration at given distances can be estimated from existing piling vibration data, as provided in BS 5228 Part 2.

13.35. BS 7385 establishes the basic principles for carrying out vibration measurements and processing the data, with regard to evaluating vibration effects on buildings. Recommended PPV vibration limits for transient excitation for different types of buildings are presented in the following table.

Type of building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse ¹	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures	50 mm/s at 4 Hz and above	
Industrial and heavy commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz ²	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above
<p>1 - Values referred to are at the base of the building;</p> <p>2 - At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) should not be exceeded;</p> <p>mm/s – millimetres per second.</p>		

Table 13:11 - Peak Particle Velocity Limits for Cosmetic Damage to Buildings

13.36. Where vibration experienced at structures exceeds the values shown in the table above, this would be considered to be a significant adverse impact.

Environmental Impacts - Operational Phase

Operational Traffic Noise

- 13.37. Operational traffic noise will be assessed by considering the long-term increase in traffic flows following completion of the Proposed Development, following the principles of CRTN and DMRB.
- 13.38. The criteria for the assessment of the magnitude of the impact of traffic noise changes arising from the Proposed Development will be taken from Table 3.2 of DMRB and are provided in Table 13:12.

Description (change in dBA)	Magnitude of Impact
15 dBA or more	Substantial
10 – 14.9 dBA	High
5.0 – 9.9 dBA	Moderate
3.0 – 4.9 dBA	Minor
0.1 – 2.9 dBA	Negligible
0 dBA	Neutral

Table 13:12 - Operational Traffic Noise Magnitude Criteria

- 13.39. In addition to the above, the DMRB states the following:

“In the period following a change in traffic flow, people may report positive or negative benefits when the actual noise changes are as small as 1 dB(A). As this noise change is equivalent to an increase of 25% or a decrease in traffic flow of 20%, this reaction may be partly attributed to an awareness of the changes in traffic rather than noise.”

- 13.40. As such, it is considered that overall flow increase of less than 25% would cause changes in road traffic noise levels of negligible magnitude.

Industrial Noise

- 13.41. Industrial noise emissions will be assessed by in accordance with the methodology set out in BS 4142. This standard provides an assessment methodology and criteria relating to the following industrial noise sources:

- a) sound from industrial and manufacturing processes;
- b) sound from fixed installations which comprise mechanical and electrical plant and equipment;
- c) sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- d) sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

13.42. The proposed criteria for the assessment of the magnitude of impact of industrial noise emissions from the Proposed Development are provided below in Table 13:13 and are based on the relative level difference between the BS 4142 Rating Levels ($L_{Ar,Tr}$) and the representative background sound levels ($L_{A90,T}$).

Description	Magnitude
$L_{Ar,Tr} = L_{A90,T} + 15$	Substantial
$L_{Ar,Tr} = L_{A90,T} + 10$	High
$L_{Ar,Tr} = L_{A90,T} + 5$	Moderate
$L_{Ar,Tr} = L_{A90,T}$	Minor
$L_{Ar,Tr} = L_{A90,T} - 5$	Negligible
$L_{Ar,Tr} = L_{A90,T} - 10$	Neutral

Table 13:13 - BS4142 Noise Management Criteria

Impacts Prediction Confidence

13.43. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.

Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.
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Table 13:14 - Confidence Levels

Significance of Effects

Construction Phase

- 13.44. The following table presents the potential Significance of Effect for noise and vibration impacts identified during the Construction Phase.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Vibration impacts associated with construction works at Application Site	Local	Minor Negative	Minor Adverse	Low ⁽¹⁾
Noise impacts associated with construction works at Application Site	Local	Minor Negative	Minor Adverse	Low ⁽¹⁾
Increase in traffic on approach to Application Site	Local	Negligible	Negligible	Low ⁽²⁾
<u>Notes on Table:</u>				
⁽¹⁾ Confidence level will be increased to 'High' following modelling exercise based on construction programme and indicative plant quantities.				
⁽²⁾ Confidence level will be increased to 'High' following assessment of predicted future construction traffic flows against baseline data values.				

Table 13:15 - Significance of Impact – Construction

Operational Phase

- 13.45. The proposed end uses of the site are B8, B2 and B1(a), which are likely to extend over 24-hour periods.
- 13.46. The following table presents the determined Significance of Effect for noise and vibration impacts identified during the Operational Phase.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
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Vibration impacts associated with Development	Local	Negligible	Negligible	High ⁽¹⁾
Industrial noise impacts associated with Development	Local	Moderate Negative	Minor Adverse	Low ⁽²⁾
Increase in traffic on local road networks	Local	Minor Negative	Minor Adverse	Low ⁽³⁾
<u>Notes on Table</u>				
<p>⁽¹⁾ Due to 'High' confidence level of negligible Significance of Effect, it is proposed to scope out the assessment of operational stage vibration impacts</p> <p>⁽²⁾ Confidence level will be increased to 'High' following model modelling exercise based on additional information on potential industrial noise sources.</p> <p>⁽³⁾ Confidence level will be increased to 'High' following assessment of predicted future 'do-something' traffic flows against baseline 18hr AAWT data values.</p>				

Table 13:16 - Significance of Impact – Operation

Mitigation

- 13.47. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.
- 13.48. A Parameter Plan presented in **Appendix 3** of this report. As the scheme evolves, noise impact at nearby sensitive receptors will be considered and reflected in the orientation of buildings, locations of noise generating uses (loading bays, service yards, services plant) and potential inclusion of perimeter landscape bunding to aid in attenuating noise egress from the site. These mitigation measures will be developed and confirmed in the ES and the Parameters for environmental assessment as required.

Additive Impacts (Cumulative Impact and their Effects)

- 13.49. For the purposes of this ES we define the cumulative effects as:

'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.'

13.50. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Noise and Vibration cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 Applicant - HCA	Outline Planning Application for 180 dwellings	Planning Permission granted by WMBC 28-09-2017	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.
2	Land bounded by Green Lane, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant - HCA	Outline Planning Application for 370 dwellings	Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.
3	Land South of Astor Drive, East of Lichfield Avenue, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 Applicant - HCA	Outline Planning Application for 400 dwelling	Resolution to grant planning permission by WMBC Development Management	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000m ² logistics development	Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243) Application to be submitted November 2017.	Road traffic flows associated with this development are to be considered as a committed development and therefore included within the future baseline. Operational noise associated with the development will be considered in the cumulative assessment.
5	Land to the east of Stretton Road, north of Pepper Street, Stretton Road, Appleton Thorn, Warrington LPA Ref: 2016/29511	Full Planning Application for 78 dwellings	REFUSED by WMBC 29-06-2017	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment.

Table 13:17 - Cumulative Projects

13.51. Both Construction and Operational phases will be considered and the short, medium and long-term impacts assessed.

Further Work Required

13.52. Following planned consultations with Warrington Borough Council (WBC), it will be necessary to determine requirements for the following acoustic assessment elements:

- Confirmation of recommended BS 4142 Rating Level limits to protect existing sound-sensitive receptors from future operational industrial noise impacts.

13.53. The following table sets out the further works required in assessing the Significance of effect for likely significant noise and vibration related environmental impacts.

Phase	Nature of impact	Further assessment works required
Construction Phase	Noise impacts associated with construction works at Application Site	Assessment of noise impacts based on proposed construction programme and construction plant quantities
	Noise and vibration impacts associated with construction works at Application Site	Assessment of noise and vibration impacts based on proposed construction programme and construction plant quantities
	Increase in traffic on approach to Application Site	Assessment of noise based on predicted 18-hour AAWT proposed 'do something' traffic flows for construction traffic
Operational Phase	Industrial noise impacts associated with the Proposed Development	Assessment of noise industrial impacts based on indicative information on potential industrial noise sources e.g. fixed building services plant, services yard activities
	Increase in traffic on local road networks	Assessment of traffic impacts based on predicted 18-hour AAWT proposed 'do something' traffic flows for the Proposed Development

Table 13:18 - Further Assessment Work Required

Summary

- 13.54. This Scoping Paper has documented initial surveyed baseline conditions at nearby receptors and has highlighted the noise and vibration effects which will be addressed in detail as part of the ES. The most likely noise effects identified relate to the “industrial” noise emissions from the site during the operational phase. These have been identified within the design team at an early stage and have led to an indicative masterplan and mitigation strategy which should reduce noise egress from the site. This will continue to be developed as the scheme design progresses as part of the ES assessment.
- 13.55. For Operational Phase vibration impacts, it has been identified that there is a ‘high’ confidence level in the Significant of Effect being negligible. For this reason, it is proposed to scope out the assessment Operational Phase vibration impacts from the environmental assessment.

- 13.56. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Noise and Vibration.

Scoped In

Environmental Issue	Reason for “scoping in”
<p><u>Construction Phase:</u></p> <p>Noise impacts associated with construction related fixed and mobile plant</p> <p>Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles</p> <p>Vibration impacts associated with construction related fixed plant and mobile plant (e.g. piling)</p> <p><u>Operation Phase:</u></p> <p>Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development</p> <p>Noise impact associated with the “industrial” noise emissions from the Proposed Development e.g. movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant.</p>	<p>There is the potential for significant impacts at nearby sensitive receptors</p>

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Noise and Vibration</p> <p><i>Operation Phase:</i></p> <p><i>Operational vibration impacts</i></p>	<p>Based on the nature of operations associated with B2 and B8 uses, as well as the distances involved between the proposed units and sensitive receptors, it is not considered that any element of the typical operational activities undertaken will result in any significant vibration impacts. It is therefore considered that the only potential source of vibration associated with the operational phase of the scheme is additional HGV movements on existing road networks. However, due to existing quantities of HGV movements on the local road network, vibration values attributable</p>

Environmental Issue	Reason for “scoping out”
	<p>to additional HGVs travelling to / from the Application Site would not be considered significant.</p> <p>On this basis, the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.</p>

14. Air Quality, Odour and Dust

Introduction

14.1. RPS has been instructed to undertake the air quality assessment for the Proposed Development.

14.2. The local planning authority, Warrington Metropolitan Borough Council (WMBC), has designated three Air Quality Management Areas (AQMAs) due to high levels of nitrogen dioxide (NO₂) pollution from road traffic. The nearest, AQMA No. 1, is a 50 m continuous strip on both sides of the M6, M62 and M56 Motorway corridors. Approximately 1% of the Proposed Development is within this AQMA.

14.3. The air quality assessment will cover the elements recommended in the National Planning Practice Guidance (NPPG). The approach is consistent with the EPUK/IAQM Land-Use Planning & Development Control: Planning For Air Quality document [⁵], the IAQM Guidance on the assessment of dust from demolition and construction [⁶] and, where relevant, Defra's Local Air Quality Management Technical Guidance: LAQM.TG16 [⁷]. It will include the key elements listed below:

- assessment of the existing air quality in the study area (existing baseline) and prediction of the future air quality without the development in place (future baseline), using official government estimates from Defra, publically available air quality monitoring data for the area, and relevant Air Quality Review and Assessment (R&A) documents;
- a qualitative assessment of likely construction-phase impacts with mitigation and controls in place; and
- a quantitative prediction of the future operational-phase air quality impact with the development in place (with any necessary mitigation), encompassing the

⁵ EPUK/IAQM (January 2017) Land-Use Planning & Development Control: Planning For Air Quality
⁶ IAQM (2014) Guidance on the assessment of dust from demolition and construction
⁷ Defra (2016) Local Air Quality Management Technical Guidance, 2016 (LAQM.TG16)

impacts of the development traffic on the local area including any effects on the AQMAs and at local sensitive receptors

Baseline Information

14.4. A review of local monitoring data has been undertaken to characterize the existing baseline air quality as outlined below. Measured concentrations from both background monitoring locations (away from busy roads) and roadside locations have been considered.

Overview

14.5. The background concentration often represents a large proportion of the total pollution concentration, so it is important that the background concentration selected for the assessment is realistic. National Planning Practice Guidance and EPUK/IAQM guidance highlight public information from Defra and local monitoring studies as potential sources of information on background air quality. LAQM.TG16 recommends that Defra mapped concentration estimates are used to inform background concentrations in air quality modelling and states that: “Where appropriate these data can be supplemented by and compared with local measurements of background, although care should be exercised to ensure that the monitoring site is representative of background air quality”.

14.6. For this assessment, the background air quality has been characterised by drawing on information from the following public sources:

- Defra maps, which show estimated pollutant concentrations across the UK in 1 km grid squares; and
- published results of local authority Review and Assessment (R&A) studies of air quality, including local monitoring and modelling studies.

14.7. A detailed description of how the baseline air quality has been derived is summarised in the following paragraphs.

Review and Assessment Process

14.8. The local planning authority, Warrington Metropolitan Borough Council (WMBC), has designated three Air Quality Management Areas (AQMAs) due to high levels of nitrogen dioxide (NO₂) pollution from road traffic. The nearest, AQMA No. 1, is a 50 m continuous

strip on both sides of the M6, M62 and M56 Motorway corridors. A small part of the Proposed Development is within this AQMA.

14.9. WMBC has implemented a number of actions to improve air quality, primarily through the Local Transport Plan. These include:

- Implementing the ‘Eco Stars Fleet Recognition Scheme’ to target freight and bus/coach operators to encourage improved environmental performance to reduce emissions.
- Encouraging sustainable transport
- Extending the off road cycle network to link up employment areas, encouraging cycling for health and commuting reasons.
- Encouraging the uptake of electric vehicles via the planning process with charging points being required in all new car parks and residential schemes.
- The publishing of a Low Emissions Strategy feasibility (LES) Study in 2016.

Local Urban Background Monitoring

14.10. Monitors at urban background locations measure concentrations away from the local influence of emission sources and are therefore broadly representative of residential areas within large conurbations. Monitoring at local urban background locations is considered an appropriate source of data for the purposes of describing baseline air quality for the Application Site.

14.11. There is one local monitoring station where urban background concentrations are measured using continuous automatic instruments; NO₂, PM₁₀ and PM_{2.5} are measured at the Selby Street urban background location to the west of Warrington town centre. The most recently measured annual-mean concentrations are presented in Table 14.1.

Monitor Name	Approximate Distance to Site (km)	Pollutant	Air Quality Assessment Level (µg.m ⁻³)	Concentration (µg.m ⁻³)				
				2012	2013	2014	2015	2016
Selby Street	7.8	NO ₂	40	26.7	25.6	20.5	24.4	25.0
		PM ₁₀	40	19	18	16	16	16
		PM _{2.5}	25	13	14	14	11	11

Table 14.1 Automatically Monitored Urban Background Annual-Mean Concentrations

- 14.12. In addition WMBC manually monitor NO₂ concentrations at a number of urban background locations using passive diffusion tubes and the measured annual-mean concentrations are presented in Table 14.2.

Monitor Code	Approximate Distance to Site (km)	Concentration (µg.m ⁻³)				
		2011	2012	2013	2014	2015
WA14 Bruche Avenue	5.9	20.9	24.5	24.5	19.1	23.3

Table 14.2 Passively Monitored Urban Background Annual-Mean NO₂ Concentrations

- 14.13. **Defra Mapped Concentration Estimates**
Defra's total annual-mean NO₂ concentration estimates have been collected for the 1 km grid squares of the monitoring sites and the Proposed Development and are summarised in Table 14.3.

Monitor Name	Distance to Site (km)	Concentration (µg.m ⁻³)	
		Range of Monitored	Estimated Defra Mapped
Proposed Development			27.5
Selby Street	7.8	20.5 – 26.7	23.5
WA14 Bruche Avenue	5.9	19.1 – 24.5	21.1

Table 14.3 Defra Mapped Annual-Mean Background NO₂ Concentration Estimates

- 14.14. Similarly, the Defra total annual-mean PM₁₀ and PM_{2.5} concentration estimates have been collected for the grid square of the monitoring sites and the Proposed Development and are summarised in Table 14.4 and Table 14.5.

Monitor Name	Distance to Site (km)	Concentration (µg.m ⁻³)	
		Range of Monitored	Estimated Defra Mapped
Proposed Development			16.9
Selby Street	7.8	16 – 19	15.6

Table 14.4 Defra Mapped Annual-Mean Background PM₁₀ Concentration Estimates

Monitor Name	Distance to Site (km)	Concentration (µg.m ⁻³)	
		Range of Monitored	Estimated Defra Mapped
Proposed Development			11.7
Selby Street	7.8	11 – 14	11.1

Table 14.5 Defra Mapped Annual-Mean Background PM_{2.5} Concentration Estimates

Appropriate Background Concentrations for the Development Site

- 14.15. For NO₂, the Defra mapped background concentration estimates are within the range of the results from monitoring. The background annual-mean NO₂ concentrations at the Site have been derived from the Defra mapped background concentration estimate.
- 14.16. For PM₁₀, the Defra mapped background concentration estimate is below the range of results from monitoring at Selby Street and the use of these data would not be conservative. Monitored annual-mean PM₁₀ concentrations at Selby Street range from 16 to 19 µg.m⁻³. To ensure the assessment is conservative, the background annual-mean PM₁₀ concentration has been derived from the 19 µg.m⁻³ measured in 2011 and 2012.
- 14.17. For PM_{2.5}, the Defra mapped background concentration estimate is at the lower end of the range of results from monitoring at Selby Street and the use of these data would not be conservative. Monitored annual-mean PM_{2.5} concentrations at Selby Street range from 11 to 14 µg.m⁻³. To ensure the assessment is conservative, the background annual-mean PM_{2.5} concentration has been derived from the 14 µg.m⁻³ measured in 2013 and 2014.
- 14.18. Historically the view has been that background traffic-related NO₂ concentrations in the UK would reduce over time, due to the progressive introduction of improved vehicle technologies and increasingly stringent limits on emissions. However, the results of recent monitoring across the UK suggest that background annual-mean NO₂ concentrations have not decreased in line with expectations.
- 14.19. To ensure that the assessment presents conservative results, no reduction in the background has been applied for future years.
- 14.20. Table 14.6 summarises the annual-mean background concentrations for NO₂, PM₁₀ and PM_{2.5} used in this assessment.

Pollutant	Data Source	Concentration (µg.m ⁻³)
NO ₂	Defra (2013)	27.5
PM ₁₀	Selby Street (2011, 2012)	19
PM _{2.5}	Selby Street (2013, 2014)	14

Table 14.6 Summary of Background Annual-Mean Concentrations used in the Assessment

Local Roadside Monitoring

- 14.21. Monitors at roadside locations measure the influence of road traffic emission sources and are therefore broadly representative of areas within 10 metres of the kerbside.
- 14.22. There is one local monitoring location within 3 km of the Site in the neighbouring borough of Cheshire East where roadside NO₂ concentrations are measured using passive diffusion tubes. Intack Farm is located approximately 1.5 km south of the Site and is a similar distance from the M6 Motorway as the Site. The measured annual-mean concentrations are presented in Table 14.7.

Monitor Name	Approximate Distance to Site (km)	Pollutant	Concentration (µg.m ⁻³)			
			2013	2014	2015	2016
CE65 Intack Farm	1.5	NO ₂	38.5	35.1	30.9	34.5

Table 14.7 Automatically Monitored Roadside Annual-Mean Concentrations

The annual-mean NO₂ Air Quality Strategy Objective of 40 µg.m⁻³ has been met for the last four years at the nearest roadside monitoring location.

Future Baseline

- 14.23. Historically the view has been that background traffic-related NO₂ concentrations in the UK would reduce over time, due to the progressive introduction of improved vehicle technologies and increasingly stringent limits on emissions. However, the results of recent monitoring across the UK suggest that background annual-mean NO₂ concentrations have not decreased in line with expectations. Inspection of the results of local monitoring presented here indicates that there has been a slight decrease in concentrations of NO₂, PM₁₀ and PM_{2.5} in the vicinity of the Site.
- 14.24. To ensure that the assessment presents conservative results, no reduction in the background has been applied for future years.
- 14.25. The future baseline will also include emissions from committed developments to the extent that the traffic from the committed developments is included in the traffic data to be modelled. Traffic has been allowed for from three HCA housing development schemes to the west/north-west of the site:
- Land off Pewterspear Green Road – 180 dwellings (application ref 2016/28807);

- Appleton Cross – Mixed use scheme including 370 dwellings (application ref 2017/29930); and,
- Grappenhall Heys – 400 dwellings (application ref 2017/29929).

Alternatives Considered

- 14.26. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

Construction Phase

- 14.27. During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.
- 14.28. The effects of dust are linked to particle size and two main categories are usually considered:
- PM₁₀ particles, up to 10 µm in diameter, remain suspended in the air for long periods and are small enough to be breathed in and so can potentially impact on health; and
 - Dust, generally considered to be particles larger than 10 µm which fall out of the air quite quickly and can soil surfaces (e.g. a car, window sill, laundry). Additionally, dust can potentially have adverse effects on vegetation and fauna at sensitive habitat sites.
- 14.29. Regarding exhaust emissions from construction-related vehicles (contractors' vehicles and Heavy Goods Vehicles (HGVs), diggers, and other diesel-powered vehicles), these are unlikely to have a significant impact on local air quality except for large, long-term construction sites: the EPUK/IAQM Land-Use Planning & Development Control: Planning For Air Quality document indicates that air quality assessments should include developments increasing annual average daily Heavy Duty Vehicle (HDV) traffic flows by more than 25 within or adjacent to an AQMA and more than 100 elsewhere. The HDV numbers are not known at this stage but if the aforementioned EPUK/IAQM thresholds are not exceeded for any individual road during

the construction phase of this project then the construction-vehicle exhaust emissions will not be assessed specifically.

Operational Phase

- 14.30. 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 main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO_x) and particulate matter (PM₁₀). Emissions of total NO_x from combustion sources comprise nitric oxide (NO) and NO₂. The NO oxidises in the atmosphere to form NO₂. The assessment of operational impacts will therefore focus on changes in NO₂ and PM₁₀ concentrations. The impact from fine particulate matter, known as PM_{2.5} (a subset of PM₁₀) concentrations will also be considered. Increases in NO₂ and PM can lead to an increase in cardiovascular diseases.
- 14.31. The Proposed Development will not introduce any sources of odour so an odour assessment has been scoped out.

Methodology for the Environmental Statement

- 14.32. For the construction phase, a risk assessment of dust and emissions during demolition / construction of the Proposed Development, having regard to the Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction' will be undertaken.
- 14.33. For the operational phase, modelling of NO₂, PM₁₀ and PM_{2.5} from traffic emissions will be undertaken using the ADMS-Roads dispersion model. Two scenarios will be modelled; with and without the Proposed Development in the first year the development is expected to be fully operational. The model will be verified using local monitoring data. The split between B2 and B8 uses is unknown so a worst case traffic data will be modelled to ensure that the air quality assessment is conservative.

Receptors

- 14.34. For the construction-phase risk assessment, the IAQM dust guidance sets out 350 m as the distance from the site boundary and 50 m from the site traffic route(s) up to 500 m of the entrance, within which there could potentially be nuisance dust and PM₁₀ effects on human

receptors. Receptors within these distances will be identified and their sensitivity will be established with reference to the principles set out in the IAQM dust guidance.

- 14.35. For the operational phase, using the threshold criteria for determining when an assessment is required set out in the EPUK/IAQM guidance, the extent of the study area for the assessment will be determined by the local road network on which annual average daily light duty vehicle flows are expected to increase by more than 500 and annual average daily heavy duty vehicle flows are expected to increase by more than 100 outside an AQMA and by 100 light duty vehicles or 25 heavy duty vehicles within an AQMA. Receptors will be selected in locations within the study area where concentrations are already high and/or where concentrations are expected to change most as a consequence of the development. All human-health receptors are considered to be high sensitivity receptors in the context of air pollution.

Designation	Receptors
International	None
National	None
Regional	None
County	None
Borough/District	Areas where the public is regularly present and likely to be exposed over the averaging period of the objective.
Local/Neighbourhood	Areas where the public is regularly present and likely to be exposed over the averaging period of the objective.

Table 14.8 Receptors

- 14.36. Sensitive receptors for the assessment have been selected at representative properties where pollutant concentrations and/or changes in pollutant concentrations are anticipated to be greatest and are shown in the map below and also **Appendix 4**.

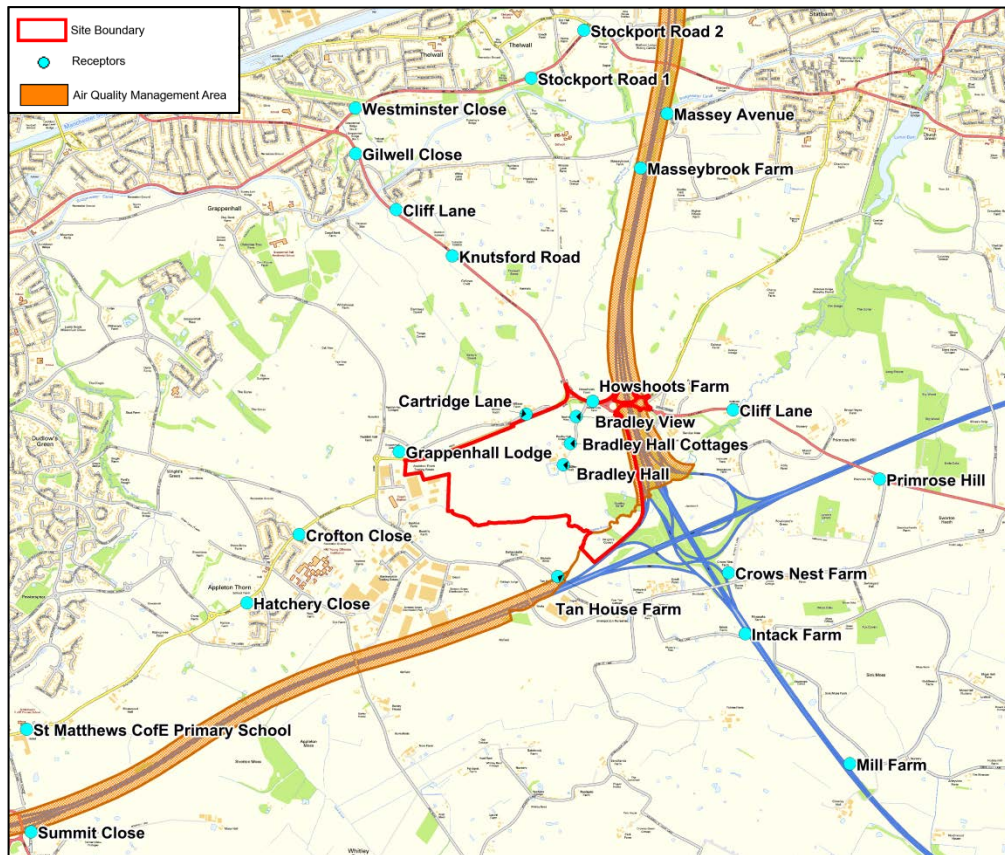


Figure 14.3 Air Quality - Receptor Plan

Receptor ID	Receptor Name	x	Y
1	Intack Farm	367001	383414
2	Massey Avenue	366476	386920
3	Masseybrook Farm	366297	386553
4	Howshoots Farm	365973	384981
5	Cartridge Lane	365525	384892
6	Stockport Road 1	365559	387158
7	Stockport Road 2	365913	387481
8	Cliff Lane	366919	384923
9	Primrose Hill	367908	384455
10	Tan House Farm	365738	383800
11	Crows Nest Farm	366888	383825
12	Mill Farm	367706	382537
13	Grappenhall Lodge	364669	384641
14	Crofton Close	363994	384082

Receptor ID	Receptor Name	x	Y
15	Hatchery Close	363643	383622
16	St Matthews CofE Primary School	362159	382770
17	Knutsford Road	365028	385960
18	Cliff Lane	364649	386272
19	Gilwell Close	364376	386650
20	Westminster Close	364374	386957
21	Summit Close	362189	382078
22	Bradley View	365862	384877
23	Bradley Hall Cottages	365824	384695
24	Bradley Hall	365775	384551

Table 14.9 Sensitive Receptors

Environmental Impacts

Construction Phase

- 14.37. The IAQM dust guidance will be used to estimate the impacts of both PM₁₀ and dust through a risk-based assessment procedure. The IAQM dust guidance document states: *“The impacts depend on the mitigation measures adopted. Therefore the emphasis in this document is on classifying the risk of dust impacts from a site, which will then allow mitigation measures commensurate with that risk to be identified.”*
- 14.38. The IAQM dust guidance provides a methodological framework, but notes that professional judgement is required to assess effects: *“This is necessary, because the diverse range of projects that are likely to be subject to dust impact assessment means that it is not possible to be prescriptive as to how to assess the impacts. Also a wide range of factors affect the amount of dust that may arise, and these are not readily quantified.”*
- 14.39. Consistent with the recommendations in the IAQM dust guidance, a risk-based assessment will be undertaken for the development, using the well-established source-pathway-receptor approach:
- The dust impact (the change in dust levels attributable to the development activity) at a particular receptor will depend on the magnitude of the dust source and the effectiveness of the pathway (i.e. the route through the air) from source to receptor.
 - The effects of the dust are the results of these changes in dust levels on the exposed receptors, for example annoyance or adverse health effects. The

effect experienced for a given exposure depends on the sensitivity of the particular receptor to dust. An assessment of the overall dust effect for the area as a whole will be made using professional judgement taking into account both the change in dust levels (as indicated by the Dust Impact Risk for individual receptors) and the absolute dust levels, together with the sensitivities of local receptors and other relevant factors for the area.

Operational Phase

14.40. The severity of the environmental impacts will be described using the EPUK/IAQM Land-Use Planning & Development Control: Planning For Air Quality document which 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.”

14.41. When describing the air quality impact at a sensitive receptor, the change in magnitude of the concentration will be considered in the context of the absolute concentration at the sensitive receptor. Table 14.10 provides the EPUK/IAQM approach for describing the human-health air quality impacts at sensitive receptors. The impact descriptors have been changed from “Slight” to “Minor” to fit in with the common methodology.

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	Minor	Moderate
76 -94 % of AQAL	Negligible	Minor	Moderate	Moderate

95 - 102 % of AQAL	Minor	Moderate	Moderate	Substantial
103 – 109 % of AQAL	Moderate	Moderate	Substantial	Substantial
110 % or more than AQAL	Moderate	Substantial	Substantial	Substantial

Table 14.10 Impact Descriptors for Individual Sensitive Receptors

1. AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency 'Environmental Assessment Level (EAL)'.
2. The table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which then makes it clearer which cell the impact falls within. The user is encouraged to treat the numbers with recognition of their likely accuracy and not assume a false level of precision. Changes of 0%, i.e. less than 0.5% will be described as negligible.
3. The table is only designed to be used with annual mean concentrations.
4. Descriptors for individual receptors only; the overall significance is determined using professional judgement. For example, a 'moderate' adverse impact at one receptor may not mean that the overall impact has a significant effect. Other factors need to be considered.
5. When defining the concentration as a percentage of the AQAL, use the 'without scheme' concentration where there is a decrease in pollutant concentration and the 'with scheme;' concentration for an increase.
6. The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e. well below, the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL.
7. It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it.

Impact Prediction Confidence

14.42. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 14.11 Confidence Levels

Significance of Effects

Construction Phase

- 14.43. The dust risk categories that will be determined for each of the four activities (demolition, earthworks, construction and trackout) will be used to define the appropriate site-specific mitigation measures based on those described in the IAQM dust guidance. The guidance states that provided the mitigation measures are successfully implemented, the resultant effects of the dust exposure will normally be “not significant”.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Increase of suspended dust and dust soiling	Local (within 350 m)	The dust impact risk (low, medium or high) will be determined for the site as a whole and for each activity (demotion, earthworks, construction and trackout). Providing the recommended mitigation measures are in place the impact will be ‘negligible’.	Providing the recommended mitigation measures are in place the impact will be ‘negligible’ and the effect will be not significant.	High

Table 14.12 Significance of Impact - Construction

Operational Phase

- 14.44. The human-health impact descriptors in Table 14.10 apply at individual receptors. The EPUK/IAQM guidance states “*In those circumstances where a single development can be judged in isolation, it is likely that a ‘moderate’ or ‘substantial’ impact will give rise to a significant effect and a ‘negligible’ or ‘slight’ impact will not have a significant effect*”. However it also 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.*”
- 14.45. 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.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Changes in NO ₂ , PM ₁₀ and PM _{2.5} due to changes in traffic	Local and Borough/District (within 200 m of roads affected by development)	The impact descriptor at each sensitive receptor will be categorized based on the criteria in Table 14.10.	Likely to be 'not significant' if the majority of impact descriptors are 'negligible' or 'minor'. Likely to be 'significant' if the majority of impact descriptors are 'moderate' or 'substantial'	Low*

Table 14.13 Significance of Impact – Operation

*The confidence level will increase to high once modelling of traffic-related emissions has been undertaken.

Mitigation

- 14.46. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.
- 14.47. For the construction phase, measures for the mitigation of dust will be based on the dust risk categories. Site-specific mitigation measures will be recommended based on those described in the IAQM dust guidance. The guidance states that provided the mitigation measures are successfully implemented, the resultant effects of the dust exposure will normally be “*not significant*”.

Additive Impacts (Cumulative Impact and their Effects)

- 14.48. For the purposes of this ES we define the cumulative effects as:
- ‘Those that result from additive impacts (cumulative) caused by other past, present or reasonably foreseeable actions together with the project itself.’**
- 14.49. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report.
- 14.50. For the construction phase, the IAQM guidance considers the effect of dust up to 350 m from the site boundary. Therefore other developments more than 700 m from the Site boundary

are not considered to affect the Proposed Development. However should there be a development within 700 m of the site boundary providing that the appropriate mitigation measures are implemented for both developments then the cumulative effects should be 'not significant'.

14.51. For the operational phase, 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 traffic data for the assessment. Developments to be included in the traffic data are shown in Table 14.14

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment	To be considered in CIA (Yes/No)
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 Applicant - HCA	Outline Planning Application for 180 dwellings.	Planning permission granted by WMBC 28-09-2017	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment	No
2	Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant - HCA	Outline Planning Application for 370 dwellings	Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment	No

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment	To be considered in CIA (Yes/No)
3	Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 Applicant - HCA	Outline Planning Application for 400 dwellings	Resolution to grant planning permission by WMBC Development Management Committee	This is a committed development and therefore included within the future baseline. It does not therefore need reconsidering in the cumulative assessment	No
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000 m ² logistics development	Pre-application discussions with WMBC Scoping Request (LPA Ref: 2017/30243 Application to be submitted November 2017	This will be included as a sensitivity text and therefore not included in the cumulative assessment. This approach is the same as the Traffic and Transportation Paper.	No

Table 14.14 Developments to be included in Traffic Data

Further Work Required

- 14.52. Detailed dispersion modelling of NO₂, PM₁₀ and PM_{2.5} will be undertaken once the final traffic data is available. This will determine the impact of the development on the surrounding area. Where significant adverse effects are predicted, suitable mitigation measures will be recommended.
- 14.53. A construction dust assessment will be undertaken to determine the appropriate level of mitigation measures.

Summary

- 14.54. The air quality chapter of the ES will include an assessment of dust from construction and recommend the appropriate level of mitigation to minimize the effect so that it is “not significant”.

- 14.55. The HDV numbers during the construction phase are not known at this stage but if the aforementioned EPUK/IAQM thresholds are not exceeded for any individual road during the construction phase of this project then the construction-vehicle exhaust emissions will not be assessed specifically.
- 14.56. For the operational phase detailed dispersion modelling will be undertaken to determine the effect of the development on the surrounding area. Should significant adverse effects be predicted, suitable mitigation measures will be recommended.
- 14.57. The development does not include any centralized combustion sources so an assessment of emissions from combustion sources has been scoped out. Similarly there are no proposed odour sources so an odour assessment is scoped out.
- 14.58. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Air Quality, Odour and Dust.

Scoped In

Environmental Issue	Reason for “scoping in”
<p>Air Quality, Odour and Dust</p> <p><i>Construction:</i></p> <p><i>Dust</i></p> <p><i>Changes in NO₂, PM₁₀ and PM_{2.5} due to construction traffic if HDV numbers exceed EPUK/IAQM thresholds</i></p> <p><i>Operation:</i></p> <p><i>Changes in NO₂, PM₁₀ and PM_{2.5} due to changes in operational traffic</i></p>	<p><i>During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.</i></p> <p><i>The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. The main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO_x) and particulate matter (PM₁₀). Emissions of total NO_x from combustion sources comprise nitric oxide (NO) and NO₂. The NO oxidises in the atmosphere to form NO₂. The assessment of operational impacts will therefore focus on changes in NO₂ and PM₁₀ concentrations. The impact from fine particulate matter, known as PM_{2.5} (a subset of PM₁₀) concentrations will also be considered. Increases</i></p>

Environmental Issue	Reason for “scoping in”
	<i>in NO₂ and PM can lead to an increase in cardiovascular diseases.</i>

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Air Quality, Odour and Dust</p> <p><i>Construction:</i> Changes in NO₂, PM₁₀ and PM_{2.5} due to construction traffic if HDV numbers do not exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i> Odour Dust</p>	<p>Unlikely to have a significant impact if below the threshold.</p> <p>There are no proposed sources of odour or dust during the operational phase.</p>

15. Cultural Heritage and Archaeology

Introduction

- 15.1. BWB Consulting will be producing the Cultural Heritage ES Technical Paper. This will initially establish the baseline position with regard to archaeology, historic landscape and built heritage. This information and assessment undertaken to inform this will establish the framework from which to assess the effect from the proposed development on the cultural heritage resource.
- 15.2. To inform the baseline section of the Technical Paper a data search has been obtained from the Cheshire Historic Environment Record (HER). In addition to this, supplementary information including aerial photographs will be assessed to provide further information on the cultural heritage resource and the extent to which this has been affected by 19th and 20th century development within the Site and the wider study area. This will be supplemented by a site visit which will assess any assets identified, the landscape within which they sit and will establish how the landscape setting contributes to the significance of the identified assets.
- 15.3. The search area for the HER searches comprises a 1km buffer around the Site to identify all designated and non-designated assets within the Proposed Development. All of the receptors identified will be assessed to establish the current baseline conditions.
- 15.4. The following depositories have been consulted during the establishment of the updated baseline position including:
- The Cheshire Historic Environments Record; and
 - The Cheshire Archives and Local Studies Library.
- 15.5. During the course of the preparation of the Cultural Heritage and Archaeology ES Technical Paper, the following statutory consultees will be consulted:
- The Development Control Archaeologist for Cheshire (Mr. Mark Leah); and
 - Historic England's Principal Inspector of Ancient Monument (Mr. Andrew Davison).

Baseline Information

- 15.6. The baseline assessment has been undertaken in accordance with section 12 of the NPPF 'Conserving and enhancing the historic environment' and the Standard and Guidance for Historic Environment Desk-Based Assessment published by the Chartered Institute for Archaeologists (CIfA 2014). The principles set out in Warrington's Borough Council Local Plan Core Strategy (adopted July 2014) has also been taken into account. The following outlines the policy on the Historic Environment.

Policy QE 8

The Council will ensure that the fabric and setting of heritage assets, as set out below, are appropriately protected and enhanced in accordance with the principles set out in National Planning Policy.

- *Scheduled Monuments;*
- *Listed Buildings;*
- *Conservation Areas;*
- *Areas of known or potential Archaeological Interest;*
- *Locally Listed Heritage Assets.*

The Council and its partners will aim to recognise the significance and value of historic assets by identifying their positive influence on the character of the environment and an area's sense of place; their ability to contribute to economic activity and act as a catalyst for regeneration; and their ability to inspire the design of new development.

Heritage Assets such as buildings, structures and sites which are valued as good examples of local architectural styles or for their historic associations, are included on a local list produced by the Council. The buildings, structures and sites included on this list are detailed in Appendix 4.

To be included on the local list, an asset should be substantially unaltered and retain the majority of its original features and either:

- 1. be a good example of a particular local asset type, craftsmanship, architectural quality, style or detailing, or*
- 2. display physical evidence of periods of local economic, technical or social significance, well-known local people or historic events*

Development proposals which affect the character and setting of all heritage assets will be required to provide supporting information proportionate to the designation of the asset which;

- *adopts a strong vision of what could be achieved which is rooted in an understanding of the asset's significance and value, including its setting;*
- *avoids the unnecessary loss of and any decay to the historic fabric which once lost cannot be restored;*
- *recognises and enhances the asset's contribution to the special qualities, local distinctiveness and unique physical aspects of the area;*
- *fully accords with the design principles outlined elsewhere within the Local Planning Framework;*
- *includes suitable mitigation measures, including an appropriate desk-based assessment and where necessary field evaluation and publication, for areas with known or potential archaeological interest;*
- *ensures the knowledge and understanding of the historic environment is available for this and future generations. The evidence arising from any investigations should be publicly accessible through the Historic Environment Record and the local museum.*

Applications for new development will also be required to take all reasonable steps to retain and incorporate non-statutorily protected heritage assets contributing to the quality of the borough's broader historic environment.

15.7. The baseline assessment examined the available sources to assess the heritage potential within the Proposed Development. The assessment identified three heritage receptors within the application area including Bradley Hall Moat (**550/1**) which is designated as a scheduled monument (**1011924**), the site of a medieval cross (**551**) and a Roman road (**547/1/7**). The road traverses the site in a northeast and southwest direction. These assets are listed in Table 15.1 below, identified on Figure 15.1 and included in Appendix 4.

HER ID Ref	Name	Designation
547/1/7	The North Cheshire Ridge Roman Road Section of Roman road	
550/1/ 1011924	Bradley Hall Medieval moated site	Scheduled
551	Bradley Cross Site of medieval cross	

Table 15.1: Receptors identified within the Proposed Development Area

- 15.8. A number of heritage assets lie either within close proximity to the Proposed Development including Reddish Hall Medieval moat (**615**) and a post-medieval farm complex (**549/1**). A number of other assets were recorded further afield which are identified on Figure 15.1 and included in Appendix 4. Included within these are:
- five grade II listed buildings;
 - one grade II* listed building;
 - Five locally listed buildings; and
 - 21 heritage assets recorded on the Cheshire HER database.
- 15.9. There are no World Heritage sites, Registered Battlefields, Conservation Areas or Registered Historic Parks and Gardens within the 1km study area shown on Figure 15.1.
- 15.10. These receptors have either been recorded through aerial photographs, evaluation/ mitigation or through chance discoveries.
- 15.11. Only those receptors which contribute to the understanding of the historical and archaeological background of the site and its wider area are detailed in this section of the Scoping Report. These receptors are shown on Figure 15.1 included in Appendix 4 and are highlighted in bold in the chronological summary that follows.

Prehistoric Period

- 15.12. Concentrations of Neolithic and Bronze Age finds including stone and metal axes have been found to the south of Warrington and the River Mersey. Several Bronze Age burial sites have also been identified in the wider landscape, again following the pattern of distribution of the sporadic finds, to the north and south of the Mersey. Little settlement evidence has been identified although timber piles along the banks of the Mersey has led to the suggestion that there were lakeside settlements, perhaps of Iron Age date but this remains to be proven. Within the search area there is a single find spot of a prehistoric axe (**2734**) which is located to south-east of the Site.
- 15.13. Hinchliffe's 1974-6 excavations at Lousher's Lane 3.7km to the northwest revealed a small pit, which was apparently of pre-Roman date and contained a sherd of coarse, gritty pottery, which was possibly Iron Age. These excavations also revealed residual flintwork in a number of Romano-British features (Hinchliffe and Williams 1992, 100).

- 15.14. There is little evidence for Iron Age settlement, occupation and agricultural activity within the study area. There is a single possible enclosure located within the search area at Badger's Croft Farm (2908). The feature is undated so it could potential be later in date.

Romano British Period

- 15.15. The fortress of Deva (Chester) was established by the Romans between AD 75 and 80 to control North Wales and North West England. The advance of the Roman Area across Cheshire would have used the lowest bridging point on the Mersey at Warrington. Roman Roads are known within Warrington itself. A Roman road was also constructed to the south of Warrington, along the red sandstone escarpment, connecting the fort at Manchester to the Legionary fortress of Chester. This may have reused an earlier route along the ridgeline (547/1/0, 547/1/13, 547/1/17 and 547/1/8) part of which runs through the site in an east west direction above the Bradley Hall Moated Site (DCH159). Analysis of aerial photographs taken between 1945 and 1948 infer the presence of some quarry pits/ roadside ditches along the section which traverses the site. Later aerial photograph taken in the 1970s show similar features towards the western part of the site.
- 15.16. There is substantial evidence of Roman activity in the Warrington area. A large settlement, existed at Wilderspool, which was a large industrial complex, producing metals, glass and pottery. The River Mersey would have been used to transport bulky items to and from the fort at Manchester and via the River Dee, to the fort at Chester.
- 15.17. East of Lumb Brook, adjacent to Lousher's Lane, excavations have revealed enclosures and timber framed buildings as well as a round house, indicating Romano – British occupation of a former Iron-Age farm. Roman arable farming activities would have been generally confined to the lighter soils of the Red Sandstone Escarpment. Roman ploughs, while more efficient than their predecessors, were probably not capable of tackling the heavier clay soils. At the close of the Roman era, much of the woodland clearance of the area had probably been accomplished and was therefore generally being farmed. There are no villas discovered within the Warrington area, but there is evidence of a number of small, unenclosed farmsteads.

The Anglo - Saxon Period

- 15.18. The frontier between the Kingdom of Northumbria and the Kingdom of Mercia is believed to be the River Mersey. Numerous raids and attacks on each other's territories probably used the bridge at Warrington and the upstream fords as the frontier crossings. Evidence of Saxon activity within the Warrington area is well documented. At Southworth Farm, located to the north of Warrington, there is a cemetery of over 800 burials, focused on a Bronze Age burial mound, but arranged in such a way as to suggest a building amongst them. Given the orientation of the graves, it is likely that they were Christian burials. The nearby Winwick Church is Saxon in origin and may well have been a Saxon Minster of considerable local importance.
- 15.19. Later in the period Viking raids are thought to have passed via the Mersey. The Danish occupation of York and effective takeover of the Northumbrian kingdom meant that the Mersey frontier again became important. Various skirmishes are documented throughout this period and as a result, Aethelflaed established a series of defensive 'burghs' along the south side of the Mersey, including Runcorn in 915 and Thelwall in 919. These burghs proved highly effective in preventing Viking incursions. It is believed that during the Saxon period woodland clearance was well advanced with larger areas of land under cultivation. Much of the Saxon landscape is revealed in the Domesday Book entries for the Warrington area, which although post-Conquest, details previous lords and their lands.

Medieval Period

- 15.20. Extensive woodland clearance had taken place during this period and the clearances were carried out in a more organised way than previously. Many villages creating clearing in woodlands for fields. Medieval 'townfields' can still be traced in the landscape, particularly those around Thelwall Heys, as well as those on either side of 'The Gorse' south of Grappenhall Heys 'Ancient Field Systems', those fields enclosed prior to 1600 AD, include several former townfields.
- 15.21. A large number of moated sites were built during the 12th and 13th centuries. These are found in the areas which have clay soils, over parts of the Red Sandstone Escarpment. Several are located within the study area including Reddish Hall (615) and Bradley Hall (550/1) located within the site. Associated with some of the larger halls were a number of deer parks.
- 15.22. The Domesday reference to Warrington demonstrates that there was a settlement on the north bank of the river by the time of the Norman Conquest. At this time Warrington was

the focus of Warrington Hundred, which included the parishes of Warrington, Prescot and Leigh, as well as a number of outlying manors. St Elphin's church had also been constructed by the time of the Domesday Survey. Within the search areas there are additional medieval sites such as the medieval cross (551), and the site of the King's Brook watermill (1197/1).

Post – Medieval Period

- 15.23. By the time of the civil war in 1642 Warrington was still a small town with a population of around 2,000, but it was strategically important because of its bridge. In 1642 Royalists seized Warrington but the parliamentarians laid siege in 1643. In May 1643 they captured Warrington and they held it for the rest of the war.
- 15.24. Various farmstead would have existed in the wider landscape as part of the intensive agricultural production that was taking place. A number of farmsteads are recorded in study area including Yew Tree Farm (538/1) and Tanyard Farm (549/1) located to the south of the Site.
- 15.25. By 1724, Daniel Defoe recorded Warrington as a *'large populous old built town, but rich and full of good country tradesmen. Here is particularly a weekly market for linen'*. This implies a degree of manufacturing, probably cottage based, as well as a substantial area of arable farming to support linen production. Towards the end of this period Warrington was also a noted producer of sailcloth. The various navigational improvements on the River Mersey from 1730, the construction of the Bridgewater Canal in the 1770s and the construction of other subsequent canals greatly improved the bulk transport of goods, stimulating manufacturing towards the end of the period.
- 15.26. The early Industrial Revolution in Warrington was marked by the establishment of a copper works in 1717. More metal working factories were established through the century including wire works in 1780 and 1799 and tanneries, glass works and other industries. These industries used coal which lead to the establishment of local mines towards the north west of Warrington.

Modern Period - present

- 15.27. This period saw a massive expansion in industrial manufacturing and the formation of the extended urban area of Warrington, with large numbers of terraced properties and many larger houses. Numerous house date from this period included further farmstead and cottages (**DCHI1935, DCHI3677, DCHI2753, DCHI2763, 540/1/1, 540/1/2, 541/1 and 548/1, 2728, 2729/0/1, 2729/0/2**).
- 15.28. A Strict Baptist Chapel (**4468/0/0**) was built in 1819 towards the north-east of the site had a porch added with the interior refitted in 1889.
- 15.29. The result of this industrial expansion was a corresponding increase in the demand for raw materials and natural resources, such as coal, clay and especially water.
- 15.30. All this had impacts on the local landscapes. In the early part of this period grain production rapidly increased, leading to the expansion of fields. Some of the most important features in the local landscape in this era were the result of the introduction of new communications routes. The Manchester Ship Canal in 1894, the Manchester – Liverpool railway line in 1830, and the construction of other lines throughout the 19th century, radically improved the bulk transport of goods and materials as well as the movement of people.
- 15.31. During the Second World War RNAS Stretton (HMS Blackcap) was constructed towards the south of the Site (**4091**). This was originally planned as a RAF night-fighter station to protect Liverpool and Manchester but was transferred to the Admiralty on completion. HMS Blackcap was commissioned on 1 June 1942 and forty-one Fleet Air Arm Squadrons were based there for varying periods, some aircraft being flown directly to and from aircraft carriers operating in the Irish Sea and other nearby waters. The airfield was closed on 4 November 1958 with the northern area being used for modern warehousing.

Designated Assets

There are no World Heritage Sites, Registered Parks and Gardens or Registered Battlefields within the Site or the study area.

Scheduled Monuments

- 15.32. Located at the near center of the site is Bradley Hall Moated site (**DCHI59**) which is scheduled under the Ancient Monuments and Archaeological Area Act 1979, its full description being Bradley Hall moated Site (list entry number 1011924). The site was

scheduled in 1991 and comprises the buried and earthwork remains of a medieval moated site for a medieval manor house. The moated island is approximately 70m by 55m and is grass covered in the areas not occupied by buildings. Excluded from the scheduling are the farmhouse, access drive, fences, hedged field boundaries and a telegraph pole.

- 15.33. The scheduled monument is in good condition and is reported to survive well and is described as a good example of a moated medieval manor house. The moat remains water filled and within the island are two occupation phases which survive beneath the present house and gardens. The moat surrounding the island is c. 10m wide and 2.5m deep. Part of the moat has been disturbed through the creation of an ornamental pond on its east side. Access is currently gained from a causeway also on the east side which replaced an earlier drawbridge.
- 15.34. The original hall within the moat was erected in the early 14th century. Documentary sources refer to it around this time with its first depiction on a map dating to 1735 which shows the hall to the northeast of its current position and the moat extending beyond its present location. The hall shown on the aforementioned map replaced that erected in the 14th century. Between the early 18th and the early 19th century the hall was considerably altered as was the location and extent of the moat. Analysis of later maps show the addition of a number of outbuildings to the hall as well as a number of agricultural buildings immediately to the northwest of the moat.
- 15.35. In November 2009 National Museums Liverpool Field Archaeology Unit undertook a watching brief (**ECH4566**) at Bradley Hall on behalf of Brewster Associates. This was undertaken during works to replace an early 20th century extension to the farmhouse. The watching brief revealed a poorly constructed cobbled surface which was deemed to be associated with the construction of the present house. Underlying the cobbles was a layer of clay which was interpreted as the arising from the excavation of the moat. During the watching brief a number of finds were encountered including the base of a 14th -15th century jar and later 17th to 18th century pottery sherds.
- 15.36. The historic setting of the moated manor site was clearly intended to be isolated from the historic built core of Appleton although it would have had a greater prominence in the landscape than is now the case. Surrounding field patterns suggest that the land around the manor site was farmed during the medieval period and medieval ridge and furrow has been recorded, based on aerial photography within the vicinity of the proposed development site.

Listed Buildings

- 15.37. Within the study area are a number listed buildings the predominance of which lie between the southern boundary of the Site and the Barleycastle Trading Estate. The closest designated assets to the Site is Barleycastle Farmhouse which is listed at Grade II (**DCHI935**). This is situated on Barleycastle Lane as is Tanyard Farm (**DCHI661**) which is designated at Grade II*. East of these along Barleycastle is Booths Farm Farmhouse (**DCHI934**) and Shippon (**DCHI660**), and Beehive Farmhouse (**DCHI659**), all of which are listed at Grade II. South of this group of listed assets in the northeastern edge of Barleycastle Trading Estate is the Grade II listed Yew Tree Farmhouse (**DCHI638**).

Locally Listed Buildings

- 15.38. Within the study area are a number of listed buildings including Bradley Hall and Barn (**DCHI2763**) which lies within the center of the aforementioned scheduled monument (**DCHI159**). To the north of this are three further locally listed buildings including the barn at Manor House Farm (**DCHI2753**), the Old Chapel on Cherry Lane (**DCHI2879**) and the Milepost (**DCHI2869**) at Gallows Croft on Knutsford Road. In addition to these Tan House Farm (**DCHI3677**) to the south of the Site is also locally listed.

Conservation Area

- 15.39. There are no conservation Areas located within the study area. The nearest conservation is within the village of Grappenhall situated 2.3km to the northwest of the site. To the northeast beyond the M6 is the village of Lymm whose historic core fall lies within a conservation area, the southern boundary of which lies 2.23km to the north east of the Site.

Archaeological Events

- 15.40. A number of archaeological events have been recorded in the study area including desk-based assessments, geophysical surveys, earthwork surveys, watching briefs and recording of test pits (these are listed in Table 15.2 below). These will be assessed as part of the Cultural Heritage ES Technical Paper to aid in the assessment of the Site's archaeological potential.

HER Reference	Archaeological Intervention	Grid Reference
ECH3541	M6 Motorway Widening Scheme, Junctions 16-20. Archaeological Recording of Test Pits.	SJ 723 679

HER Reference	Archaeological Intervention	Grid Reference
ECH3554	Greater Manchester Western and Northern Relief Road (M56-M6 link): Archaeological Assessment Report	SJ 703 908
ECH3566	M6 Junctions 16-20 Widening: Archaeological Desk-Top Survey	SJ 755 637
ECH3652	M6 widening: Junctions 16- 20: Report on Geophysical Survey	SJ 755 637
ECH3653	M6 Widening: Junctions 16- 20. Report on Earthwork Survey	SJ 755 637
ECH3654	M6 Widening: Junctions 16- 20, Cheshire. Cultural Heritage, Stage 3 Assessment Report Text	SJ 755 637
ECH4557	Report on Northwest Telent Techmac Design and Consultancy Services Framework Provision of Variable Message Signs on the M56 Between Junctions J9 -16	SJ 520 781
ECH4559	Bradley Hall Appleton, The Moated Site and Survey and Research Report	SJ 657 845
ECH4566	An Archaeological Watching Brief at Bradley Hall Moat, Appleton, Warrington. Final Report	SJ 657 845
ECH5845	Stretton Airfield, Design Access Statement	SJ 652 835

Table 15.2: Archaeological Interventions Recorded within the study area.

Alternatives Considered

- 15.41. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

- Construction Phase**
- 15.42. Running through the site in an east west direction is a Roman road (**547/1/7**). The setting of this will be affected by the proposed development as will the ability to interpret the asset within the landscape. Despite this it is acknowledged that it has been previously compromised by the development of the industrial estate immediately to the west of the site and the M6 Motorway to the east.

- 15.43. The route of the Roman road and associated features including roadside aggers are likely to be affected by the Proposed Development.
- 15.44. The site of the medieval cross (**511**) which lies in close proximity to the modern houses that lies to the northeast of Bradley Hall Moated Site will be impacted by the Proposed Development. However, any remains may have been compromised by the development of the aforementioned houses.
- 15.45. Located near to the center of the site is Bradley Hall Scheduled Moated Site (**550/1**) whose setting will be impacted by construction activities. This will affect the setting of the moat although demolition of later farm buildings within its immediate landscape will help to off-set this.
- 15.46. Set at the heart of the moat is Bradley Hall and Barn (**DCHI2763**) and associated barn which carry a local listing. Immediately to the northeast of these are a number of farm buildings will be demolished as part of the Proposed Development. This will improve the setting of the moated site.
- 15.47. Work is ongoing to determine if the residential properties near to the center of the site including Manor House Farm (**DCHI2753**) are to be demolished as part of the Proposed Development. If demolition is proposed this will be of some benefit to improving the historical integrity of the Scheduled Monument.
- 15.48. Situated to the south of the site is the Tanyard Farm complex which lies in close proximity to the M56 Motorway. The complex comprises a Grade II* listed farm building (**DCHI661**) which lies adjacent to the locally listed Tan House Farm. Development will affect the agricultural setting of this complex although this has to some extent already been impacted by the construction of later agricultural buildings, the M56 Motorway and the slip road to the M6 Motorway.
- 15.49. To the west of the Tanyard Farm complex is Barleycastle Farmhouse (**DCHI935**) which carries a Grade II listing. This setting of this has been partly eroded by later agricultural buildings, however, the Proposed Development will further impact this setting.
- 15.50. It is not anticipated that the setting of the other listed assets recorded in close proximity to the scheme will be impacted due to the intervening built form and landscape. This will be further assessed as part of the Environmental Statement.

- 15.51. There will be no impact on World Heritage Sites, Registered Historic Parks and Gardens, Registered Battlefields or Conservation Areas.

Operational Phase

- 15.52. The Proposed Development will be designed to limit impacts on the historic environment including the Bradley Hall Moated site and those listed buildings that lie to the south of the Proposed Development. Design, style, materials, layout and positioning will be carefully considered where feasible to limit any adverse impact and to enhance any receptors that will be affected. Landscape mitigation will also be incorporated to soften adverse impacts, where appropriate. In addition to this consideration of the demolition of buildings within the Bradley Hall Farm complex will also be undertaken to determine if the designated assets would benefit from such proposals.
- 15.53. Impacts during the operational phase are considered to be limited to the setting of some of the designated assets. It is considered that there will be an adverse impact on the setting of Bradley Hall Moated site (**DCHI59**), although improvements to the landscape and some demolition of non-designated structures may help to alleviate the level of impact that the scheduled monument will experience from development proposals.
- 15.54. There will be an impact on the setting of the Grade II* Listed Tanyard Farm building (**DCHI661**) and the Grade II Listed Barleycastle Farm (**DCHI935**) and the landscape in which they sit. Landscaping and design will be carefully considered to preserve aspects of setting and landscape, where possible.

Methodology for the Environmental Statement

- 15.55. The method used for assessing the potential effects of the Proposed Development on the heritage receptors conform to the regulatory framework set out in the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 as amended 2015. It takes into account the significance (importance) of each feature, and the likely impact (without mitigation) of the Proposed Development upon them, in order to appraise the potential effects of the Proposed Development (Significance of Effects). The following tables were used to aid the assessment process.

Receptors

15.56. The table below details the criteria used to determine the importance of the receptors found within the Site and the study area.

Designation	Receptors
International	None identified
National	Scheduled Bradley Hall Moated Site Grade II* Listed Tanyard farm building
Regional	Grade II Listed Barley Castle Farmhouse
County	Roman road
Borough/District	Locally listed buildings including Bradley Hall and barn and Tan House Farm Site of Medieval Cross
Local/Neighbourhood	18th – 20th century buildings Prehistoric, Roman, medieval and post-medieval findspots Post-medieval field boundaries

Table 15.2: Receptors

Environmental Impacts

15.57. The following table details the criteria used to judge the impact (both positive and negative) upon the receptors from the Proposed Development.

Magnitude	Environmental Impact
Substantial	Change to designated or important whole archaeological/historic building/historic landscape elements or their setting, such that the resource is totally altered
High	Change to most key archaeological/historic building/historic landscape elements or their setting, such that the resource is altered.
Moderate	Change to many key archaeological/historic building/historic landscape elements or their setting, such that the resource is clearly modified. Demolition or removal of assets of local significance.
Minor	Changes to key archaeological/historic building/historic landscape elements, such that the asset or its setting is slightly altered.

Magnitude	Environmental Impact
Negligible	Very minor changes to elements.
Neutral	No change.

Table 15.3: Environmental Impacts

Impact Prediction Confidence

- 15.58. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 15.4: Confidence Levels

Significance of Effects

- 15.59. The following table details the significance of effects that may result from construction and operation of the scheme using the significance matrix in Section 3 of this Scoping Report. It is based upon details of the scheme as outlined earlier in this report and the collation of baseline and survey information to date.
- 15.60. The following table outlines the predicted impacts as a result of the scheme prior to mitigation being identified and considered. Those assets not included within this as shown on figure 15.1 are not considered to be impacted by the scheme including **DCHI638, DCHI659, DCHI660, DCHI934, DCHI2753, DCHI2869, DCHI2879, I197/I, 2278, 2729/0/I, 2729/0/2, 2734, 2908, 4091, 4468/0/0, 4657, 538/I, 540/I/1, 540/I/2, 541/I, 547/I/8, 547/I/13** and **615**.

Construction Phase

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Effect on setting of Bradley Hall Moated Site (DCH159)	National	Moderate Negative	High Adverse	High
Effect on setting of Grade II* Listed Tanyard farm building (DCH13677)	National	Minor Negative	Moderate Adverse	High
Effect on setting of Grade II Listed Barley Castle Farmhouse (DCH1935)	Regional	Minor Negative	Moderate Adverse	High
Effect on demolition of Locally listed Bradley Hall and Barn (DCH12763)	Borough	Moderate Negative	Minor Adverse	High
Loss of Roman road (547117) within the site	County	Moderate Negative	Moderate Adverse	Low
Loss of archaeological features associated with Roman road (547117)	County	Moderate Negative	Moderate Adverse	Low
Loss of archaeology associated with site of Medieval Cross 551)	Borough	Minor Negative	Minor Adverse	Low

Table 15.5: Significance of Impact – Construction

- 15.61. A number of the assets identified above have not been proven through physical investigation thus whether any remains exist cannot be verified until further assessment and non-intrusive / survey such as geophysical survey is carried out. Subsequently their confidence level is currently identified as low. Any survey deemed necessary will be undertaken as part of the baseline gathering exercise so as to aid in the determination of the application.

Operational Phase

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Effect on setting of Bradley Hall Moated Site (DCH159) due to significant changes to the landscape within which it lies.	National	Moderate Negative	High Adverse	High
Effect on Grade II* Listed Tanyard farm building (DCH13677) from encroachment into its agricultural setting.	National	Minor Negative	Moderate Adverse	High
Effect on Grade II Listed Barleycastle Farmhouse (DCH1935) from encroachment into its agricultural setting.	Regional	Minor Negative	Moderate Adverse	High

Table 15.6: Significance of Impact Operational Phase

Mitigation

- 15.62. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

Additive Impacts (Cumulative Impact and their Effects)

- 15.63. For the purposes of this ES we define the cumulative effects as:

‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’

- 15.64. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the Cultural Heritage cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
4	Land at Barleycastle Lane, Appleton, Warrington	50,000m ² logistics development	Pre-application discussions with WMBC Scoping Request ILPA Ref: 2017/30243) Application to be submitted November 2017	Further loss of the agricultural landscape to the south of the Grade II* Tanyard farm building (DCHI661) and Grade II Barleycastle Farmhouse (DCHI935). This will affect the setting of these listed assets.

Table 15.7: Cumulative Projects

- 15.65. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.
- 15.66. The cumulative development outlined in Table 15.7 will be considered in the Cultural Heritage Paper of the ES. This is due to the additional impact on the known heritage receptors recorded within the study area including the setting impact on the grade II* listed Tanyard Farm building (**DCHI661**) and the Grade II listed Barley Castle Farmhouse (**DCHI935**) that lie to the northwest of the proposed logistics development. This development will lead to further loss of the post-medieval agricultural landscape which forms part of its historic setting.
- 15.67. The other cumulative developments described in Section 6 will not be taken forward to assessment within the Cultural Chapter as it considered that they will not further impact the identified receptors.
- 15.68. Any other likely cumulative developments have been discounted on account of their distance from the Application Site or the intervening vegetation, topography or built form which will preclude any further impact to that which has been identified. This will be kept under review during the preparation of the Cultural Heritage Technical Paper.
- 15.69. BWB will consult with the Statutory Consultees referred to in paragraph 15.5 to agree the extent of the cumulative assessment.

Further Work Required

- 15.70. It has been determined that within the site are archaeological receptors including a Roman road (**547/1/7**) and the site of a medieval cross (**551**). Further assessment of the identified receptors as part of the Cultural Heritage and Archaeology Chapter of the EIA will determine the scope of any necessary mitigation. The archaeological potential of the rest of the site will also be further determined through a geophysical survey in the first instance.

Summary

- 15.71. In summary, a Cultural Heritage and Archaeology chapter of the Environmental Statement is required to determine the potential impacts on archaeological features and deposits, the historic landscape and the built form identified within Table 15.1. A number of potential impacts both during construction and operation of the scheme have currently been identified. Further assessment and survey will ensure that the identified resource is adequately assessed.
- 15.72. The tables below confirm the assets to be Scoped In and Scoped Out of the environmental assessment in respect of Cultural Heritage.

Scoped In

Environmental Issue	Reason for “scoping in”
Bradley Hall Moated Site (DCH159)	<i>The Proposed Development will negatively impact the setting of the scheduled monument.</i>
Grade II* Listed Tanyard farm building (DCH13677)	<i>Development will diminish the agricultural setting of the farm building.</i>
Grade II Listed Barley Castle Farmhouse (DCH1935)	<i>Development will affect the agricultural setting to the asset.</i>
Effect on demolition of Locally listed Bradley Hall and Barn (DCH127563)	<i>Demolition will result in the loss of a locally listed asset</i>
Roman road (547/1/7) within the site	<i>Groundworks and construction activities will impact any surviving sections of Roman road.</i>

Environmental Issue	Reason for “scoping in”
<i>Roman road (547/117)</i>	<i>Groundworks and construction activities will impact any features associated with the Roman road.</i>
<i>Medieval Cross (551)</i>	<i>Groundworks and construction activities will impact the site of the medieval cross.</i>

Scoped Out

Environmental Issue	Reason for “scoping out”
DCH1638 Yew Tree Farmhouse Grade II Listed Building I 139340	<i>No impact on the setting of this asset</i>
DCH1659 Beehive Farmhouse Grade II Listed Building I 139361	<i>No impact on the setting of this asset</i>
DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I 139362	<i>No impact on the setting of this asset</i>
DCH1934 Booths Farm Farmhouse Grade II Listed Building I 329740	<i>No impact on the setting of this asset</i>
DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building	<i>No impact on the setting of this asset</i>
DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm	<i>No impact on the setting of this asset</i>
DCH12879 Old Chapel, Old Cherry Lane, Lymm Locally Listed Building	<i>No impact on the setting of this asset</i>
DCH13677 Tan House Farm, Barleycastle Lane, Appleton	<i>No impact on the setting of this asset</i>
ECH5845 Stretton Airfield, Design Access Statement	<i>No impact on the setting of this asset</i>
I 197/1 Kings Brook Mill Site of Watermill Industrial Site, Mill, Watermill	<i>No impact on the setting of this asset</i>

Environmental Issue	Reason for “scoping out”
2728 Unnamed Site in High Legh Parish Site of 19th century cottage House	<i>No impact on the setting of this asset</i>
2729/0/1 Swineyard Lane Site of a 19th century house	<i>No impact on the setting of this asset</i>
2729/0/2 Swineyard Lane Site of 19th Century Building House	<i>No impact on the setting of this asset</i>
2734 Swineyard Farm Prehistoric axe Findspot	<i>No impact on the setting of this asset</i>
2908 Badger's Croft Farm I Cropmark Enclosure. Ditched Enclosure	<i>No impact on the setting of this asset</i>
4091 RNAS Stretton/HMS Blackcap Airfield WW2 Airfield Military Airfield	<i>No impact on the setting of this asset</i>
4468/0/0 Strict Baptist Chapel, Cherry Lane Strict Baptist Chapel Strict Baptist Chapel	<i>No impact on the setting of this asset</i>
4657 Pond, North of Cartridge Lane, Grappenhall. Pond shown on OS 1st Edition Maps of Cheshire	<i>No impact on the setting of this asset</i>
538/1 Yew Tree Farmhouse 17th century farmhouse Farm, Farmstead,	<i>No impact on the setting of this asset</i>
540/1/1 Booth's Farm Farmhouse Post Medieval farmhouse Farm, Farmstead	<i>No impact on the setting of this asset</i>
540/1/2 Shippon, Booth's Farm Timber framed barn Cow House, Farm, Farmstead, Barn	<i>No impact on the setting of this asset</i>
541/1 Beehive Farmhouse Post Medieval farmhouse Farm, Farmstead, Timber Framed Building,	<i>No impact on the setting of this asset</i>
547/1/0 North Cheshire Ridge Roman Road	<i>No physical impact on this section of the Roman road.</i>
547/1/13 North Cheshire Ridge Roman Road – Stretton Airfield Section of Roman Road	<i>No physical impact on this section of the Roman road.</i>

Environmental Issue	Reason for “scoping out”
547/1/8 The North Cheshire Ridge Roman Road Section of Roman road	<i>No physical impact on this section of the Roman road.</i>
548/1 Barley castle Farmhouse Post Medieval farmhouse Farm,	<i>No impact on the setting of this asset</i>
549/1 Tanyard Farm Farm-building 16th century barn Cow House, Farm, Stable	<i>No impact on the setting of this asset</i>
550/1/ 1011924 Bradley Hall moated site Medieval moated site Manor, Manor House, Moat, Gate Centred	<i>No impact on the setting of this asset</i>
615 Reddish Hall Medieval moated site Moat	<i>No impact on the setting of this asset</i>

16. Utilities

Introduction

- 16.1. Ridge and Partners LLP are undertaking the production of the ES Technical Paper for Utilities.
- 16.2. Ridge and Partners LLP have carried out preliminary design works to establish the new development utility loads.
- 16.3. This Paper will examine the feasibility of the Proposed Development from a utilities perspective and in particular assess the existing utility infrastructure local to the Site and the requirements for proposed utilities servicing the Proposed Development. The paper will then assess the impacts on the existing utility infrastructure due to the Proposed Development. The assessment will include necessary utility diversions, disconnections and alterations.
- 16.4. The overall utility assessment, including responses from the enquiries from the utility providers, will be analyzed to identify potential environmental impacts.
- 16.5. Note that discussions have been held with the various asset owners to establish the new Points of Connections and future maintenance required for the various services remaining within the Proposed Development.
- 16.6. The current load allowances for the site, and new connection enquiries, are based on desk top studies for the types of buildings proposed using industry standard benchmarking and historical data for similar developments, and also include for an element of spare capacity for future expansion.

Baseline Information

- 16.7. The baseline data used to undertake the Utility Assessment include:
- Proposed Parameters Plans for the Development
 - Proposed Masterplan for the Development
 - All available utility providers existing utility record plans

- Utility load schedules based on proposed usage

16.8. The above has been used to form the basis of the Proposed utility strategy.

16.9. All available existing record drawings were obtained from the relevant asset owners.

16.10. The Parameters Plan and Masterplan have been considered to assist in the proposed service routes and equipment.

Alternatives Considered

16.11. Alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

16.12. A number of considerations have influenced the Utilities proposal, Strategy and Parameter Plans, for the Proposed Development including;

- The existing residential properties adjacent Bradley Hall Farm
- Proposed Parameters Plan
- Proposed Masterplan
- Site demand
- Existing telephone mast
- Energy Strategy

16.13. The proposed usage of the site facilities, and energy strategy influenced the load capacities required from the local utilities infrastructure, and, in turn, the locations of the Points of Connections.

16.14. Of the above, considerations were influenced by environmental conditions when establishing the 'Points of Connections' (PoC's), the closest possible PoC's have been progressed to ensure as minimal disruption as possible when installing new underground utilities.

16.15. The alternatives progressed within the scheme include;

- Various load assessments to suit a mixture of building uses, to establish PoC's and provide flexibility to the Proposed Development.
- Alternative Points of Connections and services routes to ensure proposals with the least environmental impacts have been progressed.

Potential Environmental Impacts

- 16.16. Potential environmental impacts envisaged include:
- 16.17. Impact on the existing natural environment and habitats within the site by installation of on-site utility infrastructure to service the overall Proposed Development.
- 16.18. Impact on existing residential receptors local to the site as well as the surrounding areas, due to roadworks and traffic management during installation of the proposed underground utilities being installed to site, and the potential upgrade and reinforcement of offsite existing utility infrastructure to provide increased utility supplies in which to accommodate the Proposed Development.
- 16.19. Potential impact to the residential receptors adjacent to the proposed development due to increased traffic to the site for deliveries of plant and workforce traffic when installing the onsite utilities infrastructure for the Proposed Development.

Construction Phase

- 16.20. Impacts which have the potential to be significant during the construction phase include:
- 16.21. Diversions and disconnections of the existing Electrical and Telecommunications infrastructure crossing the site. These services will need to be disconnected and diverted as required by the Proposed Development layout. Relevant asset owners and customers will be consulted and works will result in construction activities on site including travelling to Site for workforces.
- 16.22. New Extra High Voltage (EHV) Electrical Primary sub-station. This work will involve installation of new underground EHV cabling to site, and will involve traffic management systems to facilitate the installation of the underground cabling, also construction works on site to form the new EHV Primary sub-station.
- 16.23. Temporary services connections to the site for the construction activities, workforces will require installation of a new temporary service infrastructure during the construction period.

Operational Phase

- 16.24. Impacts which have the potential to be significant during the operational phase include:

- 16.25. Disruption of existing connections to the existing residential properties adjacent Bradley Hall Farm on the Proposed Development.
- 16.26. Disruption of existing connections to the existing Telephone Mast on the Proposed Development.
- 16.27. The impacts and the significance of these impacts are summarised below;

Methodology for the Environmental Statement

- 16.28. The methodology and approach adopted during this process include:
- 16.29. Network capacity requests have been issued to all relevant utility providers based on anticipated loadings required to service the overall Proposed Development, with the aim to establish the capability of the various existing utilities in and around the Site and identify any upgrading/reinforcement requirements.
- 16.30. Preparation and submission of all proposed utility enquiry applications requesting confirmation of works required to existing utilities to accommodate the Proposed Development based on the Proposed Masterplan Layout in terms of diversions and protections; existing infrastructure capacity assessment based on anticipated loadings calculated for the overall development using Energy Benchmark loadings for each area of the development in accordance with BSRIA Guide 5th Edition to establish capacity capabilities for servicing the Proposed Development. The infrastructure capacity assessment will identify, if applicable, any off site and on site reinforcement and upgrading requirements.

Receptors

- 16.31. The geographical extents of the potential impacts from the development are set out below:

Designation	Receptors
International	None applicable
National	None applicable
Regional	None applicable

Designation	Receptors
County	None applicable
Borough/District	None applicable
Local/Neighbourhood	Existing residential receptors within the surrounding area and site habitats and ecological features

Table 16.1 Receptors

Environmental Impacts

16.32. The Environmental impacts from the development are outlined are set out below:

Magnitude	Environmental Impact
Substantial	Permanent/irreversible change to key characteristics of the strategic utility network (electric, gas, water, telecommunications) with important consideration at a district scale. Impacts certain or likely to occur
High	Permanent/irreversible change to key characteristics of utility networks (Electric, Gas, Water, Telecommunications) with important considerations on the local network (e.g upgrade local infrastructure)
Moderate	Permanent/irreversible change to the local utility network (electricity, gas, water, telecommunications) that may result in temporary disruptions locally
Minor	Temporary change over a limited area to key characteristics of the utility network (electricity, gas, water, telecommunications). Impacts likely to occur (e.g. increase in loading due to the Proposed Development prior to completion of any necessary offsite infrastructure improvements)
Negligible	Minor temporary change over a limited area to key characteristics of the utility network (electricity, gas, water, telecommunications). Impacts unlikely or rarely to occur (e.g. protection of existing local minor utility apparatus to facilitate the construction of the Proposed Development)
Neutral	An impact on the utility network which will not have any influence

Table 16.2 Environmental Impacts

Impact Prediction Confidence

16.33. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 16.3 Confidence Levels

Significance of Effects

- 16.34. The significance of effect is determined using the significance matrix in Section 3 of this Scoping report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

Construction Phase

- 16.35. Significance of affects during the construction phase before the consideration of mitigation are as set out below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Disconnections / Diversions of existing utility infrastructure crossing the Site.	Local	Neutral	Neutral	High
New EHV supply for Primary sub-station	Local	Minor adverse	Minor adverse	High
Temporary / Proposed utilities to site	Local	Minor adverse	Minor adverse	High

Table 16.4: Significance of Impact – Construction

- 16.36. The potential environmental impacts are mainly during the construction phase and are not deemed significant. These include disruption to local receptors due to the installation of underground utilities within the highways.

Operational Phase

16.37. Significance of affects during the operational phase are as set out below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Disruption to existing operations on Proposed Development	Local	Neutral	Neutral	High
Disruption to existing connections to the Telephone mast on the Proposed Development	Local	Neutral	Neutral	High
Disruption to existing connections to residential properties adjacent Bradley Hall Farm	Local	Neutral	Neutral	High

Table 16.5: Significance of Impact – Operation phase

16.38. The potential environmental impacts during the operational phase are not significant.

Mitigation

16.39. The detailed design and evolution of the scheme is ongoing and as such the mitigation requirements will be determined through the full environmental assessment to reduce any effects where considered necessary. These mitigation measures will be confirmed in the ES.

16.40. Proposed mitigation to reduce and manage potential impacts include:

16.41. All services are to be installed within an agreed services corridor and installed underground within soft verge where possible, taking in to account any existing natural environment and habitats within the Site.

16.42. All new utility connections have been applied for, the applications provide the required capacities for the Proposed Development plus spare capacities for potential future upgrade works.

- 16.43. All services are anticipated to be derived from roads local to the site. Existing services to surrounding areas are not envisaged to be affected, and any road works will be subject to an approved traffic management plan.
- 16.44. Confirmation of the Utilities Points of Connections for Water are to be confirmed by United Utilities, approved traffic management plans will be in place for the works associated with laying the new piped services.
- 16.45. Confirmation of the Utilities Points of Connections for Electricity are to be confirmed by Scottish Power, approved traffic management plans will be in place for the works associated with laying the new cables.
- 16.46. The Gas Point of Connection has been received from Cadent, approved traffic management plans will be in place for the works associated with laying the new piped services.

Additive Impacts (Cumulative Impact and their Effects)

- 16.47. For the purposes of this ES we define the cumulative effects as:
- ‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.’***
- 16.48. All the projects to be considered as part of the cumulative impact assessment are described in Section 6 of this Scoping Report. The projects to be considered in respect of the cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
1	Liberty Properties development on Land off Barleycastle Lane, Appleton, Warrington.	50,000m2 logistics development	Pre-application discussions with WMBC. Scoping request (LPA ref:2017/30243) Application to be submitted November 2017	Utility services loading to be considered by relevant asset owners and potential upgrading of infrastructure to deliver services to both developments.

Table 16.6: Cumulative Projects

- 16.49. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

Further Work Required

- 16.50. Further works are required include;
- 16.51. Obtain Points of Connections and designs from the asset owners for Water and Electricity services.
- 16.52. Obtain diversion proposals from the asset owners for Telecommunications, Gas, Water and Electricity services.
- 16.53. Verify Utilities record drawings by undertaking GPRS surveys.
- 16.54. Agree with Scottish Power location and access arrangements and easements for proposed EHV primary sub-station.

Summary

- 16.55. In summary, the findings of this Paper highlight any potential effects the new Utilities works may cause by the required new Utilities connections, disconnections and diverted services required to facilitate the Proposed Development.
- 16.56. As identified throughout this paper, the Utilities proposals to the Proposed Development do not provide any significant effects to the local and surrounding receptors. All potential effects envisaged have been identified within this paper and the proposed mitigation methods explained.
- 16.57. All relevant asset owners have been contacted and are in the process of preparing their designs for the new Points of Connections required for the Proposed Development.
- 16.58. Network capacity enquiries have been issued to all relevant utility providers based on anticipated loadings required to service the Proposed Development.
- 16.59. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Technical Paper 16 – Utilities.

Scoped In

Environmental Issue	Reason for “scoping in”
<p>Technical Paper 16 – Utilities</p> <p>Construction:</p> <p>Disconnections / Diversions of existing utility infrastructure crossing the site.</p> <p>New EHV Primary sub-station.</p> <p>Temporary proposed utilities to site.</p> <p>Operation:</p> <p>Disruption to existing connections to residential properties adjacent Bradley Hall Farm.</p>	<p>Existing services are required to be disconnected and relocated to facilitate the Proposed Development.</p> <p>A new EHV Primary sub-station is required to provide the Electrical power to the Proposed Development from Scottish Power’s network.</p> <p>Temporary utilities are required for construction activities and offer a more energy efficient and acoustic solution.</p> <p>Disruptions are likely which are associated with the diversion and disconnection works.</p>

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Technical Paper 16 – Utilities</p> <p>Construction:</p> <p>Disconnections of services to the existing Telecommunication mast.</p> <p>Operation:</p> <p>Relocation of the existing Telecommunication mast.</p>	<p>Telecommunications mast is to remain operational and services diverted.</p> <p>The Telecommunications mast is to remain in it’s current location and is not affected by the Proposed Masterplan.</p>

17. Waste

Introduction

- 17.1. The chapter has been prepared by RPS Planning and Environment. It considers the likely significant effects of the Proposed Development in terms of waste generation and management. Waste will be generated as a result of the construction and the operation of the proposed buildings. The waste streams generated during these phases will comprise different types and volumes of waste that will require appropriate management measures. The chapter has been prepared using desk based information.

Baseline Information

Overview

- 17.2. The baseline conditions for waste are established from the volumes of waste currently generated within the local area and the existing (and proposed) waste management infrastructure. The baseline information is taken from publicly available sources including:
- Warrington Local Plan Core Strategy, adopted July 2014;
 - Environment Agency Waste Data Interrogator 2015;
 - Defra and Government Statistical Service 'UK Statistics on Waste', December 2016;
 - Warrington Borough Council Waste Study and Policy Review, May 2017; and
 - Warrington Borough Council Waste Arisings and Capacity Requirements Report, April 2017.
- 17.3. The Site is located in the administrative area of Warrington Borough Council and is located between the major conurbations of Merseyside and Greater Manchester.
- 17.4. Warrington Borough Council shares boundaries with Halton, Cheshire West and Chester, Cheshire east, and the four metropolitan boroughs of St Helens, Wigan, Salford and Trafford.

Waste Streams

- 17.5. Waste generated within the borough of Warrington comprise the following types of waste:

- Local Authority Collected Waste (LACW);
- Commercial and Industrial (C&I) Waste;
- Construction, Demolition and Excavation (CD&E) Waste;
- Hazardous Waste;
- Agricultural Waste;
- Low Level (Non-Nuclear) Radioactive (LLR) Waste; and
- Waste Water/Sewage Sludge.

17.6. The scope of this chapter focuses on the types of waste likely to be generated during the construction and operation of the Proposed Development. These are Construction, Demolition and Excavation Waste, Commercial & Industrial Waste, and Hazardous Waste. Whilst the other waste streams are important considerations in the waste planning policy of Warrington Borough Council, they would be managed at different facilities to the waste generated by the Proposed Development.

17.7. The following tables provide data on the quantity of waste generated in the area for the years 2015 to 2037 according to different waste streams. The data is derived from the Waste Arisings and Capacity Requirements Report (Warrington Borough Council, 2017). Table 17.1 below sets out the baseline and projected total annual volume of waste generated within the borough of Warrington.

Waste Type	Quantity 2015	Quantity 2020	Quantity 2025	Quantity 2030	Quantity 2037
Commercial & Industrial	165,234	163,880	162,541	162,015	161,457
Construction, Demolition & Excavation	241,682	244,892	246,374	247,352	248,453
Hazardous	10,865	11,181	11,519	11,859	12,394

Table 17.1 Projected waste arisings by waste stream (tonnes per annum) – based on Oxford Economics growth projections

17.8. Construction, Demolition and Excavation (CD&E) waste represents the largest waste stream. The projections by Oxford Economics show CD&E arisings are predicted to increase from

the baseline of approximately 242,000 tonnes per annum in 2015 to approximately 248,000 tonnes per annum in 2037.

Waste Management Options

Construction, Demolition and Excavation Waste

- 17.9. Table 17.2 illustrates the methods used to manage CD&E wastes during 2015 in Warrington. Approximately 550,000 tonnes of CD&E waste managed within Warrington, however of this total approximately 230,000 tonnes were generated outside Warrington.

Management Method	Construction and Demolition Waste	Excavation Waste	Total
Civic Amenity Site	337		337
Hazardous Waste Transfer/ Treatment	56,449	52,023	108,471
Inert Landfill	16,495	130,255	146,750
Non Hazardous Landfill	5,657	82,367	88,024
Non Hazardous Transfer	4,447	3,451	7,898
Non Hazardous Transfer/ Treatment	4,679	5,041	9,720
Deposit of waste to land (recovery)		166,113	166,113
Restricted Landfill		22,042	22,042
TOTALS	88,063	461,293	549,356

Table 17.2 CD&E waste deposits by management method in Warrington in 2015 (tonnes)

Commercial and Industrial Waste

- 17.10. A total of 165,234 tonnes of Commercial and Industrial (C&I waste) were recorded as arising in Warrington in 2015. No breakdown of how this waste is managed is provided in the Waste Arisings and Capacity Requirements Report (April 2017) and this may be partly attributable to the limited number of waste management facilities permitted only to receive C&I waste.
- 17.11. In terms of hazardous waste, approximately 10,900 tonnes was generated within Warrington in 2015. Of this, only 33 tonnes was managed in Warrington with the remainder exported out of the area for recovery (60%). Only a minor proportion was sent to landfill (8%).

Policy Background

17.12. Warrington Borough Council is the waste planning authority for the local area and as such is required to prepare a Local Plan that meets the requirements of the National Planning Policy for Waste (NPPW). The Local Plan must identify the existing and future needs of the area for the management of waste streams and explain how potential waste sites will be identified and assessed.

17.13. The Local Plan is currently under review and will take into account the need for Warrington to accommodate a significant increase in new homes and jobs over the next 20 years as part of the Councils 'New City' aspirations. Prior to the completion of the review, the only extant policy of the Warrington Development Plan relating to waste is Policy MP8 'Waste' of the Local Plan Core Strategy (adopted July 2014), which states that:

"The Council will promote sustainable waste management in accordance with the waste hierarchy. This means that the Council will seek to manage waste at as high a level of the waste hierarchy as possible. In order to achieve this the Council will;

- bring forward a Waste Local Plan which will identify and if necessary safeguard sites/areas appropriate to meet the waste management needs of the borough in accordance with the borough's spatial aspirations; and
- seek to achieve a continuing reduction in the amount of waste materials imported into the borough by working with adjacent authorities to help them achieve their own self sufficiency; and
- encourage waste minimisation in new developments, the use of recycled materials, the sustainable transportation of waste and the preparation of site waste management plans.
- In determining application for new waste management facilities within the Borough, the Council will have full regard to the environmental, social and economic impact of such development."

17.14. It is understood that Warrington Borough Council now intends to include minerals and waste within the Local Plan rather than within separate Minerals and Waste Plans.

Waste Management Facilities

17.15. The Warrington Borough Council Waste Arising and Capacity Requirements Report 2017 presents a detailed assessment of need for future waste management capacity over the plan period up to 31st December 2037.

17.16. The table below presents the operating waste management capacity within Warrington including actual capacity for 2015 and projected capacity for the rest of the plan period. The capacity has been calculated from throughputs reported via the Environment Agency Waste Data Interrogator and planning permission data. Facilities that only manage LACW have not been included.

Waste Type	Facility Type	2015	2018	2022	2023	2031
LACW, C&I	Composting	72,000	72,000	72,000	72,000	72,000
LACW, C&I, CD&E	Transfer stations (non-hazardous)	38,864	38,864	38,864	38,864	38,864
Hazardous	Transfer stations	6,373	6,373	5,000	5,000	5,000
LACW, C&I, CD&E	Treatment facility	99,148	99,148	99,148	99,148	99,148
CD&E only	Restricted landfill	1,025,691	1,025,691	1,025,961	1,025,961	1,025,961
LACW, C&I, CD&E	Non-hazardous landfill	854,828	0	0	0	0
LACW, C&I	Non-hazardous landfill (restricted)	93,083	93,083	93,083	0	0
CD&E	Inert landfill	473,350	473,350	473,350	473,350	0
CD&E	Reclamation	213,620	213,620	213,620	213,620	0
C&I, CD&E, Hazardous	Metal recycling	20,472	20,472	20,472	20,472	20,472
LACW, C&I	Biological Treatment (WWT)	313,284	313,284	313,284	313,284	313,284
CD&E	Recycling	100,000	100,000	100,000	100,000	100,000
LACW, C&I, CD&E, Hazardous	Recycling	38,239	38,239	38,239	38,239	38,239

Table 17.3 Existing Waste Management Facilities

Alternatives Considered

17.17. A series of alternatives have been considered as part of the evolution of the proposals. These will be documented within the ES, identifying how environmental considerations have influenced the proposals.

Potential Environmental Impacts

17.18. The assessment will focus on the impacts of waste generated from the construction and operation phases on the existing and proposed waste management infrastructure. These impacts will relate to the availability of waste management facilities within the local area, the siting of future waste management facilities and capacity of these facilities to manage the additional waste volumes generated by the Proposed Development.

Construction Phase

17.19. The impacts which may arise during the Construction Phase are:

- The generation of additional waste in the borough and the impact on the existing and proposed waste management infrastructure.
- The “treatability” of the waste generated by the Proposed Development (i.e. if the waste can be easily treated with minimal residual waste, or if the waste requires specialised treatment with potentially toxic residual waste).
- Conformity of the waste management procedures and targets to manage construction waste (set out in the Construction Waste Management Plan) with national and regional waste policy.

Operational Phase

17.20. The impacts which may arise during the Operational Phase are:

- The generation of additional waste in the borough and the impact on the existing and proposed waste management infrastructure.
- The “treatability of the waste generated by the Proposed Development (i.e. if the waste can easily be treated with minimal residual waste, or if the waste requires specialised treatment with potentially toxic residual waste).
- Conformity of the waste management procedures and targets to manage construction waste (set out in the Waste Management Plan) with national waste policy.

Methodology for the Environmental Statement

17.21. The assessment methodology has been developed with regard to national, regional and local waste planning policy and guidance.

17.22. There is no published assessment guidance or criteria for assessing waste impacts or assigning a level of significance to the predicted effects. The methodology is therefore, based on relevant policy and previous experience of undertaking similar assessments.

Receptors

17.23. For the waste assessment, the key receptor is the existing and proposed waste management infrastructure, its location and its associated capacity to accept the waste types and volumes likely to be generated by the Proposed Development. The other receptor is waste policy/targets and the how the waste management procedures within the Proposed Development will conform.

Designation	Receptors
International	Waste Framework Directive Targets
National	None
Regional	None
County	Waste management facilities in neighboring boroughs/districts.
Borough	Waste management facilities of importance to Warrington Borough. Recommended policies for the Local Plan.
Local/Neighbourhood	None

Table 17.4 Environmental Receptors

Magnitude	Environmental Impact
Substantial	Waste is generated is hazardous and requires specialized treatment outside the region. Waste from Proposed Development is >15% of waste generated in the borough. There is

	an immediate shortfall in the capacity of existing waste management facilities for the types of waste likely to be generated. No Waste Management Plan.
High	Waste generated is hazardous and requires incineration or landfilling. Waste is transported outside of region for treatment or disposal. No commitment to recycle waste within Waste Management Plans. Waste from Proposed Development is >10% of waste generated in the borough. A shortfall in the capacity of existing waste management facilities is predicted early in the Waste Local Plan period and no new sites have been allocated.
Moderate	Waste is hazardous but can be recovered with pre-treatment. Waste can be managed within the region using methods lower down the waste hierarchy. Waste from Proposed Development is >5% of waste generated in the borough. A shortfall in the capacity of existing waste management facilities is predicted later in the Waste local Plan period and several potential sites have been allocated.
Minor	Waste is non-hazardous or inert and can be recycled or composted within the borough. Waste Management Plans for construction and operational waste complies with national and regional targets and policy to divert waste from landfill. Waste from Proposed Development is >1% of waste generated in the region. No shortfall in capacity of existing and proposed waste management facilities.
Negligible	Waste generated is inert and can be re-used on the site. Evidence that waste has been minimised in the design of the Proposed development. Waste from Proposed Development is less than 1% of waste generated in the borough.
Neutral	The construction and operational phases of the Proposed Development implement a zero waste to landfill policy.

Table 17.5 Magnitude of Impact

17.24. The environmental impacts of the Proposed Development in terms of waste are likely to be adverse as the construction and operational phases will generate waste streams which currently do not exist.

Impact Prediction Confidence

17.25. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for the definitions of confidence levels are set out in Chapter 1: EIA Methodology and Process.

Significance of Effects

Construction Phase

- 17.26. An initial assessment of the impacts has been undertaken (without mitigation) and are set out below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Impact of waste generated on the capacity of existing/proposed waste management infrastructure	Borough	Minor Negative	Minor Adverse	High
Impact of waste generated on the capacity of existing/proposed waste management infrastructure	Borough	Minor Negative	Minor Adverse	High
Treatability of the waste generated	Borough	Minor Negative	Minor Adverse	High
Conformity with waste targets/policy	International	Negligible	Negligible	High

Table 17.6 Significance of Effect - Construction

Mitigation

Operational Phase

- 17.27. An initial assessment of the impacts has been undertaken (without mitigation) and are set out below:

Table 17.7 Significance of Effect - Operation

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Impact of waste generated on the capacity of existing/proposed waste management infrastructure	Borough	Minor Negative	Minor Adverse	High
Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Impact of waste generated on the capacity of existing/proposed waste management infrastructure	Borough	Minor Negative	Minor Adverse	High
Treatability of the waste generated	Borough	Minor Negative	Minor Adverse	High
Conformity with waste targets/policy	International	Negligible	Negligible	High

Additive Impacts (Cumulative Impact and their Effects)

17.28. For the purposes of this ES we define the cumulative effects as:

‘Those that result from additive impacts (cumulative) caused by other past, present or reasonably foreseeable actions together with the project itself.’

17.29. All the projects to be considered as part of the cumulative impact assessment are described in section 6 of this Scoping report. The projects to be considered in respect of the waste cumulative assessment are listed in the table below:

	Possible Cumulative Development	Details	Status	Justification for Cumulative	To be considered in the CIA
1	Land bounded by Pewterspear Green Road, Ashford Drive, Stretton, Warrington LPA Ref: 2016/28807 Applicant - HCA	Outline Planning Application for 180 dwellings.	Being determined by WMBC Application Registered 09-09-2016	Potential relationship in terms of C&D waste but no link during operation as different waste streams would be generated.	No
2	Land bounded by Green Lane &, Dipping Brook Avenue, Appleton, Warrington, WA4 5NN LPA Ref: 2017/29930 Applicant - HCA	Outline Planning Application for 370 dwellings	Resolution to grant planning permission by WMBC Development Management Committee 10-10-2017	Potential relationship in terms of C&D waste but no link during operation as different waste streams would be generated	No
3	Land South of Astor Drive, East of Lichfield Avenue &, South of Witherwin Avenue, Grappenhall Heys, Warrington, WA4 3LG LPA Ref: 2017/29929 Applicant - HCA	Outline Planning Application for 400 dwellings	Resolution to grant planning permission by WMBC Development Management	Potential relationship in terms of C&D waste but no link during operation as different waste streams would be generated Difference waste streams would be generated	No
4	Land off Barleycastle Lane, Appleton, Warrington Liberty Properties	50,000m ² logistics development	Pre-application discussions with WMBC	Potential relationship during operation as similar waste streams may be generated therefore require similar waste management facilities.	Yes

	Possible Cumulative Development	Details	Status	Justification for Cumulative	To be considered in the CIA
6	Blue Machinery Ltd, Barleycastle Trading Estate, Lyncastle Road, Warrington, WA4 4SY LPA Ref: 2016/28994	Full Planning Application for new industrial warehouse building for storage (replacing smaller storage building), single storey extension to existing building for further storage and two storey extension for additional office space, associated parking provision and landscaping. (1,699m2 new build, 180m2 and 265m2 extensions)	Application Approved 17-02-2017 (3 years to implement planning permission)	Potential relationship during construction and operation as similar waste streams may be generated therefore require similar waste management facilities.	Yes

	Possible Cumulative Development	Details	Status	Justification for Cumulative	To be considered in the CIA
7	Land off Lyncastle Way, Barleycastle Lane, Appleton, Warrington, WA4 4SN LPA Ref: 2015/25255 Morley Estates	Full Planning Application for industrial / warehouse development (Sui Generis) to facilitate a plant hire business with elements of vehicle / plant repair, servicing, maintenance and plant storage / distribution / parking and associated offices / welfare facilities, vehicular access via existing service road, acoustic bunding and fencing and other means of enclosure, soft landscaping, 36 car park spaces, fuel pumps (and associated underground tanks), vehicle / plant wash bay and sub-station (Resubmission of 2014/24618) (4,545sqm industrial warehouse building)	Application Approved 16-10-2015 (3 years to implement planning permission)	Not considered to be a link in terms of construction waste due to temporal differences. Potential link regarding operational waste but likely to be limited due to proposed use.	No
8	Former Stretton Airfield, Warrington, WA4 4RG LPA Ref: 2014/2332 Hensmill Property	Proposed construction of subterranean car storage facility (B8 Use Class) with ancillary office development and associated demolition and landscaping accessed from Crowley Lane.	Application Approved 23-06-2015 (3 years to implement planning permission)	No link during construction due to different timeframes and no link during operation as different waste streams would be generated	No

Table 17.8 Cumulative Projects

- 17.30. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.
- 17.31. The schemes listed in Table 17.8 will be considered within the cumulative assessment of the ES as these schemes are relatively close to the site and are likely to generate similar waste streams during construction and operation.

Further Work Required

- 17.32. Work is still ongoing to identify the existing and proposed waste management infrastructure and its associated capacity. Consultation with Warrington Borough Council may also be required to obtain up-to-date information on the waste policies within the Local Plan. The types and quantities of waste likely to be generated from the construction and operation of the Proposed Development will be identified as the design of the buildings and the construction methodology progresses.
- 17.33. It is acknowledged that the operational waste streams generated by B2 uses may be very different from B8 uses. Until detailed information on the uses of the buildings is available, it will not be possible to identify the specific types of waste that would be generated. However, the waste chapter and accompanying operational waste management strategy will set out the principles for how the waste will be managed and how waste management has been taken into account in the design of the buildings.

Summary

- 17.34. The construction and operation of the Proposed Development would generate waste and the environmental effects of this will be assessed and reported in a Waste ES Technical Paper. The waste generated through the construction and operational phases of the Proposed Development will be identified within a Waste Management Plan together with the proposed management measures and targets to divert from landfill.
- 17.35. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Waste.

Scoped In

Environmental Issue	Reason for “scoping in”
<p>Waste</p> <p><i>Construction:</i></p> <p>The types and likely quantities of waste generated during the construction of the Proposed Development.</p> <p>The treatability of waste generated by the Proposed Development</p> <p>The measures to manage wastes.</p> <p><i>Operation:</i></p> <p>The types and likely quantities of waste generated during the operation of the Proposed Development.</p> <p>The treatability of waste generated by the Proposed Development</p> <p>The measures to manage waste.</p>	<p>The additional waste generated by the Proposed Development may exceed the capacity of existing and proposed waste management infrastructure.</p> <p>The types of waste generated may have to be transported outside the borough or county to be managed.</p> <p>National and local policies set requirements for how to manage types of waste.</p>

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Waste</p> <p><i>Operation:</i></p> <p>Local Authority Collected Waste, Agricultural Waste, Low Level (Non Nuclear) Radioactive Waste, and Waste Water/Sewage Sludge</p>	<p>These types of waste will not be generated by the Proposed Development</p>

18. Energy

Introduction

- 18.1. Ridge and Partners LLP are undertaking the production of the ES Technical Paper for Energy.
- 18.2. This Paper examines the proposed Energy Strategy for the Proposed Development including the anticipated Energy demands and subsequent carbon emissions for the operational site.
- 18.3. The assessment will take into consideration the opportunities and limitations on the site in terms of a potential Energy Strategy. This will also consider the availability of utility supplies being gas, water and electricity and the impact on existing Utility services.
- 18.4. The assessment will take into consideration the type of buildings proposed on the development and subsequent energy demand and Carbon emissions.
- 18.5. A site wide energy strategy will be developed that will provide a template of design technologies and techniques for future construction of the buildings that meet the targets set out in the relevant government and local planning documents.
- 18.6. This Paper shall be read in conjunction with the Utilities Paper – Chapter 16.

Baseline Information

- 18.7. The following information was used to develop the baseline carbon emissions for the development :
- Proposed ES Parameters plan and Masterplan
 - Utility load schedules
- 18.8. The following process will be followed to establish the Proposed Developments' carbon emissions.

RIBA Stage	Key Activity	Carbon Analysis
1 Appraisal	Brief & Client Aspirations Determine Relevant Legislation/Requirements Initial Site Appraisal	Initial Benchmark CIBSE TM46, this document offers a comprehensive outline of building energy benchmarks.
2 Strategic Briefing	Establish Specialist Consultant Input	
3 Outline Proposals	Detailed Site Appraisal Strategic Energy Opportunities (Decentralisation) Passive Design – Shape/Form/Orientation Façade Options – Materials/Mass/Shading Initial Technology Review Low Carbon & Renewables	Refined Benchmarking ↓ Dynamic Energy Simulation ↓
4 Detailed Design	Finalise Renewable & Low Carbon Technologies Establish Sizes, Locations & Renewable & Low Carbon Technologies	Final Dynamic Energy Simulation
5 Final Proposals	Equipment Selection Detailed Design Drawings	As Built Dynamic Energy Simulation
6 Production Information	Small Scale Hydro	

Table 18.1 : RIBA Stages and Energy Modelling

- 18.9. Beyond the initial CIBSE TM46 Benchmarking a detailed Energy Model will be developed for a typical Employment Unit using a set of reasonable assumptions and to the future type of employment unit required.
- 18.10. Although detailed designs are not available for the proposed units and the specific end users are not known at this stage, a series of assumptions have been made to allow an energy model to be developed to assess the overall site Energy Use and Carbon Emissions. It should be noted that these are assumptions, and not proposed design solutions at this stage and should not be adopted on final proposals but offer a reasonable guide to the future energy use. A further consideration is that the model assumes that building is heated whereas the future tenant may use ambient employment units, or cold storage which will impact on the Energy Model. The energy assessment will be based on a mixture of heated and un-heated

employment units, therefore the heated buildings will likely be more reliant on fossil fuels such as gas supply whereas a cold storage unit will be more relevant on Electricity use.

18.11. A sample Employment Unit will be modelled to establish typical Energy Use of Carbon Emissions as detailed below.

- It should be noted those are not final detailed inputs but initial elements at this stage to establish energy benchmarking.
- The calculations and modelling will be undertaken to establish compliance with part L2A of the Building Regulations.

18.12. The internal conditions are assigned to the zones as indicated in Table 18.2 below:

Internal Condition Type	Zones assigned to
Indust Circulation	Corridor
Indust_IndProcess	Workshops
Indust_Toilet	WCs

Table 18.2: Internal Conditions

Lighting Efficiencies and Controls

18.13. Lighting

Zone	W/m ² 100lux	Presence detection	Daylight- control	Back-space sensor
Office/ corridor	2.50	Auto-on/auto- off	Photo-control	No
Employment Unit	2.67	Auto-on/auto- of	Photo-control	Yes
WC	4.0	Auto-on/auto- of	Manual	N/A

Table 18.3: Lighting

18.14. Air Permeability

An air permeability of 5.0 m³/m².hr at 50 Pa is assumed.

18.15. Natural Ventilation

To all areas apart from WCs.

18.16. Building Fabric

- External walls:
- Ground floor: Solid concrete, carpet upper (offices), concrete upper (workshop/WC) U-value = 0.20 W/m²K).
- Roof: Lightweight, aluminum outer, plasterboard inner with void above (U-value = 0.20 W/m²K).
- Glazing: SG cool-lite SKN Neutral SKN165 - Total transmittance (g-value) = 0.34, U-value = 1.64 W/m²K
- Frame: U-value = 1.70 W/m²K (15% of rooflights, 50mm wide for non-openable windows and 100mm wide for glazed doors and openable windows)
- Vehicle doors and fire exits:
- U-value = 1.20 W/m²K
- Internal walls: plastered concrete block

18.17. Mechanical Ventilation (extract only)

To WCs:

- Extract fan SFP: 0.4 W/l/s
- Flow rate: 8.0 ach

18.18. Heating

To offices, corridor and WC (LTHW to radiators):

- Fuel: gas
- Seasonal efficiency: 92%
- Distribution efficiency: 90%

18.19. To Employment Unit (Gas fired Radiant Heater or equal)

Fuel: gas

- Seasonal Efficiency: 88%
- Radiant efficiency: 60%

18.20. Domestic Hot Water

- Fuel: gas
- Efficiency: 92%
- Distribution efficiency: 95%

18.21. Management Features

- Heating, Ventilation and Air Conditioning (HVAC) monitoring with warning for out of range values
- Light metering with warnings for out-of-range values

18.22. Pumps

Variable, with multiple pressure sensors.

18.23. Weather Data

CIBSE Test Reference Year for Manchester (nearest location for data)

18.24. It should be noted the inputs at this stage are not a final design and adopted to establish a quantum of the predicted Energy Use and Carbon Emissions. These inputs will vary throughout the detailed design process.

18.25. Energy Use:

Energy consumption table:

Energy Consumption by End User [kWh/m2] Per Annum		
	Actual	Notional
Heating	69.76	52.08
Cooling	0.41	0.73
Auxiliary	0.72	0.39
Lighting	25.33	60.13
Hot water	4.74	5.2
*Energy used by equipment does not count towards the total for calculating emissions.		
**Total is net of any electrical energy displaced by CHP generators, if applicable.		

Table 18.4: Energy Use

18.26. Carbon Emission Results:

Carbon Emissions	Kg CO2/m2 Per annum
Heating	12.8
Cooling	0.22
Auxiliary	0.39
Lighting	13.7
Hot water	0.87

Table 18.5: Carbon Emissions

From the results it is evident that even with a heated employment unit, the highest carbon emissions are attributed from the lighting followed by the heating demand. This is a result of the large extent of artificial lighting required in an employment unit facility.

The outcome from these results promotes focus in terms of addressing the key areas to reduce energy and subsequent carbon emissions.

18.27. Below is a table with the initial resultant estimated Energy Use and Carbon Emissions based on the site wide parameters plan.

Unit	M ²	Elec		Fossil Fuel		Elec		Fossil Fuel		Sub-Total
		Kwhr/m ²	Kwhr/ann	Kwhr/m ²	Kwhr/ann	C0 ₂ /m ²	C0 ₂ /ann	C0 ₂ /m ²	C0 ₂ /ann	
Plot 1										
Employment Unit	3,325,000	27	89,777,000	75	249,375,000	11	36,575,000	14	46,550,000	83,125,000
Office	175,000	25	4,375,000	21	3,675,000	10	1,750,000	4	700,000	2,450,000
Total	3,500,000									

Table 18.6: Energy Use & Carbon Emissions

18.28. The overall carbon emissions for the site are based on the criteria set out in the Baseline data that was inputted in to the Energy Model.

18.29. This model is currently based on heated employment units which may not be the case and hence the fossil fuel usage is in the higher end of the calculations.

18.30. The calculations undertaken all demonstrate a betterment of Part L2A of the building regulations.

Alternatives Considered

18.31. As part of the design development the following has been considered as potential solutions and technologies to be part of the design these are not detailed solutions to be adopted at this stage:

18.32. Initial Summary of Technologies Considered, Adopted & Discounted.

- 18.33. Our initial stage is to discount or consider further particular technologies before detailed analysis is undertaken.

Key: Y – Yes N – No P – Possibly

REDUCE DEMAND	SUITABLE FOR CONSIDERATION	COMMENTARY
Natural ventilation/mixed mode	Y	Site is suitable for natural ventilation solutions.
Natural daylight	Y	As part of the master-planning and individual unit design.
Thermal mass	N	Considered to minimise cyclical energy fluctuations but not conducive to construction methods for Employment Units.
Air tightness	Y	Essential to minimise air leakage and reduce heat losses (improve on Part L)
Solar shading/Solar Glass	P	Yes to mitigate summertime overheating to offices.
Thermal Insulation	Y	Essential to minimise heat losses (improvement on minimum Part L requirements)
Low Energy Fit Out	P	Promoted with future tenants/ occupiers.

Table 18.8: Reducing Demand

ENERGY EFFICIENCY	SUITABLE FOR CONSIDERATION	COMMENTARY
Heat recovery	Y	Could be adopted for particular rooms/ areas.
Low energy lighting	Y	LED fittings important to reduce energy use for artificial lighting
Power management	Y	System can be adopted to limit excessive over voltage and energy use.
DC motors	Y	Can be adopted on specific systems where appropriate.
Variable speed drive	Y	Variable speed drives can be adopted on pumps motors where possible to reduce energy consumption.
Demand Operated Systems	Y	The use of passive infra-red (PIR) for lighting, heating, ventilation is feasible.
De-stratification Fans	Y	Important to adopt in heated environments
Energy Metering	Y	Promotes energy monitoring & out of range energy use.
Lighting Control	Y	Yes to operate in conjunction with daylight sensing

Table 18.9: Energy Efficiency

Key: Y – Yes N – No P – Possibly

RENEWABLE AND LOW CARBON	SUITABLE FOR CONSIDERATION	COMMENTARY
SOLAR		
Solar hot water	P	On the whole, distribution units will not have a high domestic hot water load.
Photovoltaics (PV's)	Y	Can be used to offset electrical demand subject to financial appraisal.
WATER		
Small scale hydro power	N	Not feasible as no significant water source available
Tidal power	N	Not Applicable

RENEWABLE AND LOW CARBON	SUITABLE FOR CONSIDERATION	COMMENTARY
Wave power	N	Not Applicable
WIND		
Wind turbines	N	Impact of building Flicker and noise are key considerations, also visual impact on site, so discounted at this stage of the design.
BIOMASS		
Biomass single room heaters/stoves	N	(relevant to residential buildings only) .
Biomass boilers	N	Peaks & Troughs of hot water demand not conducive to biomass operations if ambient employment unit adopted then large heating demands will not be required.
Biomass community heating schemes	N	Uncertainty of end user not conducive to strategy.
COMBINED HEAT AND POWER (CHP) for use with the following fuels:		
Biofuel	N	Gasification process possible for scale of site, but Biodiesel considered immature feedstock and unreliable.
Natural gas	P	Required baseline heating demand not ideal for uncertainty of end user.
Heat Pumps		
Ground source heat pumps	P	Availability of land makes solution feasible but high capital cost.
Water source heat pumps	N	No significant water sources to reject / absorb heat.
Air source heat pumps	P	Sufficient space available at each unit but may be more appropriate to offices element only.
For heat pumps to comply, the heat source (ground or water) must be from a renewable source, for example soil, outside air, ground water, or a river.		
OTHER		
Fuel cells using hydrogen generated from any of the above 'renewable' sources.	N	Technology not yet mature enough for application.
Rainwater recycling	P	Rainwater collection system, could be adopted to recycle rainwater for toilet flushing purposes for each block.
Green roofs	P	Could promote the site ecology but not specifically adopted at this stage.

Table 18.10: Renewable and Low Carbon Technologies

STAGE I - Design Review Reduce Demand

i. Proportion of transparent elements

- 18.34. The approach to the design will be to carefully consider the balance between transparent elements and opaque elements of the building façade.
- 18.35. This is important to ensure the avoidance of excess heat losses but at the same time, allowance of good natural daylight. Different approaches will be applied to the offices and other employment units.

ii. Natural Daylighting

- 18.36. As the Energy model highlighted, the major Carbon emission can be attributed to artificial lighting and hence the ability to reduce the reliance on artificial lighting with good natural daylighting is essential. Typically the employment unit area will have 10-15% of the roof area being roof-lights.
- 18.37. This percentage of glazing will help to provide a good daylight factor therefore reducing lighting consumption. The proportion of glazing may be locally increased where access to daylight is limited.

iii. Natural Ventilation

- 18.38. As the site is suitable for natural ventilation methods, then both the employment unit (B2/B8) element of a typical unit and the office area will be considered for natural ventilation methods.
- 18.39. It is intended to omit the use of Artificial cooling by the use of passive measures such as:

- Consideration of Building orientation
- Natural ventilation solutions
- Low energy fit out
- High performance glazing where required

iv. Minimise Air Infiltration to Reduce Heat Loss

- 18.40. In buildings where the fabric allows uncontrolled air movement (higher heating energy is required in winter as a result of the higher heat losses. The building will be designed and built to very high standards in order to reduce air infiltration rates through the incorporation of robust building detailing and high quality construction techniques. The target air permeability rate of 3-5m³/h/m² at 50 Pa is considered an aspiration for the future building design (compared to 10 m³/h/m² at 50 Pa required by Part L 2013).

STAGE 2 - Design Review Meet Demand Efficiently

- i. Once the passive measures have been fully optimised in terms of reducing the initial demand the design solutions will target meeting the demand by energy efficiency measures namely:-

- Mixed Mode Ventilation (offices)
- Low Energy Lighting (LED)
- Daylight Dimming where appropriate
- Occupancy demand systems (such as lighting, heating and ventilation)
- Energy Metering
- Variable Speed Drives on pumps & fan
- Heating set back
- De-stratification fans

ii. Energy Metering

- 18.41. There is evidence that energy metering will reduce energy by up to 10%, the information provided will allow analysis of energy trends and comparison with benchmark data.
- 18.42. As a minimum all metering shall fully comply with CIBSE Guide for Energy metering.

iii. Variable Speed Drivers

- 18.43. These will be adopted on the systems (such as LTHW heating & ventilation systems) to optimise energy use against demand to reduce energy consumption when appropriate

iv. Lighting Control Systems

Low Energy Lighting (LED)

- 18.44. Low energy lighting will be an essential component in the reduction of the overall energy use of the building coupled with control systems that operate lighting systems on demand (such as PIR systems and due to environmental criteria such as a daylight Dimming).

v. Destratification fans

- 18.45. These systems reduce heating demand by recirculating stratifying warm air in tall buildings and hence reduce energy demand.

STAGE 3 - Design Review Renewable & Low Carbon Technologies

18.46. The final element of the design stage is to review the Renewable & Low Carbon Technologies namely:-

- Solar Thermal
- Photovoltaics
- Ground Source Heat Pumps (GSHP)
- Air Source Heat Pumps (ASHP)
- Combined Heat & Power CHP
- Biomass

i. Solar Thermal Panels

18.47. The use of solar panels to collect the sun's rays and produce hot water for domestic purposes is extensively used within the UK.

18.48. Panels can be used to offset up to 20-40% of the annual hot water demand dependent on size, orientation etc. While the initial capital cost is relatively high the Government Renewable Heat Incentive of improves the payback and life cycle analysis.

18.49. Invariably employment unit facilities will not have high hot water demands unless due to a specific process which is not possible to predict at this stage. On that basis dedicated Solar thermal panels are not proposed at this stage but roof space on the office area for potential future installation.

ii. Biomass

18.50. Energy from biomass is produced by burning organic matter. Biomass products such as trees, crops or animal dung are harvested and processed to create bio-energy in the form of electricity, heat, steam and solid fuels. Biomass is the solid form of 'bioenergy', but liquid fuels can also be generated from plant matter and this is referred to as 'biofuel'.

18.51. Biomass is carbon-based so when used as fuel it also generates carbon emissions. However, the carbon that is released during combustion is equivalent to the amount that was absorbed during growth, and so the technology is carbon-neutral (the fuel generally requires treatment and transport, with associated carbon emissions). Unlike fossil fuels, biomass can be replaced relatively quickly.

18.52. At this stage the requirement for heated employment units is unknown and therefore the use of biomass cannot be committed to.

iii. Anaerobic Digestion (AD) at new Wastewater Treatment plant

- 18.53. The anaerobic decomposition process is a natural process that happens in absence of oxygen. It is a biological process where a biodegradable waste stream is combined with certain types of bacteria to generate biogas. The biogas could be used to power vehicles, or alternatively used in a Combined Heat and Power (CHP) plant to provide the heat needed to warm the digester and/ or to feed into a nearby district heating network and also electricity that can be used in-situ or sold to the grid.
- 18.54. Suitable waste streams come in the form of organic domestic or commercial waste, sludge from wastewater or farm slurry. The creation of a new wastewater treatment facility for the Denny St Francis development presents an opportunity to consider the possibilities of using the wastewater sludge in an adjacent AD plant. There is also the potential for this to be augmented with organic water or slurry from adjacent farms. Industry precedent indicates that the scale of Denny St Francis puts an AD system designed for wastewater sludge around the borderline of commercial viability, such that more detailed analysis would be required.
- 18.55. The scale of the development and the potential different uses does not constitute the adoption of this type of technology.

iv. Wind Power

- 18.56. Wind turbines are essentially tall structures with rotation blades which require sufficient space to operate satisfactorily. The rotating blades operate under wind pressure and generate electricity, which can be used on site by the operator or exported on the electrical grid. The extent of electricity generated will depend on the type of site, the wind speeds experienced and the size of the turbine. Typically a 9m high turbine will generate a peak 6kW (KWP) of electricity.
- 18.57. The extent of electricity generated will depend upon the type of site, the wind speeds experienced and the size of the turbine.
- 18.58. The principal consideration when assessing wind power are:
- Suitability of site with respect to average wind speeds and surrounding buildings
 - Financial viability of wind power
 - Aesthetical impact and planning considerations

- Noise generated from Turbine (rule of thumb minimum spacing 5 times rotor diameter)
- Space requirement to accommodate the wind turbine
- Electrical transmission systems to connect to electrical grid system.

18.59. Although the site does have favourable wind speeds over 4.5m/s the use of wind power is discounted on the basis of:

- Proximity of existing residential units
- Visual impact on site

v. Photovoltaics

18.60. Photovoltaics convert solar radiation into electricity and must not be confused with solar panels which use the sun's energy to heat water usually for domestic hot water purposes or space heating. When PV's are exposed to the Sun's rays they generate a direct current (DC) The DC power is then converted to AC power and is utilised either by the operator of the system and/or converted to the electrical grid and sold/credited to the utility company. Theoretical efficiencies of PV's are around 30% with a further reduction in electrical power when converting to AC alternating power of 15% efficiency.

18.61. The location of PV's is very important they must fully exploit the Sun's rays and hence must be located in un-shaded positions. The exact orientation is not critical but to improve efficiencies then the PV's should tilt to absorb the optimum extent of solar radiation. As a general rule of thumb -1m² of PV array at a reasonable tilt, orientation and efficient system will develop about 100-130 (Kilowatt hours per year) in the UK. PV array comes in many different forms from free standing modules located on roof areas to building integrated systems that form part of the building fabric or vertical rain screen type arrangements.

18.62. This technology does offer an attractive method of reducing carbon emissions in the form of electricity production a feature that most occupiers of the employment unit buildings may require.

Decentralised Energy

i. Overview

18.63. This step in the hierarchy relates to this consideration of decentralised energy, such as district heating supplied through energy centre containing centralised boilers or combined heat and power installations.

ii. CHP Technology & District Heating

18.64. Development- size CHP engines tends to be gas- fired and will typically produce heat for domestic hot water and a proportion of electricity supply to the units. CHP systems can supply a single building, small clusters of buildings/ flats or a cluster of many buildings through a heat network. The more units attached to the network, the higher the demand, which would allow a selection from a broader spectrum of CHP technologies. District heating can be applied on a phase by phase network that remain stand alone or connect together in later phases to create a site- wide network. If a district heating system were to be applied at site- wide scale, then this would increase the economies and the efficiencies possible for the overall system.

iii. Decentralised Energy and Viability

18.65. Since the role of decentralised energy in the search for CO₂ emissions reduction was first raised, the industry has been gathering knowledge in relation to the financial visibility and delivery implications of such systems.

18.66. Of particular interest has been the financial implications of district heating, given that the UK has little experience or precedent to draw on. It has emerged that the cost of the distribution pipe- work has a significant impact on viability, thus making the concept of heat density an important aspect to consider.

- What constitutes 'business as usual' against what a district system is being compared, i.e. as the policy environment tightens it is no longer possible to compare with conventional energy solutions.
- The ability of the energy sector and finance industry to assist in solving the need for higher upfront capital injection in order to implement district energy schemes.
- The industry uptake of district heating such that monopoly situations don't affect the cost of pipework.
- The ability to streamline groundwork with other trades and how the statutory authorities allow district heating pipe-work to be accommodated in 'adopted standard' roads.
- The emerging design solutions to issues such as distribution losses (which will affect both size and specification of pipe- work components)

- The influence of government incentivisation and cost of compliance burden on viability comparisons and energy strategy selections, particularly with respect to ‘on plot’ micro based or decentralised approaches.
- How local authorities are facilitating decentralised energy solutions on a local scale such that developers can discharge their compliance burden by connection to an existing system.
- How the tightening of Building Regulations policy, specifically the improvements in fabric energy efficiency which will lead to reduced heat demand, will affect the viability.
- The interplay between the existing building stock, which can provide a good customer base for the heat sales, and the proximity of new build developments that can act as the catalyst for such systems to be implemented.

18.67. Overall it can be concluded that, when accompanied by a suitable level of vision, district heating is often a viable option in areas with heat density and as this cannot be established at this stage, then its adoption cannot be committed to.

Potential Environmental Impacts

Construction Phase

18.68. The potential environmental effects of the development as a result of the Energy Strategy:

- Increased energy use and carbon emissions as a result of construction activities
- Increased NO_x levels as a result of construction related activities
- Increased water use as a result of construction activities

Operational Phase

18.69. The potential environmental effects of the development as a result of the energy strategy:

- Increased CO₂ emissions in to the environment from the development
- Increased NO_x levels from (burning fossil fuels) such as gas fired boilers into the atmosphere.
- Increased water use for the development

Methodology for the Environmental Statement

Baseline methodology for scheme evolution / design

18.70. The principle method of how the team has integrated low energy and carbon reduction into Proposed Development is to follow a 'Strategic Route'. This has steered the Team to focus on key aspects of the design at the appropriate juncture in the process.

18.71. The following Section explains how this strategic route has been followed:

i. **Establish Client Requirements, Regulations & Benchmarks:**

It is important from the onset to set out and establish the relevant criteria that is to be adopted and to understand what implications they have on the energy and sustainability strategy.

While these benchmarks, standards regulations etc. are fundamental in achieving statutory and regulatory compliance we believe this has been achieved in a way that does not distract from good sustainable and low energy design and avoid "box ticking" exercises.

18.72. **Site Appraisal**

It has been important to understand the opportunities and limitations of the site and surroundings in the context of the opportunity to implement renewable and low carbon technology.

Noise Quality

The acoustic study undertaken by Cundall has concluded that the site and the buildings are on the whole suitable for natural ventilation solutions from an acoustic perspective. These solutions could be applied to both the office elements of the units and subject to the use also applied to the employment unit (B2/B8) elements.

Mean Wind Speeds

While mean wind speeds of the site are favourable (in excess of 4.5 m/s) for the production yield of energy from wind for the site, there are a number of key points for consideration and further investigation:

- Noise generated by wind turbines will not be conducive to the local residences.
- Flicker effect of wind turbines on the buildings on sunny days - prohibitive.
- Visual impact of wind turbines does not align with current Development Teams planning strategy.
- Proximity of existing Buildings & Wildlife

Site Layout

The site layout has been influenced by a number of factors including existing constraints of the site such as:

- Overhead low voltage cabling
- Existing below ground services

Natural Daylight

At detailed design stage, feasible window positions and roof lights will take due regard of the guidance set out by the BRE document reviewing the skyline and the amount of skylight falling on a vertical wall or window.

The combination of maximising daylight and passive solar design will reduce both the reliance on artificial lighting and reduce the heating demand resulting in both energy and carbon reduction.

The measures adopted in targeting these daylight factors are:-

- Optimum sizing of windows.
- Avoiding internal rooms.
- Minimising deep plan rooms.
- Light coloured internal finishes where appropriate.
- Glazing taken to underside of ceiling finish.
- Maximising floor to ceiling heights.
- Glass specification with good daylight penetration.
- Roof lights to employment units.

18.73. Baseline Carbon Emissions

Initial baseline carbon emissions have been established using CIBSE Benchmarking TM46 however, to establish a more refined and detailed energy predictions (and carbon emission prediction) a model for a typical employment unit has been produced to predict the energy use and predicted carbon emissions from the scheme.

18.74. Design

At the design stage a strategic process was followed to promote the implementation of Best Practice Carbon reduction methods and technologies:

This strategic route was as follows:

- a) Reduce demand - Passive Measures
- b) Meet demand efficiently - Energy Efficiency
- c) Low & Renewable Technology

It is considered that following this route has promoted 'Best Value and Practice' in the incorporation of Renewable and Low Carbon Technologies.

Receptors

18.75. The geographical extent of the potential impact from the development are outlined in the following:

Designation	Receptors
International	Not Applicable
National	Not Applicable
Regional	Not Applicable
County	Not Applicable
Borough / District	Existing Utility Networks
Local/Neighbourhood	Existing residential receptors within the surrounding area, sit habits, ecological features and existing utility networks

Table 18.11: Receptors

Environmental Impacts

18.76. The extent of the CO₂ and NO_x emissions as a result of the Energy Strategy will have an impact on the current levels

Magnitude	Environmental Impact
Substantial	Permanent/irreversible change to key characteristics of the strategic utility network (electric and gas) as a result of the energy demand with important consideration at a district scale plus increased CO ₂ and NO _x emissions.

Magnitude	Environmental Impact
High	Permanent/irreversible change to key characteristics of the local utility network (gas and electricity) as a result of the energy demand with important consideration at a local level plus increased CO ₂ and NO _x emissions
Moderate	Permanent/irreversible change to the local utility network (electricity and gas) that may result in temporary disruptions locally as a result of the energy demand plus increased CO ₂ and NO _x emissions
Minor	Temporary change over a limited area to key characteristics of the utility network (electricity and gas). Impacts likely to occur (e.g. increase in loading due to the Proposed Development prior to completion of any necessary offsite infrastructure improvements) plus increased CO ₂ and NO _x emissions
Negligible	Minor temporary change over a limited area to key characteristics network (electricity and gas). Impacts unlikely or rarely to occur and minimal increases to CO ₂ and NO _x levels
Neutral	No impact on existing utility servicing CO ₂ and NO _x

Table 18.12: Environmental Impacts

Impact Prediction Confidence

- 18.77. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 18.13: Confidence Levels

Significance of Effects

- 18.78. The significance of effect is determined using the significance matrix in Section 3 of this Scoping Report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

Construction Phase

- 18.79. A summary of the impacts from construction stage are presented in the table below. The impacts and the significance of these impacts are summarised below using the methodology set out in this Paper:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Increase in CO ₂ emissions	Local	Minor Negative	Minor Adverse	High
Increase in NO _x emissions	Local	Minor Negative	Minor Adverse	High
Increase in water consumption	Local	Minor Negative	Minor Adverse	High

Table 18.14: Significance of Effect - Construction Phase

- 18.80. The potential impacts at construction phase are not significant in the wider context of the Environment in terms of Energy and Water use.

Operational Phase

- 18.81. A summary of the impacts from operational stage are presented in the table below. The impacts and the significance of these impacts are summarised below using the methodology set out in this Paper:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Increase in CO ₂ emissions	Local	Minor Negative	Minor Adverse	High
Increase in NO _x emissions	Local	Minor Negative	Minor Adverse	High
Increase in water consumption	Local	Minor Negative	Minor Adverse	High

Table 18.15: Significance of Effect - Operation Phase

- 18.82. In conclusion, the development will increase the CO₂ and NO_x levels in the local area including the water consumption dependent on the ultimate employment usage.

Mitigation

- 18.83. This section identifies the mitigation measures proposed to manage and/or address the adverse effects of the proposed development at construction and operational stage in relation to the energy strategy.

- Construction Phase**
- 18.84. During the construction stage of the project number of mitigation measures will be adopted to reduce and manage the environmental impact of the construction activities:

Energy Consumption

- Monitor and record data on principal contractor and subcontractor's energy consumption in kWh (and where relevant, liters of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation.

Water Consumption

- Monitor and record data on principal constructor's and subcontractors' potable water consumption (m³) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.
- Using the collated data report the total net water consumption (m³), I.e. consumption minus any recycled water use
- The adoption of metering and monitoring technologies of energy use and subsequent carbon emissions against benchmarks will promote mitigation. This could be achieved by the contractor adopting systems such as a low water volume appliances or water recycling systems

Combination of measures will mitigate the energy use and subsequent carbon emissions to meet the Local Plan Core Strategy

- Operational Phase**
- 18.85. During the operational phase the development will benefit from the low carbon approach incorporated into the design as set out within this paper and baseline information. The low carbon design features will mitigate the Energy consumption with the following strategy adopted:

- 18.86. A combination of measures will mitigate the energy use and subsequent carbon emissions to meet the Local Plan Core Strategy and improve on the Part L2A of the Building Regulations.

Additive Impacts (Cumulative Impact and their Effects)

- 18.87. For the purposes of this ES we define the cumulative effects as:

'Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself.'

18.88. All the projects to be considered as part of the cumulative impact assessment are described in this Scoping Report. The projects to be considered in respect of the [insert technical topic area e.g. Traffic and Transportation] cumulative assessment are listed in the table below:

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
1	Liberty Properties development on Land off Barleycastle Lane, Appleton, Warrington.	50,000m2 logistics development	Pre-application discussions with WMBC. Scoping request (LPA ref:2017/30243) Application to be submitted November 2017	Energy usage and CO ₂ emissions in the area will be affected.

Table 18.16: Cumulative Projects

Further Work Required

- 18.89. Further works are required include;
- 18.90. Develop outline Energy model in line with the design developments of the Proposed Development.
- 18.91. Review Energy Strategy when utilities Points of Connections are received.

Summary

- 18.92. During the assessment of the Energy Strategy the key focus was to follow a strategic approach to reducing energy and consider how the impacts of energy use will have on Carbon Emissions and NO_x production at both construction and operational phases. Furthermore the use of water at both construction and operational stage has been assessed with mitigation measures adopted and built into the design for future feasibility.
- 18.93. It has been determined that the Energy Strategy for the Proposed Development will promote Low Carbon Design and flexibility in the development of the site. This flexibility will be fundamental in attracting future tenants/end users who will seek to occupy a building with low operating energy use and costs.
- 18.94. The key aspects have been to follow a strategic design route to promote

- Passive design and reduce the United Utilities demand on the buildings development
- Energy Efficiency measures to use energy in a more efficient way.
- Design features adopted for the future installations of - Renewable & Low carbon technology

18.95. Final definitive Renewable and low carbon technologies are not be adopted at the stage until the specific requirements of the tenant/end users are known, however the design of the development will promote the potential incorporation of these solutions.

18.96. At the construction stage the impact on the environment will be mitigated by monitoring and measuring CO₂ and NO_x levels promote energy and water use for construction activities.

18.97. The tables below confirm the details to be Scoped In and Scoped Out of the environmental assessment in respect of Energy

Scoped In

Environmental Issue	Reason for “scoping in”
Technical Paper 18 - Energy Baseline energy model of speculative units.	To establish baseline Energy use and Carbon emissions.
Energy and CO ₂ emissions.	Due to increased energy and subsequent CO ₂ required for the proposed development.
Reduce demand to Proposed Development	To mitigate the energy and CO ₂ produced. Refer to table 18.9 within this paper.
Energy efficient systems	To mitigate the energy and CO ₂ produced. Refer to table 18.9 within this paper.
Renewable and Low Carbon Technologies	To mitigate the energy and CO ₂ produced. Refer to table 18.10 within this paper.

Scoped Out

Environmental Issue	Reason for “scoping out”
<p>Technical Paper 18 - Energy</p> <p>Future tenant specific Energy modelling.</p> <p>Renewable Technologies deemed not appropriate</p>	<p>Detailed operation unknown at this stage.</p> <p>Some Renewable Technologies are deemed not appropriate for the Proposed Development and are therefore not to be considered during future design works. Refer to table 18.10 within this paper.</p>

19. Conclusion

- 19.1. The redevelopment of this Site provides an opportunity to deliver a strategic employment site with 325,150m² (3.5 million ft²) B8 and B2 uses (with ancillary B1(a) Office) with associated road infrastructure, landscape, drainage areas in a sustainable location, adjacent to the strategic highway network.
- 19.2. Whilst the Proposed Development is considered to be appropriate for the Site, it is accepted that the Proposed Development will have an impact on the environment both in the context of the Site and the wider areas. These impacts can be both positive and negative. The aim of the Scoping Report is to set out the baseline information where possible and provide an initial assessment of environmental impacts in order to be able to identify those impacts that are likely to be of significance and therefore need further consideration through Environmental Assessment, as well as those that are not likely to be significant and can be scoped out of the Environmental Assessment. The Scoping Report also sets out the methodology by which the significance of these impacts will be assessed.
- 19.3. The Scoping exercise shows that the primary focus for the environmental assessment is:-
- traffic generation and its associated impact in respect of noise and air quality;
 - the impact on heritage assets, given the Site's location adjacent to a Scheduled Ancient Monument moated site and listed buildings within the study area;
 - landscape and visual impact, given the nature and location of the Site and the development proposed;
 - the impacts of the development on ecological habitats and species, given those present on the existing Site and the Site's location adjacent to a brook and woodland;
 - drainage and flood risk;
 - ground; as well as
 - utilities, waste, energy and socio economic.

19.4. It is however considered that some impacts and their effects are not significant and as such can be scoped out of the Environmental Assessment. The justification for this is set out in each of the Technical Chapters (Chapters 7-18) and summarised in the tables below:

Scope In

19.5. The areas to be included and therefore ‘scoped in’ to the ES are summarised in the table below. These matters will be the subject of further assessment:

Environmental Issue	Reason for “scoping in”
<p>Ground <i>Construction:</i> Temporary flood risk Pollution to receptors Unstable ground</p>	<p>Construction work will present new risks to the greenfield site.</p>
<p>Traffic and Transportation <i>Construction:</i> Driver Delay Pedestrian Amenity and Delay Road Safety Public Transport Severance</p> <p><i>Operation:</i> Driver Delay Pedestrian Amenity and Delay Road Safety Public Transport Severance</p>	<p>The development is likely to result in additional traffic on the highway network during the construction and operational phase. This may impact on all of the environmental issues listed.</p>
<p>Flood Risk & Drainage <i>Construction:</i> Temporary flood risk and pollution to watercourse due to incomplete systems/spills.</p> <p><i>Operation:</i> Flood risk, pollution to watercourse and impact to aquifer.</p>	<p>The sites previous greenfield classification and the potential for increased flows, collection, concentration and conveyance of storm water during construction and operational uses. The increased pathways for contamination and the location of the underlying Aquifer as well as the potential impact on adjacent uses, construction workers and future site users.</p>
<p>Landscape and Visual Impact <i>Construction and Operation:</i> Visual receptors on roads, PRow's, in local open space, educational locations and dwellings identified within the 5km study area. Landscape receptors identified within the 5km study area, especially where there is a distinct change in character or type to the current landscape; Security and compound lighting.</p>	<p>The significance of the effect will potentially be greater than Slight.</p>
<p>Ecology and Nature Conservation <i>Construction:</i> Impacts to habitats e.g. loss or damage</p>	

Environmental Issue	Reason for “scoping in”
<p>Impacts to protected and priority species e.g. loss of habitat that supports them or disturbance Spread of invasive non-native species (INNS) Impacts to badgers</p> <p><i>Operation:</i> Impacts to protected sites e.g. recreational disturbance/degradation Impacts to habitats e.g. degradation Impacts to protected and priority species e.g. disturbance Impacts to badgers</p>	<p>Impacts to habitats and species of ecological importance must be considered under local and national planning policy and legislation. Spread of INNS is prohibited under in the WCA 1981. Badgers are afforded legal protection from disturbance, killing and injury under the PBA 1992. Impacts to protected sites, habitats and species of ecological importance must be considered under local and national planning policy and legislation.</p>
<p>Socio Economic</p> <p><i>Construction:</i></p> <ul style="list-style-type: none"> • Temporary increase in employment • Short-term increase in economic output (GVA) • Training and apprenticeship opportunities • Effects on local services and facilities • Wider socio-economic impacts <p><i>Operation:</i></p> <ul style="list-style-type: none"> • Creation of long-term employment opportunities • Long-term increases in economic output (GVA) • Increase in business rate revenue • Training and apprenticeship opportunities • Effect on local labour market • Commuting and migration impact • Effect on local services and facilities • Wider socio-economic impacts 	<p>The provision of new B8 and B2 floorspace through the Proposed Development will support the creation of a significant number of new employment opportunities, both during the Construction Phase and Operational Phase. This is expected to lead to further impacts relating to training and apprenticeship opportunities, demand for local services and wider socio-economic impacts, along with potential effects on the local labour market and commuting patterns during the Operational Phase.</p>
<p>Noise and Vibration</p> <p><i>Construction Phase:</i> Noise impacts associated with construction related fixed and mobile plant Noise impacts associated with increase in traffic on approach to Application Site due to construction related vehicles Vibration impacts associated with construction related fixed plant and mobile plant (e.g. piling)</p> <p><i>Operation Phase:</i> Noise impacts associated with resultant increases in traffic on the local highway network surrounding the Application Site following completion of the Proposed Development</p> <p>Noise impact associated with the “industrial” noise emissions from the Proposed Development e.g. movement of industrial vehicles, operation of service yards and loading bays and operation of building services plant.</p>	<p>There is the potential for significant impacts at nearby sensitive receptors</p>

Environmental Issue	Reason for “scoping in”
<p>Air Quality, Odour and Dust</p> <p><i>Construction:</i> Dust Changes in NO₂ , PM₁₀ and PM_{2.5} due to construction traffic if HGV numbers exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i> Changes in NO₂ , PM₁₀ and PM_{2.5} due to changes in operational traffic</p>	<p>During construction there is the potential for fugitive dust and exhaust emissions from the Assessment Site.</p> <p>The operation of the Proposed Development has the potential to change the number, type and speed of vehicles using the local road network. The main pollutants from road traffic with potential for local air quality impacts are nitrogen oxides (NO_x) and particulate matter (PM₁₀). Emissions of total NO_x from combustion sources comprise nitric oxide (NO) and NO₂. The NO oxidises in the atmosphere to form NO₂. The assessment of operational impacts will therefore focus on changes in NO₂ and PM₁₀ concentrations. The impact from fine particulate matter, known as PM_{2.5} (a subset of PM₁₀) concentrations will also be considered. Increases in NO₂ and PM can lead to an increase in cardiovascular diseases.</p>
Cultural Heritage and Archaeology:	
Bradley Hall Moated Site (DCH159)	The Proposed Development will negatively impact the setting of the scheduled monument.
Grade II* Listed Tanyard farm building (DCH13677)	Development will diminish the agricultural setting of the farm building.
Grade II Listed Barley Castle Farmhouse (DCH1935)	Development will affect the agricultural setting to the asset.
Effect on demolition of Locally listed Bradley Hall and Barn (DCH127563)	Demolition will result in the loss of a locally listed asset
Roman road (547/1/7) within the site	Groundworks and construction activities will impact any surviving sections of Roman road.
Roman road (547/1/7)	Groundworks and construction activities will impact any features associated with the Roman road.
Medieval Cross (551)	Groundworks and construction activities will impact the site of the medieval cross.
<p>Utilities</p> <p><i>Construction:</i> Disconnections / Diversions of existing utility infrastructure crossing the site. New EHV Primary sub-station. Temporary proposed utilities to site.</p> <p><i>Operation:</i></p>	<p>Existing services are required to be disconnected and relocated to facilitate the Proposed Development.</p> <p>A new EHV Primary sub-station is required to provide the Electrical power to the Proposed Development from Scottish Power’s network.</p> <p>Temporary utilities are required for construction activities and offer a more energy efficient and acoustic solution.</p>

Environmental Issue	Reason for “scoping in”
Disruption to existing connections to residential properties adjacent Bradley Hall Farm.	Disruptions are likely which are associated with the diversion and disconnection works.
<p>Waste</p> <p><i>Construction:</i> The types and likely quantities of waste generated during the construction of the Proposed Development. The treatability of waste generated by the Proposed Development The measures to manage wastes.</p> <p><i>Operation:</i> The types and likely quantities of waste generated during the operation of the Proposed Development. The treatability of waste generated by the Proposed Development The measures to manage waste.</p>	<p>The additional waste generated by the Proposed Development may exceed the capacity of existing and proposed waste management infrastructure. The types of waste generated may have to be transported outside the borough or county to be managed. National and local policies set requirements for how to manage types of waste.</p>
<p>Energy</p> <p>Baseline energy model of speculative units.</p> <p>Energy and CO₂ emissions.</p> <p>Reduce demand to Proposed Development</p> <p>Energy efficient systems</p> <p>Renewable and Low Carbon Technologies</p>	<p>To establish baseline Energy use and Carbon emissions.</p> <p>Due to increased energy and subsequent CO₂ required for the proposed development.</p> <p>To mitigate the energy and CO₂ produced. Refer to table 18.9 within this paper.</p> <p>To mitigate the energy and CO₂ produced. Refer to table 18.9 within this paper.</p> <p>To mitigate the energy and CO₂ produced. Refer to table 18.10 within this paper.</p>
Cumulative Assessment	Section 6 of this Report identifies the projects to be scoped in for the Cumulative Assessment.

Table 19.1: Environmental Issues Scoped into ES

Scope Out

- 19.6. The issues that are not considered relevant to the Proposed Development or that are not considered to result in significant environmental effects as a result of the Proposed Development are to be ‘scoped out’ of any further assessment. These are summarised in the table below:

Environmental Issue	Reason for “scoping out”
<p>Ground Conditions and Contamination</p> <p>Ground Gas</p>	<p>Ground gas is not considered to represent a significant risk due to the absence of a significant source. The proposed cutting and filling exercise is unlikely to make a significant difference to the site contaminative status and is therefore not considered further.</p>
<p>Flood Risk & Drainage</p> <p><i>Construction:</i></p> <p>Hydromorphological changes</p> <p><i>Operation:</i></p> <p>Hydromorphological changes</p>	<p>The Development does not change the physical form or functioning of a waterbody. The brook system to the southern boundary will be retained in its current form with no more than greenfield runoff being discharged. The Development will have no effect on the flow dynamics of the river.</p>
<p>Flood Risk & Drainage</p> <p><i>Construction:</i></p> <p>Moat around Bradley Hall - Hydrology</p> <p><i>Operation:</i></p> <p>Moat around Bradley Hall - Hydrology</p>	<p><i>There will be no implications from the development on the hydrology of the moat. The moat is not a permanent water feature and the conveyance of storm water to the moat from surrounding areas (other than internally) is very limited and the development will have no impact on the operation/quality of the moat or its waters. There is no physical connectivity to the moat from the surrounding site.</i></p>
<p>Landscape and Visual Impact Assessment</p> <p>Visual receptors beyond the 5km study area.</p> <p>Visual receptors in airplanes passing overhead on flight path into or out of Manchester airport</p> <p>Visual receptors travelling along the M6 & M56 Motorways</p> <p>Visual receptors at Barleycastle Industrial Estate.</p>	<p>Receptors over 5km will not be affected by the proposed development.</p> <p>Airplanes passing over will not be affected by the proposed development as the site will be seen in the context of the nearby motorways and the Barleycastle Trading Estate.</p> <p>Views towards the site are well screened and the impact upon views travelling at speed (70mph) by both passengers and drivers will be negligible.</p> <p>The sensitivity of views towards the site from the Barleycastle Trading Estate will be low, given the context of the existing light industrial units.</p>

Environmental Issue	Reason for “scoping out”
<p>Ecology and Nature Conservation</p> <p><i>Construction:</i> Arable, improved grassland and tall ruderal habitats</p>	<p>Habitats are of low value and do not need to be considered further. However, the protected species that they may host will be considered further in the fauna section of the ES chapter.</p>
<p>Socio Economic</p> <p><i>Construction:</i> Effect on local labour market Commuting and migration impact</p>	<p>Commuting and migration impacts and the effect on the local labour market will be considered in relation to the Operational Phase. However, these impacts have not been considered as part of the Construction Phase, given the temporary and transient nature of construction related employment.</p>
<p>Noise and Vibration</p> <p><i>Operation Phase:</i> <i>Operational vibration impacts</i></p>	<p>Based on the nature of operations associated with B8 storage or distribution units, as well as the distances involved between B8 units and sensitive receptors, it is not considered that any element of the typical operational activities undertaken at B8 units will result in any significant vibration impacts.</p> <p>It is therefore considered that the only potential source of vibration associated with the operational phase of the scheme is additional HGV movements on existing road networks. However, due to existing quantities of HGV movements on the local road network, vibration values attributable to additional HGVs travelling to / from the Application Site would not be considered significant.</p> <p>On this basis, the assessment of potential Operational vibration impacts can be scoped out of the ES assessment.</p>
<p>Air Quality, Odour and Dust</p> <p><i>Construction:</i> Changes in NO₂ , PM₁₀ and PM_{2.5} due to construction traffic if HDV numbers do not exceed EPUK/IAQM thresholds</p> <p><i>Operation:</i> Odour Dust</p>	<p>Unlikely to have a significant impact if below the threshold.</p> <p>There are no proposed sources of odour or dust during the operational phase.</p>

Environmental Issue	Reason for “scoping out”
<p>Cultural Heritage and Archaeology</p> <p>DCH1638 Yew Tree Farmhouse Grade II Listed Building I 139340</p> <p>DCH1659 Beehive Farmhouse Grade II Listed Building I 139361</p> <p>DCH1660 Booths Farm, Shippon On Left (North West) Side Of Farmyard Grade II Listed Building I 139362</p> <p>DCH1934 Booths Farm Farmhouse Grade II Listed Building I 329740</p> <p>DCH12753 Barn at Manor House Farm, Cartridge Lane, Appleton Locally Listed Building</p> <p>DCH12869 Milepost at Gallows Croft, Knutsford Road, Lymm</p> <p>DCH12879 Old Chapel, Old Cherry Lane, Lymm Locally Listed Building</p> <p>DCH13677 Tan House Farm, Barleycastle Lane, Appleton</p>	<p>No impact on the setting of these assets</p>
<p>Utilities</p> <p><i>Construction:</i></p> <p>Disconnections of services to the existing Telecommunication mast.</p> <p><i>Operation:</i></p> <p>Relocation of the existing Telecommunication mast.</p>	<p>Telecommunications mast is to remain operational and services diverted.</p> <p>The Telecommunications mast is to remain in its current location and is not affected by the Proposed Masterplan.</p>
<p>Waste</p> <p><i>Operation:</i></p> <p>Local Authority Collected Waste, Agricultural Waste, Low Level (Non -Nuclear) Radioactive Waste, and Waste Water/Sewage Sludge</p>	<p>These types of waste will not be generated by the Proposed Development</p>
<p>Energy</p> <p>Future tenant specific Energy modelling.</p> <p>Renewable Technologies deemed not appropriate</p>	<p>Detailed operation unknown at this stage.</p> <p>Some Renewable Technologies are deemed not appropriate for the Proposed Development and are therefore not to be considered during future design works. Refer to table 18.10 within this paper.</p>

Environmental Issue	Reason for “scoping out”
Cumulative Assessment	Section 6 of this Report identifies the projects to be scoped out of the Cumulative Assessment.

Table 19.1: Environmental Issues Scoped Out of ES

19.7. Although technical areas are described in this report under separate headings, the final ES will pay close attention to the inter-relationship of the various factors in order to assemble a holistic picture of the likely impacts and mitigation measures. It should be noted that the EIA is an interactive process, enabling matters not recognised at the preliminary stage to be addressed in the final ES. Further assessment is on-going regarding the technical areas scoped into the Environmental Assessment, and where significant environmental impacts are identified, appropriate mitigation will be proposed to address the significance of impact accordingly.

19.8. The structure of the final ES will therefore be as follows:

Part 1 Report:

- Introduction
- Project Description
- The Need for Development
- Alternative Development Options
- Plans and Policies
- Environmental Assessment Methodology and Approach
- Summary of Environmental Impacts
- Key Mitigation Measures
- Interaction of Effects and Cumulative Impact
- Conclusions
- Reference List
- Appendices

Part 2 – Technical Papers (each with their own technical appendices):

- Geology and Ground Conditions
- Traffic and Transportation

- Flood Risk and Drainage
- Landscape and Visual Impact
- Ecology and Nature Conservation
- Socio Economic
- Noise and Vibration
- Air Quality and Dust
- Cultural Heritage and Archaeology
- Utilities
- Energy
- Waste

Each Technical Paper will include the following subsections:

- Introduction
- Documents Consulted
- Consultations
- Methodology and Approach
- Baseline Information
- Alternatives Considered
- Potential Environmental Impacts
- Proposed Mitigation
- Potential Residual Effects
- Additive Impacts (Cumulative Impacts and their Effects)
- Conclusion
- Reference List
- Appendices

Non-Technical Summary

- Separately bound report

19.9. The consideration and ranking of the issues in the Scoping Report is preliminary. The scoping process will be on-going with the Council, key consultees and the public up until the finalization of the final ES. The Council and consultees are therefore invited to comment on the intended scope of the ES and highlight any potential matters or alternative emphasis.