Environmental Statement
NON-TECHNICAL SUMMARY

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

Site Name:	**F. Land West of Raby Hall, Raby Hall Road, Raby Mere**
Client Name:	**Leverhulme Estates Ltd**
Type of Report:	**Environmental Statement**
Prepared by:	**John Cutler**
Checked by:	**Jeff Field**
Date:	**May 2022**

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Introduction

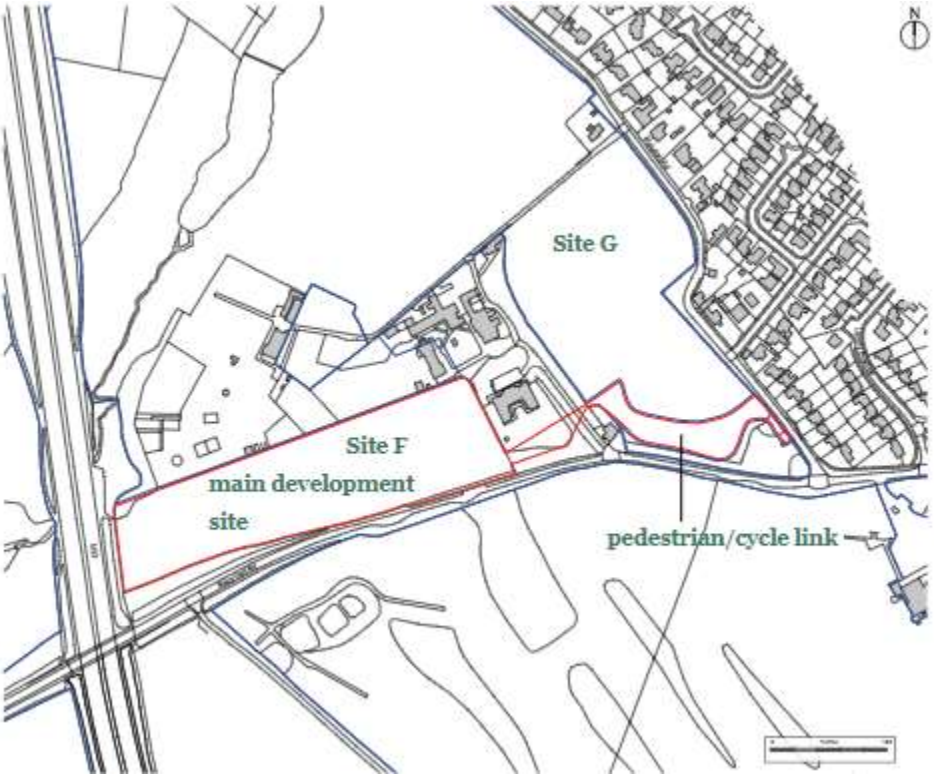
1. This Non-Technical Summary has been prepared to accompany the Environmental Statement ('ES') and Appendices in relation to an outline planning application by Leverhulme Estates Ltd ('the Applicant') for development proposals for land west of Raby Hall, Raby Hall Road, Raby Mere (also known as 'Site F'). It has been prepared to explain in non-technical language the proposed development, the likely significant environmental effects of the development and the measures proposed to protect the environment. Strutt & Parker has prepared the ES, in partnership with technical consultants for each environmental issue.

The Application Site

2. Located within the Wirral Metropolitan Borough, the Application Site comprises undeveloped agricultural land positioned to the west of the settlement of Raby Mere.

3. The Site has reasonable access to a range of local services within walking distance, including shops and local services, schools, and medical facilities. There is a cluster of shops and services at Allport Road, around 1.3 km to the east within Bromborough.

Figure 1 – Application Site



4. The Site comprises 3.30 hectares undeveloped agricultural land which is currently used for arable farming, and land associated with Raby Hall (Autism Together).

5. The main part of the Site comprises a broadly rectangular agricultural field. There are a number of trees within the southern and western parts of the Site, but it otherwise comprises a featureless arable field. The Site slopes gently from east to west.

6. To the east, the red line extends linearly to include grounds to the front of Raby Hall, which is grassed and with trees to the south, and then to a further agricultural field (also known as 'Raby Hall East'), extending to Blakeley Road to the east.

7. In respect of the areas surrounding the western part of the Site:

   - The boundary to the south comprises trees and hedgerows onto Raby Hall Road, beyond which is a golf course;
   - The boundary to the west comprises a belt of hedgerows and trees, beyond which is the M53 (set at a lower level behind a bank);
   - To the east and north east are series of buildings which comprise the Autism Together premises. The eastern boundary comprises a belt of trees, though along the northern boundary some buildings are visible, together with open space associated with Autism Together.

8. In respect of the areas surrounding the eastern part of the Site:
   - The boundary to the south comprises trees and hedgerows onto Raby Hall Road, beyond which is a golf course;
   - To the north is Raby Hall, and undeveloped agricultural land; and
   - To the east is Blakeley Road, beyond which is residential development.

Proposed Development

9. The proposals make up one of a series of development proposals which are being advanced by the applicant as part of the 'Leverhulme Vision', Leverhulme Estates Ltd being a significant landowner within the Wirral. These sites together comprise 'Phase 1' sites, part of a wider three phase strategy:

   A. Land east of Glenwood Drive, Irby
   B. Land east of Dale View Close, Pensby
   C. Land east of Thorncroft Road, Pensby
   D. Land west of Barnston Road, Barnston
   E. Land at Milner Road, Heswall

F. Land west of Raby Hall, Raby Mere
G. Land east of Raby Hall, Raby Mere
H. Land east of Rigby Drive, Greasby

10. There are various benefits brought forward by the Leverhulme Vision, which includes (in addition to much needed new housing):
    - New and enhanced green infrastructure.
    - Woodland and other appropriate planting.
    - Landscape and visual impact enhancements.
    - Biodiversity improvements.

11. The cumulative (combined) impact of all eight Leverhulme Estates sites has also been assessed in this ES (together with other major developments identified as necessary).

12. The Proposed Development relates to an outline planning application for the following:

    - A maximum 38 new C3 dwellings (housing mix has not yet been formulated at this stage noting that the application is in outline form);
    - Circa 1.47 hectares land for residential use;
    - 30% of the proposed dwellings (up to 11 dwellings) will be provided for affordable tenures;
    - Circa 0.97 hectares green and blue infrastructure (ports pitches, woodland, grassland and wetland habitat, amenity green space and drainage attenuation features);
    - An area of 0.33 hectares (10%) safeguarded for future use by Autism Together; and
    - Zone for a footpath corridor of 0.53 hectares.

13. A Parameter Plan included within the technical ES and submitted as part of the planning application sets out the parameters of development, and provided at Figure 2 below. This sets out the spatial parameters of the Proposed Development.

Figure 2 – Parameter Plan



14. Access and highways works are the only detailed matters for consideration as part of the outline planning application. All other matters will be considered as part of a subsequent Reserved Matters application(s).

Alternatives and Design Evolution

15. The EIA Regulations require an ES to summarise the alternatives to the development that is proposed and to also describe to design process (ie design evolution) of the development.

<u>'Do Nothing' Scenario</u>

16. The 'do nothing' scenario would result in the site being retained in agricultural use, and the following benefits would not be delivered:

- Contribution of up to 38 new homes to addressing the chronic housing shortage in Wirral
- Contribution of up to 11 new affordable homes
- Circa 0.97 hectares green and blue infrastructure (ports pitches, woodland, grassland and wetland habitat, amenity green space and drainage attenuation features);

- An area of 0.33 hectares (10%) safeguarded for future use by Autism Together; and
- A new pedestrian route.

Alternative sites

17. The site is one of eight Phase 1 sites which the applicant has decided to take forward to outline planning application stage for residential development. All of the Phase 1 sites were selected out of the applicant's significant ownership through a comprehensive assessment process. This included consideration of access to existing local services, infrastructure, and open space, together with consideration of environmental issues.

Alternative Uses

18. The proposed residential development of the Site derives from the overarching objective of the Leverhulme Vision to deliver new homes to help address the pressing need within the Borough, within a short time period.

Alternative Design Approaches

19. The Site has been subject to extensive masterplanning, which has included a variety of layouts being considered, in developing the proposal that is now the subject of the current application.

20. This evolving design process has taken into account local engagement with statutory consultees and local stakeholders, and the various technical evidence that has been prepared as part of the application.

21. Of the options explored, it is considered that the Proposed Development set out in this planning application represents the best masterplan design, as it provides an efficient use of land whilst accommodating and responding to environmental considerations.

Scope of Environmental Impact Assessment

22. The following environmental issues have been included within the scope of the Environmental Impact Assessment, as agreed through formal scoping opinion by Wirral Metropolitan Borough Council ('WBC'):
    - Socio-economics
    - Transport
    - Landscape and Visual Amenity

- Ecology
- Acoustics
- Air Quality
- Agricultural Land Quality

23. We will now summarise the findings of each of the environmental topics in turn.

Socio-economics

24. There will be temporary socio-economic benefits during the construction stage by directly supporting jobs in the construction industry, and indirectly supporting jobs in the wider construction and supporting industries.

25. The Proposed Development would have a beneficial socio-economic effect on the area by providing additional housing in a borough and local area with significant housing need. The provision of up to 38 new homes, including 30% (up to 11) affordable homes, would make a contribution to the supply new homes in an area with substantial housing affordability issues.

26. The provision of up to 38 new homes will also provide benefits to the local economy, by providing housing to support employment growth, increasing spend in local shops and on leisure and recreation.

27. The Proposed Development would be expected to generate an additional 90 new residents. The socio-economic assessment has found that the majority of socio-economic infrastructure within the locality could accommodate, or (in the case of access to open space and recreation) would be improved by, the Proposed Development. Whilst there was found to be capacity within education and healthcare infrastructure, it is clear that the new population generated by the Proposed Development will use existing socio-economic infrastructure (such as education, healthcare, and community/social infrastructure). The provision of development contributions can address any such potential adverse effects.

28. Overall, the socio-economic effects of the Proposed Development would be beneficial to Raby Mere and the wider WMB area.

Transport

29. The likely effects of the Development with respect to Traffic and Transportation have been considered throughout the Environmental Statement. A total of 41 junctions with 171 links

(roads leading from/to these junctions) have been assessed, the scope of which was agreed with Highways Officers at Wirral Borough Council and National Highways through scoping discussions and the issue of a Scoping Note.

30. It is considered the Site is currently accessible by sustainable modes of transport such as walking, cycling and public transport (primarily bus with opportunities for multi-modal trips involving rail), and that there are opportunities to encourage uptake of these modes to reduce the number of trips made by private cars.

31. A review of traffic related incidents has been undertaken for the surrounding area. The results do not show an abnormally high level of collisions, nor does the analysis suggest the proposed development would result in the creation of nor significant worsening of an existing highway safety issue.

32. Local and national core guidance and policy documents have informed the methodology. The following effects have been considered throughout the Traffic and Transportation assessment:

- Pedestrians – in terms of the attractiveness and safety of walking;
- Cyclists – in terms of the attractiveness and safety of cycling;
- Equestrians – in terms of the attractiveness and safety of horse riding;
- Public Transport Users – in terms of the attractiveness of bus and rail travel; and
- Motorists – in terms of the operation of existing traffic.

33. The significance of the effects of the Proposed Development at the construction phase is considered to be negligible. The impact of traffic and transportation during the operational phase is not considered significant.
34. The Proposed Development impact has been demonstrated to be comfortably within the relevant guidance threshold. On this basis, the significance of the effects of the Proposed Development at the operational phase is considered to be negligible. The impact of traffic and transportation during the operational phase is not considered significant.

35. Notwithstanding the negligible nature of the Proposed Development transport impact, the following measures are proposed:

- Construction Environment Management Plan – to control construction vehicular movements and ensure the least amount of disruption;
- B5138 Pensby Road/Thingwall Road East – to include physical capacity improvements by increasing stacking space along Thingwall Road and a right-turn lane on Pensby Road, in addition to pedestrian crossing enhancements; and

- Travel Planning – an Interim Travel Plan has been produced to encourage uptake of sustainable travel for all proposed uses to reduce the number of single occupancy trips made by car to and from the Site, and any negative impacts associated.

36. The residual effects on the links would remain negligible. The residual impact following mitigation is not considered significant.

37. The cumulative impact of all eight Leverhulme Estates sites has also been assessed in this Environmental Statement. The cumulative Proposed Development impact has been demonstrated to be within the relevant guidance threshold. On this basis, the significance of the effects of the Proposed Development at the operational phase is considered to be negligible. The impact of traffic and transportation during the operational phase is not considered significant.

38. Notwithstanding the negligible nature of the Cumulative Development transport impact, the following cumulative measures are proposed in the event multiple sites come forward:

- Arrowe Road/Arrowe Brook Lane – to include physical capacity improvements in the form of segregated left/right turn lanes on Arrowe Brook Lane;
- A551/A552 Corridor – to include SCOOT signal timings technology in order to link five junctions in the area and provide capacity/performance benefits;
- Arrowe Park Road/Thingwall Road Roundabout – to include physical capacity improvements by increasing stacking space along Thingwall Road and a right-turn lane on and pedestrian crossing enhancements; and
- A551 Barnston Road/Storeton Lane – to include physical widening works to ensure two-way traffic movement is maintained along Storeton Lane, improving safety and capacity.

Landscape and Visual Amenity

39. The Site comprises a rectilinear, arable field to the west of the settlement edge of Raby Mere and Bromborough. The northern and eastern boundaries adjoin the Raby Hall School (Autism Together) complex. The northern boundary is demarcated by a mesh security fence whilst the eastern boundary is formed by a dense row of semi-mature trees. Raby Hall Road runs along the southern boundary and is separated from the site by a native species hedgerow with occasional mature trees widening to a denser woodland copse towards the M53. The landform is reasonably flat with a gentle fall in levels from the highest point at the north-eastern corner of the Site, to the lowest areas on the eastern boundary. There is small pond / wet area located

towards the south-western corner of the Site around the area of woodland. Trees and hedgerows are located around the periphery of the Site and there is no provision for public access.

40. The surrounding landscape comprises a variety of land uses, divided by the M53 which tracks north/south through the landscape, forming a distinct physical feature that restricts east/west movement. Land to the west of the M53 comprises gently undulating farmland with scattered farms and narrow tracts of woodland that follow the alignment of watercourses. Land to the east of the M53 has a more wooded character and includes more urban land uses including Raby Hall School, the residential areas of Raby Mere and Bromborough as well as Bromborough Golf Course, a small number of agricultural fields (including the Site), Raby Mere Wood and the linear waterbody also known as Raby Mere. There is a Public Right of Way (PRoW) which runs through the golf course to the south/south-east.

41. The landscape within the Site and its immediate area is not protected by any national or local statutory designations. The Site is generally well contained but partially visible from Raby Hall Road, from Bromborough Golf Course and the footpath which crosses it, and from the buildings and grounds of Raby Hall School. The views are generally filtered by intervening hedgerows and trees.

42. The character of the landscape within the immediate vicinity of the Site would be adversely affected by the construction activity resulting in some temporary, localised significant effects. There would be a loss of the agricultural land and some sections of existing hedgerow, but effects on features would not be significant as all other existing landscape features would be retained. There would be partial views of the construction activity from Raby Hall Road and Raby Hall School resulting in significant adverse visual effects. The construction work would be partially visible from Bromborough Golf Course and the PRoW, but visual effects would not be significant.

43. The scheme proposals are shown on the Illustrative Landscape Framework. The existing boundary vegetation would be retained and incorporated into a wide swathe of public open space running along the southern and western boundary. This would provide a substantial landscape buffer between the proposed developed and the road network along Raby Hall Road and the M53. The northern boundary with Raby Hall School would be improved with hedgerow with trees. The proposals would include a Local Area for Play (LAP) as well as network of informal footpaths. The footpaths would link northwards and eastwards, through the southern buffer, providing safe pedestrian access though the Site to connect to Raby Hall School. A tract of land at the eastern end of the Site would be safeguarded to provide Autism Together with

the future opportunity to provide additional accommodation and/or car parking areas. Street trees would be incorporated around the entrances and the minor residential streets would be planted with garden trees.

44. Upon completion there would be some significant adverse effects upon the local character and on the views from Raby Hall Road and Raby Hall School. However, effects would be confined to the immediate local area and would be temporary until the landscape matures. The retention of existing landscape features and the planting of the open spaces would mean that there would be a beneficial effect upon the landscape in terms of features with more trees and enhanced biodiversity.

45. Upon maturity of the landscape there would be some significant landscape effects as the proposed development would form a residential area in relative isolation from the main settlement area to the east. However, the development would only directly affect a small proportion of this landscape which is closely associated with the buildings at Raby Hall School and to a lesser extent, the nearby existing settlement edge of Raby Mere. Once the proposed hedgerows and trees have matured, there would be no significant visual effects.

Ecology

46. The Ecology Chapter addresses the potential effects of the Proposed Development on ecology and nature conservation, describes the methods used to assess the effects; the baseline conditions currently existing at the Site and within the immediate surrounding area; the mitigation measures required to prevent, reduce or offset any significant adverse effects and the likely residual effects after these measures have been adopted, and proposed enhancement measures. It is informed by a desk study and results of survey works undertaken in 2021 and 2022 by Environment Bank.

47. Two internationally designated sites lie within 5 km of the Site; Mersey Estuary Ramsar and Special Protection Area (SPA) approximately 3.6 km east of the Site.

48. The Site covers an area of approximately 3.2 hectares (ha) and is currently in agricultural use with areas of predominantly cultivated land bound by hedgerows, with an area of woodland and ruderal vegetation in the south west of the Site.

49. No ponds were present on Site. Environmental (e)DNA surveys were undertaken on accessible ponds within 500 m of the Site with a positive result returned for one pond P7 (1/12), which lies 330 m south of the Site within Bromborough Golf Course.

50. Eight trees were identified as having low Bat Roost Potential (BRP), six trees as having moderate BRP and one tree as having high BRP. Activity surveys identified limited use of the Site by foraging and commuting bats mostly common pipistrelle with occasional records of soprano pipistrelle bat species.

51. Hedgehog was recorded using the Site with no evidence of badger or brown hare was recorded at the time of the survey. However, due to the suitability of the surrounding habitat there is the potential for individuals of these species to venture onto Site.

52. The hedgerow and trees were considered suitable to provide nesting opportunities for local bird species. Low numbers of wintering birds were found to utilise the Site with none of the qualifying features of the Mersey Estuary SPA or Ramsar noted during the surveys.

53. Given the location of the Site and lack of access to the Mersey Estuary along its southern shore no impact on the Mersey Estuary SPA and Ramsar is expected as a result of either the construction or operational phase of the development.

54. The construction phase will result in the fragmentation of some hedgerows. During vegetation clearance there is the potential to impact amphibians (including GCN), nesting birds, with excavation and construction works also having the potential to impact foraging and commuting badger, hedgehog, brown hare and bats.

55. Whilst new habitats will be created within the Site which will provide additional habitat for a range of local species as it matures, the operational phase of the development has the potential to deter foraging and commuting bats as a result of increased lighting at the Site, trapping amphibians in gully pots, and increased mortality of hedgehog from new roads.

56. The proposed development includes a range of mitigation and enhancement measures, that have been incorporated at the design stage, such as the retention, where possible, of habitats such as woodland and hedgerows. In addition, further habitat creation is proposed as part of the landscaping plans which will provide a range of opportunities for local wildlife, along with a sensitive lighting plan for the Site. During the construction phase species specific method statements with regards to GCN and nesting birds will be prepared alongside a CEMP which will include suitable measures to protect habitats and species during the construction phase of the Proposed Development.

57. Enhancement recommendations for the Site include:

- The production and implementation of a bat box / bat brick scheme for the Site;

- The production and implementation of a bird box / nest brick scheme for the Site;
- The use of hedgehog-friendly fencing;
- The planting of scrub species of known value to wildlife;
- The creation of habitat/log piles within the ecological buffer zone around the retained ponds;
- Hedgerows and verges at the edge of the Site will be retained and enhanced where possible;
- High-density tree planting, including street trees, to include native and fruit bearing trees;
- Surface water run-off is to be captured on-Site via sustainable drainage features with a drainage basin in the north, and whilst it's primary role will be to prevent flooding, it will be managed with wildlife in mind and incorporate deeper areas of permanent water, and native wetland grassland and scrub planting.

58. The proposed scheme with its avoidance, mitigation, and enhancement proposals will ensure no unlawful actions occur during the construction and post development. No significant residual adverse impacts are predicted to occur as a result of this development.

Acoustics

59. The significance of the effect of construction noise on existing local receptors is considered to be Negligible and therefore considered to be Not Significant in terms of EIA.

60. The significance of the effect of environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed External elements of the Development is considered to be Negligible to Minor and therefore considered to be Not Significant in terms of EIA.

61. The significance of the effect of environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed internal elements of the Development is considered to be Negligible and therefore considered to be Not Significant in terms of EIA.

62. Development related Traffic impacting upon existing residents is considered to be Negligible and therefore considered to be Not Significant in terms of EIA.

63. No cumulative effects have been identified.

64. The significance of the effect of construction noise on existing local receptors is considered to be Negligible and therefore considered to be Not Significant in terms of EIA.

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66. The significance of the effect of environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed internal elements of the Development is considered to be Negligible and therefore considered to be Not Significant in terms of EIA.

67. Development related Traffic impacting upon existing residents is considered to be Negligible and therefore considered to be Not Significant in terms of EIA.

68. No cumulative effects have been identified.

Air Quality

69. An air quality assessment has been undertaken to determine potential construction and operational effects associated with the residential development of up to 38 residential units at the Site.

70. The approach of the air quality assessment was agreed with the Environment Health Officer at Wirral Borough Council.

71. A qualitative assessment of potential impacts associated with the generation of dust construction activities on both human and ecological receptors has been undertaken to inform the extent of controls to be applied throughout the construction phase. All dust impacts are considered to be temporary and short-term in nature.

72. A screening assessment of road traffic flows has been undertaken. Road traffic impacts associated with the operation of the site can be considered as having an insignificant effect on local air quality. No mitigation is required.

73. Detailed modelling assessment of site suitability has been undertaken to determine pollutant concentrations at potential sensitive locations. Predicted pollutant concentrations at the locations assessed are ‘well below’ the air quality objectives, and therefore the Site is considered to be suitable for its proposed residential use.

Agricultural Land Quality

74. The assessment of the potential significant effects of the Proposed Development on agricultural land considers all agricultural land and soils within the Site boundaries. The assessment is based on a detailed soil and Agricultural Land Classification (ALC) survey that was undertaken at the Site in April 2021.

75. Agricultural land in England and Wales is graded between 1 (excellent quality) and 5 (very poor quality), depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. Land classified as Grades 1, 2 and 3a is defined as the best and most versatile (BMV) land, with national and local policies indicating that the effect on BMV land should be taken into account in planning decisions.

76. The Proposed Development would result in the loss of 0.82ha of BMV agricultural land in Subgrade 3a. There are no measures available to mitigate the direct loss of agricultural land.

77. However, there are measures available to mitigate the impacts on soil resources and ensure that the soil will be able to fulfil its various functions following the Proposed Development, such as producing biomass; storing and cycling water and carbon; and supporting habitats, biodiversity and landscape planting. These measures will be set out in a Soil Resource Management Plan and will reduce the negative effects on soil resources.

Environmental Statement
VOLUME 1 – CHAPTERS

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

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Environmental Statement
Chapter 1: Introduction and Policy Context

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Statement of Competency

This chapter of this Environmental Statement (ES) has been prepared by John Cutler at Strutt & Parker, who has both practical experience of preparing such statements. John is a chartered town planner (MRTPI) and is an accredited Practitioner member of the Institute of Environmental Management and Assessment (PIEMA).

1. Introduction and Policy Context

1.1. Introduction

1.1.1 This Environmental Statement ('ES') has been prepared on behalf of Leverhulme Estates Ltd, hereafter referred to as the 'applicant' for the Proposed Development of land located to the Land West of Raby Hall, North of Raby Hall Road, Raby Mere (also referred to as 'Site F'), and hereafter referred to as the 'application site' / 'the Site'. A Site Location Plan (drawing ref: 1815/01/802 Rev C) is included at Appendix 1.1.

1.1.2 The application Site falls entirely within the administrative area of Wirral Metropolitan Borough Council ('WBC'), which is the determining planning authority for the outline application.

1.1.3 The Environmental Impact Assessment (EIA) process examines environmental information within a defined framework, ensuring that the likely significant environmental effects of certain projects are identified and assessed. This ES presents the analysis and findings from the EIA process. Relevant mitigation measures have been identified and assessed as part of the ES, and are described in the following chapters as appropriate.

1.1.4 The application is for a residential development of the land. Within this ES, the proposals are referred as 'the Project' / 'Proposed Development'. A detailed description of development is provided in Chapter 4 of this ES. However, in brief, the Project which forms the basis of the planning application and assessed in this ES consists of the development of up to 38 dwellings (C3 Use Class). The description of development is:

> *'Residential development for up to 38 dwellings (Use Class C3), including 30% affordable housing; safeguarded land for the expansion of Autism Together facilities; delivery of green infrastructure including a new pocket park and play area, wildlife habitats and green corridors; and off-site environmental, biodiversity and accessibility enhancements, including an off-road pedestrian and cycle connection between the site and Blakeley Road.'*

1.1.5 This ES should be read together with the other material submitted with the application.

1.1.6 The planning application is submitted in outline form and includes means of site access, with details such as layout, appearance, scale and landscaping reserved for future applications.

1.1.7 A Parameter Plan (drawing ref: 1815/01/809 Rev C), as included at Appendix 1.2 is submitted as part of the planning application, and forms part of this ES. The Parameter Plan sets out the spatial parameters of the Proposed Development, in relation to land use, areas of potential built development, landscaping and green infrastructure, and access and movement. The proposed access arrangements are shown on drawing 078244-CUR-00-XX-DR-TP-75001-P03 included at Appendix 1.3.

1.1.8 This EIA is based on these parameters of development (together with other assumptions as and when required, which will be reported in this ES). The parameters represent realistic, but generally worst-case assumptions to ensure a robust assessment. For example, worst-case assumptions are made in defining the number of dwellings, and parameters of built form of the Proposed Development. Chapter 4 also provides further details about the project parameters.

1.2 Local Planning Policy and Statutory Designations

Adopted Wirral Unitary Development Plan 2000

1.2.1 The current adopted local development plan for this area comprises the Wirral Unitary Development Plan (UDP) adopted in 2000 (as saved 2007).

1.2.2 WBC is in the process of preparing a new Local Plan. A revised Local Development Scheme published by the Council 3 October 2020 envisaged Publication draft Local Plan (Regulation 19) consultation commencing February 2021, shortly followed by submission in June 2021, with adoption expected in Mid-2022. No Regulation 19 consultation has been published to date.

1.2.3 There are a number of approved Neighbourhood Plan Areas within the district, none of which affect the Subject Site.

1.2.4 The UDP Proposals Map shows that the Site comprises Green Belt land. It otherwise has no other planning land use designations or allocations. The established area of Raby Mere adjoining the Site to the east is defined as a ‘Primarily Residential Area’.

1.2.5 To the north west of the Site is a Site of Local Biological Importance, which is also covered by Tree Preservation Order (ref: BB0009W021). Part of the southern boundary along Raby Hall Road is also covered by Tree Preservation Order (ref: BB0008G049).

1.2.6 The online EA Flood Map for Planning indicates that the Site is located outside the 0.1% annual probability (1 in 1,000 year) floodplain and therefore defined as Flood Zone 1.

Emerging Wirral Local Plan 2021 – 2037

1.2.7 WBC is in the process of preparing a new Local Plan for the period 2021 – 2037. At the time of writing, a seven-week public consultation is underway regarding the Regulation 19 Submission Draft Local Plan, ending on 24th June 2022. The actual date of the examination, following reflection on the matters raised during the consultation, has not yet been confirmed.

1.2.8 The draft Plan is predicated on a proposal that all of the borough's housing needs over the next 15 years (a minimum of 13,360 net additional dwellings) can be met within existing built-up areas, largely through the redevelopment of brownfield sites in and around Birkenhead. For clarity, Leverhulme is of the view that the spatial strategy proposed in the draft Plan is unsound, for reasons it will explain in its formal letter of representation.

1.2.9 The draft Plan does not propose any alterations to the existing Site designations.

Legal Framework for the ES

1.2.10 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 define the circumstances, and establishes the procedures, for carrying out EIA for projects that require planning permission, and the National Planning Practice Guidance (NPPG) also provides further guidance.

1.2.11 EIA procedures apply to applications for so called 'EIA development', which is defined by Regulation 2 as meaning development which is:

- Schedule 1 Development; or
- Schedule 2 Development likely to have significant effects on the environment by virtue of factors such as its nature, size, or location.

1.2.12 The Proposed Development does not fall within Schedule 1. Whilst it is noted that the Site does not meet the thresholds to comprise a Schedule 2 development, it is held that even if a project does not exceed the threshold set out for its category in Schedule 2, and is not in a 'sensitive area', an EIA could potentially still be required, if the nature and location of the project mean it is still likely to have a significant effect on the environment (potentially including cumulative effects when considered together with other development projects).

1.2.13 The professional view of the technical project team is that this project together with potential other developments (Cumulative Development Projects, as considered in more detail in Chapter 2) would likely result in significant environmental effects.

1.2.14 Accordingly, the applicant has committed to undertaking an EIA and submitting this ES with the planning application voluntarily. More details of the scoping process are provided within Chapter 2.

1.2.15 This ES has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. In accordance with the EIA Regulations, this ES reports on the findings of a systematic assessment of any likely "significant environmental effects" of the Proposed Development.

1.2.16 As required by the EIA Regulations, the ES includes the information referred Regulation 18 :

(a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development;
(b) a description of the likely significant effects of the proposed development on the environment;
(c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
(d) a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;
(e) a non-technical summary of the information referred to in sub-paragraphs (a) to (d); and
(f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.

1.2.17 An overview of the methodology adopted for each technical study is provided in the respective technical ES chapters (Chapters 5 –11). The effects resulting from the Proposed Development have been assessed, and the results of any likely significant effects reported.

1.2.18 The applicant has engaged WBC in the scoping processes prior to the submission of the application. Further details of these processes are provided in Chapter 2.

Competent Experts

1.2.19 The EIA has been carried out by Strutt & Parker, together with technical specialists who have led and authored the technical assessments. The authors are noted within the relevant volumes/chapters of this ES, however Table 1.1 below summarises the consultant team that was appointed by the applicant to prepare the planning application, conduct the EIA and produce the ES.

Table 1.1 – EIA Professional Team

Discipline	Consultant
Masterplanning	Alan Baxter Architects
Planning	Strutt & Parker
Socio-economics	Strutt & Parker
Highways and Transportation	Curtins
Ecology	Environment Bank
Landscape and Visual Impact	Barnes Walker
Arboriculture	Tyler Grange
Heritage	SLR
Noise	SLR
Air Quality	SLR
Flood Risk and Drainage	SLR
Ground Conditions	SLR
Agricultural Land Quality	Reading Agricultural Consultants

1.2.20 Regulation 18(5) of the EIA Regulations requires an applicant to ensure that the ES is prepared by competent experts, and provide a statement from the developer outlining the relevant expertise or qualifications of such experts. A statement of expertise is set out at Appendix 1.4.

1.2.21 The planning application is supported by a suite of supporting documents and drawings as set out in the Planning Statement and Covering Letter.

1.3 Environmental Statement Availability

1.3.1 The Environmental Statement is divided for ease of reference:

- Volume 1 comprises the main text of the Environmental Statement
- Volume 2 presents the technical appendices for each topic, where necessary
- There is also a stand-alone Non-Technical Summary ('NTS')

1.3.2 The Planning Application and Environmental Statement will be available for viewing by the public during normal office hours at the WBC offices at Wallasey Town Hall Brighton Street Wallasey Wirral CH44 8ED, and viewable online at: https://planning.wirral.gov.uk/online-applications/search.do?action=simple&searchType=Application

1.3.3 Comments on the planning application should be made to WBC online through the above online link or at the following address: Wallasey Town Hall Brighton Street Wallasey Wirral CH44 8ED.

1.3.4 Electronic copies of the Environmental Statement and Non-Technical Summary can be provided free of charge. Paper copies of the complete ES are available for purchase from Strutt & Parker (price supplied upon enquiry) at:

Strutt & Parker (Planning)
5 Aldermanbury Square
London
EC2V 7BP5

Tel: 0207 3380497020
Email: jeff.field@struttandparker.com

Environmental Statement
Chapter 2: Environmental Statement Structure and Methodology

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

Prepared by	**Strutt & Parker**
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Email	**jeff.field@struttandparker.com**
Address	**5 Aldermanbury Square** **London** **EC2V 7BP**

Statement of Competency

This chapter of this Environmental Statement (ES) has been prepared by John Cutler at Strutt & Parker, who has both practical experience of preparing such statements. John is a chartered town planner (MRTPI) and is an accredited Practitioner member of the Institute of Environmental Management and Assessment (PIEMA).

2. Environmental Statement Structure and Methodology

2.1 Introduction

2.1.1 This chapter sets out details of how the ES is structured and the methodology applied during the preparation and assessment phases. It has been prepared to comply with the requirements of Regulation 18 of the EIA Regulations, which, in summary, requires:

- A Non-Technical Summary of the findings of the EIA;
- A description of the physical characteristics of the Proposed Development;
- A description of reasonable alternatives considered;
- A description of the likely significant effects of the development on the environment; and
- A description of the measures envisaged to prevent or reduce any significant adverse effect on the environment.

2.1.2 This chapter will set out the structure of the ES and the overall approach to EIA assessment, together with details of the scoping process and consultation undertaken. Details of topic-specific methodologies, will be provided in each topic chapter.

2.2 EIA Structure

2.2.1 The ES is divided for ease of reference:

- Volume 1 comprises the main text of the ES;
- Volume 2 presents the technical appendices for each topic, where necessary.
- There is also a stand-alone Non-Technical Summary ('NTS').

2.2.2 For continuity and ease of reference, the figures, tables and appendices within the ES have been prefixed with the number corresponding to the ES Volume 1 Chapter to which they relate.

2.2.3 The Non-Technical Summary provides information about the likely significant environmental effects and is written using non-technical language in order to promote the widest understanding of the summary scheme effects.

2.2.4 A request for a formal Scoping Opinion from WBC was made in December 2021 and a formal Scoping Opinion was provided on 4 February 2022. Copies of the above documents

are included at Appendix 2.1 and 2.2. To summarise, WBC confirmed that it endorsed the overall methodology and scope of assessment. Strutt & Parker subsequently highlighted the intention to scope out heritage (originally scoped in) following the WBC scoping opinion – no objection to his approach was raised by WBC. The following environmental topics were scoped out within the scoping process (additional detail is provided within the report at Appendix 2.1):

- Flood Risk and Drainage - Incorporation of the mitigation measures outlined above as part of the scheme design process and preparation of a Surface Water Drainage Strategy as part of the Flood Risk Assessment report will ensure that any risk of pollution to the water environment is controlled and there will be no significant impacts. The Flood Risk Assessment will also demonstrate that there will be no risk to the Proposed Development and no change to flood risk upstream or downstream of the Site. As a result, this topic has been scoped out of the EIA assessment.

- Climate Change - A separate climate change chapter is not proposed within the ES. Instead, climate change is considered as relevant within various chapters of the ES.

- Material Assets - The EIA Regulations refer to the need to consider 'material assets', a broad term which incorporates any resources that are valued and can be either manmade or natural in origin and may provide economic or cultural value. In practice, material assets are considered across a broad range of topics within the ES. It is therefore considered that no separate Material Assets technical chapter would be necessary or appropriate.

- Soil (Land Contamination) - It is unlikely that there will be any risks to human health or controlled water receptors which cannot be controlled by way of appropriate pollution control measures.

- Major Accidents and Disasters - Given the nature of the Proposed Development, there is no significant likelihood for major accidents and disaster events to occur. However, for proportionality, the potential for major accidents and/or disasters has been considered below:
  - Flooding – This matter has been addressed above;
  - Malicious Attacks (Terrorism) – The Proposed Development will incorporate secured by design principles which aim to design out crime wherever possible and increase resilience of the Proposed Development, in the unlikely event of a malicious attack; and

- Unexploded Ordnance – A Desk Study and Ground Investigation Report will be undertaken and submitted in support of the planning application, however this is not expected to be a likely environmental impact.

- Wind Microclimate – During the construction phase, the construction works and associated apparatus may affect the local wind microclimate, however, any effects would be temporary and would not be anticipated to be significant. In respect of the operational phase of development, the Proposed Development is for low-rise development, with buildings of up to 12 metres in height. Therefore, no likely significant wind effects from the Proposed Development are anticipated.

- Daylight, Sunlight and Overshadowing - During the construction phase, the associated construction apparatus may cause some overshadowing, however, any effects would be temporary and would not be anticipated to be significant, particularly noting that this is a greenfield site. In respect of the operational phase of development, the Proposed Development is for low-rise development, with buildings of up to 12 metres in height, on a greenfield site. Therefore, no likely significant daylight, sunlight, or overshadowing effects from the Proposed Development are anticipated.

- Lighting - The Site lies at the edge of an urbanised area, and is considered to lie within Environmental Zone E3 (suburban) as defined by the Institute of Lighting Professionals. Cognisant of this context, a proposed residential development such as this is not expected to produce significant lighting effects.

- Waste – Some waste will be generated during the demolition phase of the Proposed Development from surplus construction materials. However, the amounts of waste generated are not anticipated to be significant, and a Construction Environmental Management Plan would be required by planning condition and implemented during construction to maximise recycling and minimise waste. During the operational phase, waste will be generated by the resident population of the development, and from the proposed commercial uses. Household and commercial waste and recycling would be collected, and recycled/disposed of by the local authority, in accordance with relevant legislation. This will be set out in a Waste Management Plan which can be controlled by planning condition.

- Radiation and Heat – Given the nature of the Proposed Development, no significant radiation or heat effects are anticipated at either the construction or operational phase.

- Vibration - There are no sources of vibration incident upon the proposed Site. For example, there are no railway lines (passage of freight trains can cause vibration) and/or a quarries in the vicinity of the Site (blasting can cause vibration).

2.2.5 The ES evaluates the following environmental topics which have been agreed / is in accordance with the Combined Screening and Scoping Opinion Request. The scope of the ES reflects the location and characteristics of the site.

2.2.6 The ES is accordingly laid out in the following Chapters:

- Chapter 1 – Introduction and Policy Context
- Chapter 2 – Environmental Statement Structure and Methodology
- Chapter 3 – Summary of Existing Site
- Chapter 4 – Proposed Development, Alternatives and Design Evolution
- Chapter 5 – Socio-Economics
- Chapter 6 – Transport
- Chapter 7 – Landscape and Visual Amenity
- Chapter 8 – Ecology
- Chapter 9 – Acoustics
- Chapter 10 – Air Quality
- Chapter 11 – Agricultural Land Quality
- Chapter 12 – Summary of Mitigation and Enhancement Measures
- Chapter 13 – Summary of Residual and Cumulative Effects

2.2.7 Each environmental topic is presented within its own chapter and is based upon the following structure to ensure that the final document is transparent, consistent and accessible:

Introduction

2.2.8 The introduction provides a brief summary of the topic to be assessed and describes the discipline in the context of the assessment.

Policy and Legislative Context

2.2.9 This will provide a summary of national and local planning policies and legislation of relevance to the technical assessment, as relevant. Best practice guidance will also be summarised as relevant.

Methodology and Assessment Criteria

2.2.10 This will describe the methods used in carrying out the technical assessment, with appropriate reference to published standards, guidelines and best practice. This section of each technical chapter will also set out any specific assessment area as required and the application of significance criteria.

2.2.11 This section will also sets out any assumptions made during the assessment, including potential limitations of the information used, and any difficulties encountered in compiling the required information.

Existing Baseline Conditions

2.2.12 This will provide a description of the baseline environmental conditions for that technical discipline. The baseline position should be taken as the current environmental conditions as existing and how these would be expected to change if the project were not to proceed (i.e. the 'do nothing scenario').

Assessment of Potential Effects

2.2.13 This section will provide an assessment of likely significant effects on the environment resulting from the Proposed Development, covering both construction and operational phase effects where relevant.

2.2.14 The significance of an environmental impact is determined by assessing both the sensitivity of the environmental receptor and magnitude of the effect. Environmental effects will be reported as positive or negative; short or long term; permanent or temporary, and direct or indirect.

2.2.15 For some technical disciplines, the assessments may incorporate a distinct methodology in accordance with best practice, or will incorporate modified criteria to the standard assessment approach. This will be to best reflect particular technical requirements and will be clearly set out within the individual chapters as required.

Receptor Sensitivity

2.2.16 Environmental receptors and their sensitivity will be set out within each technical chapter. Receptors are those aspects of the environment sensitive to changes in baseline conditions. The sensitivity of a particular receptor depends upon the extent to which it is susceptible to such changes.

Table 2.1 –Sensitivity of Receptor

Sensitivity	Criteria
High	The receptor / resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Medium	The receptor / resource has moderate capacity to absorb change without significantly altering its present character, or is of high and more than local (but not national or international) importance.
Low	The receptor / resource is tolerant of change without detrimental effect, is of low or local importance.

Magnitude of Change

2.2.17 Effect magnitude will be reported by predicting the scale of any potential change in the baseline conditions, as shown in Table 2.2. Where possible, magnitude will be quantified; however where this is not possible a qualitative assessment will be undertaken. The assessment of magnitude will be carried out taking account of any inherent design mitigation in the proposal that forms part of the development description.

Table 2.2 – Magnitude of Change

Magnitude	Criteria
High	Total loss or major/substantial alteration to elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Medium	Loss or alteration to one or more elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Low	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible / detectable but the underlying character / composition / attributes of the baseline condition will be similar to the pre-development.
Negligible	Very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable, approximating to a 'no change' situation.

Assessment of Effect Significance

2.2.18 Effect significance will be calculated based on the matrix in Table 2.3 below. This illustrates the interaction between the receptor sensitivity and the magnitude of an effect. The effects of the development will be reported as beneficial or adverse; short or long term; permanent or temporary; and direct or indirect. Any effect of moderate or major significance is considered to represent a likely significant effect for the purposes of the EIA Regulations.

Table 2.3 – Assessment of Effect Significance

Magnitude	Sensitivity		
	High	**Medium**	**Low**
High	Major Adverse/Beneficial	Major – Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial
Medium	Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial
Low	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

Mitigation Measures

2.2.19 This section will also set out an explanation of mitigation measures, that is, how the Project and its design seeks to minimise adverse environmental effects and maximise environmental benefits.

2.2.20 The topic chapters will therefore take into account all measures that form part of the Proposed Development, including:

- Measures incorporated within the project design (sometimes referred to as primary or embedded mitigation);
- Measures to be adopted during construction to avoid and minimise environmental effects (such as pollution control measures); and
- Measures required to fulfil legislative requirements.

2.2.21 It is possible that further mitigation measures may be identified within topic chapters. That is, measures not embedded within the design, but that could further prevent, reduce and, where possible, offset any potential residual adverse effects on the environment. For example, in some instances financial contributions may be required by way of planning obligations to off-set the impact on certain infrastructure, or monitoring measures may potentially be appropriate to ensure that proposed planting becomes established.

2.2.22 Summary tables will be incorporated to summarise the effects of the Proposed Development for each environmental matter.

<u>Residual and Cumulative Effects</u>

Residual Effects

2.2.23 This will present the effects of the Proposed Development assuming implementation of proposed further mitigation measures (i.e. mitigation measures not embedded within the scheme). The residual effects therefore represent the overall likely significant environmental effects, having taken account of practicable/available mitigation measures.

Cumulative Effects

2.2.24 The Institute of Environmental Management and Assessment (IEMA) guidance identifies two types of cumulative effects:

- inter-project effects (incremental changes caused by other development schemes occurring together with the Proposed Development that may potentially worsen certain impacts): and
- intra-project effects (effects that occur as a result of impact interaction between different environmental topics within the same project), also known as in-combination effects or effect interactions.

2.2.25 This section will therefore initially assess the effects of the Proposed Development cumulatively with other development projects where these are likely to result in significant effects on the environment.

2.2.26 NPPG states that:

'Each application (or request for a screening opinion) should be considered on its own merits. There are occasions, however, when other existing or approved development may be relevant in determining whether significant effects are likely as a consequence of a proposed development. The local planning authorities should always have regard to the possible cumulative effects arising from any existing or approved development.'

(Paragraph 024/ reference 4-024-20170728).

2.2.27 Accordingly, we turn to identify any site allocations or recent, pending, or upcoming planning applications in the locality which, when taken cumulatively with the development proposals, would result in significant environmental effects.

2.2.28 The adopted UDP dates to 2000, and therefore there are no recently allocated development sites. WBC's Regulation 18 Local Plan indicates that its preferred development strategy is to focus land use allocations within previously developed land in urban areas – it is considered that none of these sites have any close spatial relationship with the subject site.

2.2.29 In terms of other significant scale developments, the Leverhulme Estate is considering the potential for future planning applications for residential development at a number of sites. These sites are denoted with a site reference A to H in Table 2.4 below.

2.2.30 Additionally, other potential projects have been included from a study area consisting of the wards of Clatterbridge; Heswall; Pensby and Thingwall; Greasby, Frankby and Irby under the administration of WBC. These wards surround the 'Leverhulme Vision' sites, and it is considered therefore that these are the areas where any significant cumulative environmental effects are likely to occur. For robustness, a 2.5 km buffer has also been applied around each of the 'Leverhulme Vision' sites. For proportionality, a threshold of 30 dwellings has been applied. This is considered to comprise a robust approach. We are not aware of any planning consents for significant non-residential development within these areas.

2.2.31 A Plan showing the locations of the projects is included at Appendix 2.3. These sites will be considered as cumulative development sites.

Table 2.4 – Cumulative Development Sites

Scheme	Description of Development	Distance from Site (km)	Status
G. Land East of Raby Hall, Raby Hall Road, Raby Mere	Residential development for up to 80 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new open green space and play area, wildlife habitats and green corridors; and off-site environmental, biodiversity and accessibility enhancements.	c. 0.1	Planning application (submission May 2022)
Land at Acre Lane and Meadowside Road, Bromborough	Detailed application for the erection of 217 dwellings, with associated access (off Acre Lane and Meadowside Road) and landscaping and other ancillary works.	c. 1.6	Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295). In construction.
E. Land at Milner Road and Barnston Road, Heswall	Residential development for up to 120 dwellings (Use Class C3), including 30% affordable housing and 10% self-build/custom build properties; delivery of part of the Borough's cycle supergreenway; green infrastructure including a new public park and play area,	c. 5.0	Planning application (submission May 2022)

	community orchard, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.		
D. Land West of Barnston Road, North of Gills Lane, Barnston	Residential development for up to 153 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new public park and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	c. 5.9	Planning application (submission May 2022)
C. Land East of Thorncroft Drive, North of Gills Lane, Pensby	Residential development for up to 15 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a green space, wildlife habitats and wetland; and off-site environmental, biodiversity and accessibility enhancements.	c. 6.2	Planning application (submission May 2022)
B. Land East of Dale View Close, North of Gills Lane, Pensby	Residential development for up to 92 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new public open space and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	c. 6.2	Planning application (submission May 2022)
Fishers Lane, Pensby	The proposed development looks to introduce 35No. affordable new build dwellings onto land currently allocated to the Pensby Children's Centre, located on Fishers Lane. (100% affordable housing).	c. 7.2	Full planning permission granted March 2019 (LPA ref: APP/18/01266)
A. Land East of Glenwood Drive, Irby	Residential development for up to 290 dwellings (Use Class C3), including 30% affordable housing and 10% self- build/custom build properties; delivery of part of the Borough's cycle supergreenway; green infrastructure including sports pitches, play areas and	c. 7.5	Planning application (submission May 2022)

	parkland, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.		
H. Land East of Rigby Drive, Greasby	Residential development for up to 250 dwellings (Use Class C3), including 30% affordable housing and 10% self-build/custom build properties; delivery of green infrastructure; and off-site environmental, biodiversity and accessibility enhancements.	c. 9.1	Upcoming planning application (2022)
Wirral Business Park, Arrowe Brook Road, Upton	Demolition of existing buildings and erection of 127 dwellings with associated landscaping and access.	c. 9.1	Full planning permission granted March 2020 (LPA ref: APP/19/00315)
Girtrell Court, Woodpecker Close, Upton	Three-storey Extra Care development (Use Class C3) comprising of 78no. one and two bed affordable apartments, 195m2 office space, 59no. car parking spaces to the east of the site, and landscaped areas to the south.	c.10.8	Full planning permission granted October 2018 (LPA ref: APP/18/01002). Constructed (known as 'Poppyfields').

2.2.32 The approach to assessing the intra-project/in-combination effects has been to identify the potential for interactions between the residual effects of different environmental disciplines on individual receptors. Professional judgement and discussion between technical specialists has informed this process, and the assessment is provided within each technical chapter.

2.3 Assumptions and Limitations

2.3.1 The baseline year for the assessment is 2021, being the year during which the majority of the various EIA technical assessment survey work was undertaken. The expected programme for development allows a one year period for the completion of the outline planning application process (based on submission in May 2022), and that reserved matters applications would be submitted by the end of 2023. It is expected that construction would begin in 2024, and that the development would be fully operational in 2025/26, based on a build out rate of 50 homes per annum.

2.3.2 Other assumptions and limitations in respect of specific technical topics will be set out in the relevant technical chapter.

2.4 Consultation

2.4.1 A range of consultees have been engaged and consulted in preparing this ES, and as part of the process of preparing the planning application as a whole. This has included the formal EIA Scoping exercise highlighted previously. Where relevant, details are provided within the specific technical chapters.

2.4.2 The applicant also undertook pre-application public consultation with residents close to the application Site through an online virtual exhibition, detailed in the enclosed Statement of Community Involvement (SCI), as well as a series of other less formal meetings and dialogue with local groups and community representatives. Details are provided within the separate SCI which forms part of the planning application.

2.5 Information for Inclusion in Environmental Statements

2.5.1 Table 2.5 below highlights where the information required by Regulation 18(3) of the EIA Regulations can be located in the ES.

Table 2.5 – Regulation 18(3) Requirements

Requirement	ES Chapter
Regulation 18 (3) An environmental statement is a statement which includes at least—	
a)a description of the proposed development comprising information on the site, design, size and other relevant features of the development;	Chapters 3 (Summary of Existing Site) and 4 (Proposed Development, Alternatives and Design Evolution)
(b)a description of the likely significant effects of the proposed development on the environment;	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), 11 (Agricultural Land Quality) and 13 (Summary of Residual and Cumulative Effects).
(c)a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), 11 (Agricultural Land Quality) and 12 (Summary of Mitigation and Enhancement Measures).

(d)a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;	Chapter 4 (Proposed Development, Alternatives and Design Evolution)
(e)a non-technical summary of the information referred to in sub-paragraphs (a) to (d); and	Non-Technical Summary
(f)any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.	Throughout

2.5.2 Table 2.6 below highlights where the information required by Schedule 4 of the EIA Regulations (Information For Inclusion In Environmental Statements) can be located in the ES.

Table 2.6 – Schedule 4 Requirements

Requirement	ES Chapter
1. A description of the development, including in particular:	
(a) a description of the location of the development;	Chapter 3 (Summary of Existing Site)
(b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;	Chapter 4 (Proposed Development, Alternatives and Design Evolution)
(c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;	Chapter 4 (Proposed Development, Alternatives and Design Evolution)
(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases.	Chapters 9 (Acoustics) and 10 (Air Quality). Scope of EIA considered at Paragraph 2.2.4.
2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	Chapter 4 (Proposed Development, Alternatives and Design Evolution)
3. A description of the relevant aspects of the current state of the environment (baseline scenario)	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual

and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), and 11 (Agricultural Land Quality).
4. A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), 11 (Agricultural Land Quality) and 13 (Summary of Residual and Cumulative Effects) Scope of EIA considered at Paragraph 2.2.4.
5. A description of the likely significant effects of the development on the environment resulting from, inter alia:	
(a) the construction and existence of the development, including, where relevant, demolition works;	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), 11 (Agricultural Land Quality) and 13 (Summary of Residual and Cumulative Effects). Scope of EIA considered at Paragraph 2.2.4.
(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;	Chapters 8 (Ecology), 11 (Agricultural Land Quality) and 13 (Summary of Residual and Cumulative Effects). Scope of EIA considered at Paragraph 2.2.4.
(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;	Chapters 9 (Acoustics), 10 (Air Quality), and 13 (Summary of Residual and Cumulative Effects). Scope of EIA considered at Paragraph 2.2.4.
(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);	Scope of EIA considered at Paragraph 2.2.4.
(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), 11 (Agricultural Land Quality) and 13 (Summary of Residual and Cumulative Effects).
(f)the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;	Considered at Paragraph 2.2.4.
(g)the technologies and the substances used.	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10

	(Air Quality), 11 (Agricultural Land Quality) and 13 (Summary of Residual and Cumulative Effects).
6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), and 11 (Agricultural Land Quality)
7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), 11 (Agricultural Land Quality) and 12 (Summary of Mitigation and Enhancement Measures).
8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU(**3**) of the European Parliament and of the Council or Council Directive 2009/71/Euratom(**4**) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	Scoped out – see Paragraph 2.2.4 above.
9. A non-technical summary of the information provided under paragraphs 1 to 8.	Non-Technical Summary
10. A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	Chapters 5 (Socio-Economics), 6 (Transport), 7 (Landscape and Visual Amenity), 8 (Ecology), 9 (Acoustics), 10 (Air Quality), and 11 (Agricultural Land Quality).

Environmental Statement
Chapter 3: Summary of Existing Site

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

Prepared by	**Strutt & Parker**
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Statement of Competency

This chapter of this Environmental Statement (ES) has been prepared by John Cutler at Strutt & Parker, who has both practical experience of preparing such statements. John is a chartered town planner (MRTPI) and is an accredited Practitioner member of the Institute of Environmental Management and Assessment (PIEMA).

3. Summary of Existing Site

3.1 Introduction

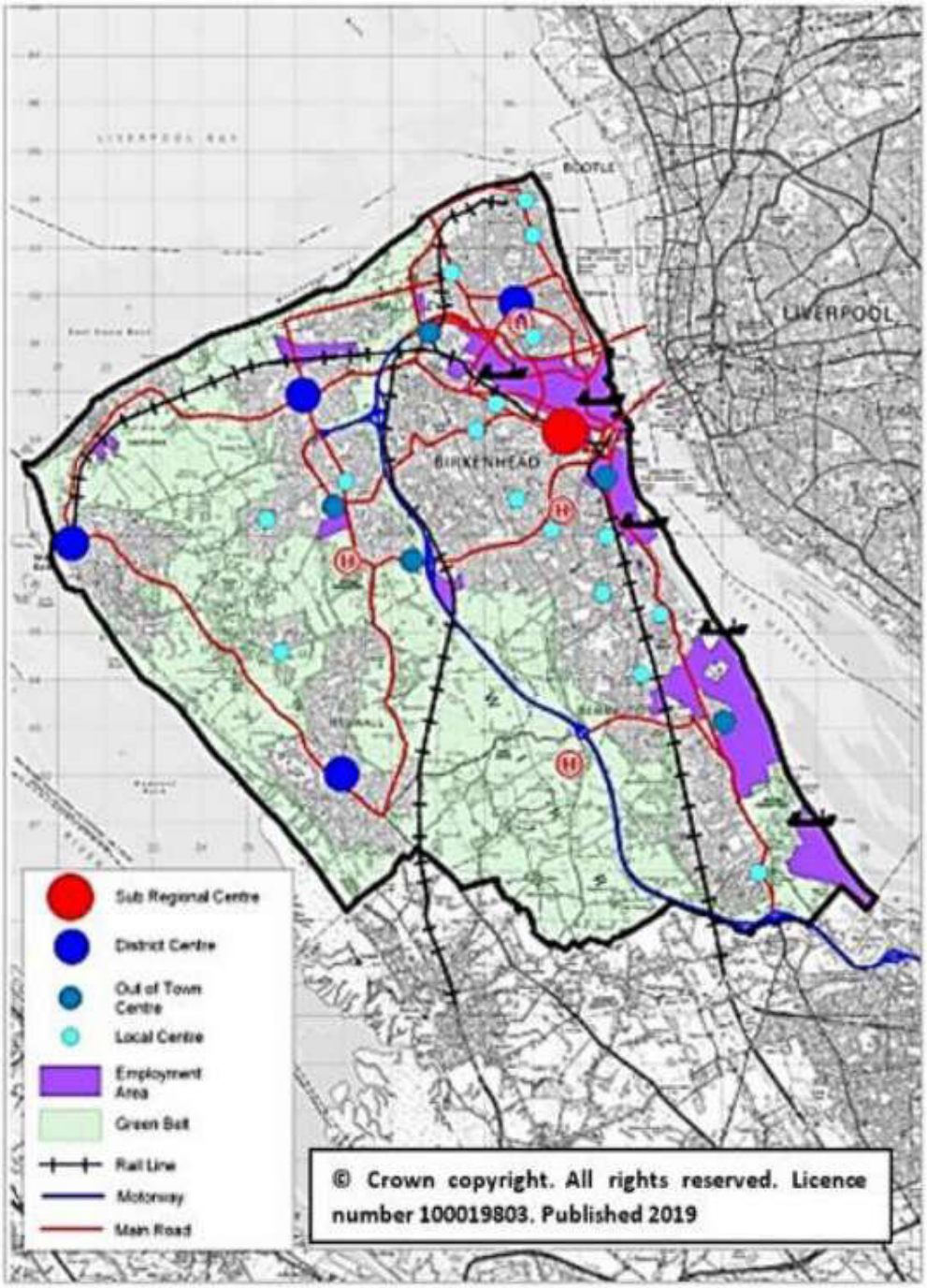
3.1.1 This chapter will provide a summary description of the existing site characteristics and surroundings, together with the wider context of Wirral. Individual technical chapters of the ES will provide separate summaries of the existing Site with reference to specific features of interest to the assessment topic.

3.2 Wirral

3.2.1 Wirral (Metropolitan Borough Council area) is a metropolitan area covering the northern 60 square miles (15,540 hectares) of the Wirral Peninsula, which is bounded by the River Dee (that forms a boundary with Wales) to the west, the River Mersey to the east (beyond which is the urban area of Liverpool), and the Irish Sea to the north. Cheshire is located to the south. The eastern side of the Borough, opposite Liverpool, forms part of the core of the Merseyside conurbation, and includes the settlements of Birkenhead, Wallasey, and Bebington. Almost two thirds of the Borough's population live within the urban area to the east of the M53 Motorway. The western side of the peninsula is generally rural, but also features established settlements including Pensby, Heswall, and Greasby.

3.2.2 Figure 3.1 below is from the WBC Local Plan 2020 - 2035 Draft Spatial Portrait (January 2020), and shows the spatial distribution of the main settlements and retail centres, key transport routes and the present boundaries to the Greenbelt, designated in the 2000 UDP. It shows the main employment areas in the east of the Borough, with a number of other Centres in the west of the borough.

Figure 3.1 – Spatial Distribution of Wirral



3.2.3 The M53 is the main strategic road within the borough, providing vehicular access from the south. Kingsway and Queensway bridges connect the north east of the peninsula with Liverpool to the east. There are four railway lines within the peninsula.

3.2.4 Birkenhead Ferry Terminal provides ferry services to Belfast and Douglas (Isle of Man).

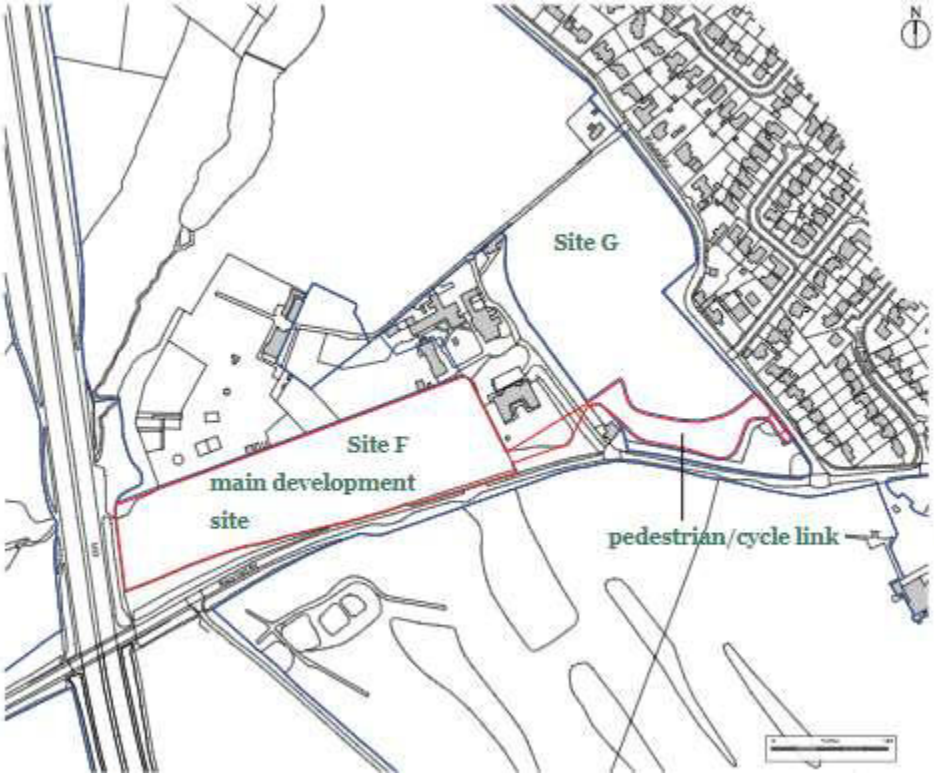
3.3 Raby Mere

3.3.1 The subject Site comprises greenfield land positioned to the west of the settlement of Raby Mere. Raby Mere is positioned in the south east of the Borough, it comprises an area of established residential development to the north of Raby Hall Road and east of Blakeley Road. It is located closeby to Bromborough to the east, which features a railway station and has various other services and amenities.

3.4 Application Site

3.4.1 The Site has reasonable access to a range of local services within walking distance, including shops and local services, schools, and medical facilities. There is a cluster of shops and services at Allport Road, around 1.3 km to the east within Bromborough.

Figure 3.2 – Application Site



3.4.2 The Site has access to public transport, with the nearest bus stop at Blakely Road around 0.4 km to the east, which provides bus services to Heswall, Moreton, and Heathfield. There are also services provided from Bromborough Station around 1.3km to the east.

Bromborough Station itself provides railway services to Birkenhead, Liverpool, Chester and Ellesmere Port.

3.4.3 The subject Site is approximately 3.30 hectares in size. It comprises undeveloped agricultural land which is currently used for arable farming, and land associated with Raby Hall (Autism Together).

3.4.4 The main part of the Site comprises a broadly rectangular agricultural field. There are a number of trees within the southern and western parts of the Site, but it otherwise comprises a featureless arable field. The Site slopes gently from east to west.

3.4.5 To the east, the red line extends linearly to include grounds to the front of Raby Hall, which is grassed and with trees to the south, and then to a further agricultural field (also known as 'Raby Hall East'), extending to Blakeley Road to the east.

3.4.6 In respect of the areas surrounding the western part of the Site:

- The boundary to the south comprises trees and hedgerows onto Raby Hall Road, beyond which is a golf course;
- The boundary to the west comprises a belt of hedgerows and trees, beyond which is the M53 (set at a lower level behind a bank);
- To the east and north east are series of buildings which comprise the Autism Together premises. The eastern boundary comprises a belt of trees, though along the northern boundary some buildings are visible, together with open space associated with Autism Together.

3.4.7 In respect of the areas surrounding the eastern part of the Site:

- The boundary to the south comprises trees and hedgerows onto Raby Hall Road, beyond which is a golf course;
- To the north is Raby Hall, and undeveloped agricultural land; and
- To the east is Blakeley Road, beyond which is residential development.

3.4.8 The current adopted local development plan for this area comprises the Wirral Unitary Development Plan (UDP) adopted in 2000 (as saved 2007).

3.4.9 WMBC is in the process of preparing a new Local Plan. A revised Local Development Scheme published by the Council 3 October 2020 envisages Publication draft Local Plan (Regulation 19) consultation commencing February 2021, shortly followed by submission

in June 2021, with adoption expected in Mid-2022. No Regulation 19 consultation has been published to date.

3.4.10 There are a number of approved Neighbourhood Plan Areas within the district, none of which affect the Subject Site.

3.4.11 The UDP Proposals Map shows that the Site comprises Green Belt land.

3.4.12 To the north west of the Site is a Site of Local Biological Importance, which is also covered by Tree Preservation Order (ref: BB0009W021). The eastern part of the southern boundary along Raby Hall Road is also covered by Tree Preservation Order (ref: BB0008G049).

3.4.13 The online EA Flood Map for Planning indicates that the Site is located outside the 0.1% annual probability (1 in 1,000 year) floodplain and therefore defined as Flood Zone 1.

Environmental Statement
Chapter 4: Proposed Development, Alternatives and Design Evolution

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

Prepared by	**Strutt & Parker**
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4. Proposed Development, Alternatives and Design Evolution

4.1 Introduction

4.1.1 This chapter will provide a description of the development proposals, alternatives considered and design evolution. As such, it should be read alongside the Design & Access Statement, Parameter Plan and Illustrative Masterplan submitted with the application.

4.2 Leverhulme Vision

4.2.1 The proposals make up one of a series of development proposals which are being advanced by the applicant as part of the 'Leverhulme Vision', Leverhulme Estates Ltd being a significant landowner within the Wirral. These sites together comprise 'Phase 1' sites, part of a wider three phase strategy. The Leverhulme Vision document is submitted as part of the planning application and provides additional details. This highlights that the various benefits brought forward by the Leverhulme Vision, which includes (in addition to much needed new housing):

- New and enhanced green infrastructure.
- Woodland and other appropriate planting.
- Landscape and visual impact enhancements.
- Biodiversity improvements.
- New walking and cycling routes.

4.2.2 The key points of the Leverhulme Vision can be summarised as follows:

- *Beautiful homes for Wirral residents* - Land at the edge of the rural estate has the potential to offer a highly attractive living environment which complements the urban area; leafy streets with generous gardens and easy access to the rural footpath and cycling network.

- *Communities not just homes* - Leverhulme seeks to create exemplary neighbourhoods which have vitality, wellbeing and a sense of belonging at their heart and which are recognised as wonderful places to live.

- *A modern, biodiverse agricultural estate* - The vast majority of Leverhulme's landholding will remain agricultural. Farming is having to adapt in response to changing agricultural policy, and the climate and biodiversity needs. Leverhulme has developed

an estate-wide green infrastructure plan, including plans to assist the evolution of farming practices and to deliver improved access and net gains in biodiversity which go beyond current Government requirements.

- *Health and wellbeing* - Leverhulme has the ability to increase public access to the rural landscape, including improvements to existing footpaths, new off-road cycleways and footpaths, and the creation of new publicly accessible conservation areas. This includes the creation of Cycle Supergreenways connecting rural and urban Wirral. Interaction with nature and active leisure are increasingly recognised as being essential to both the mental and physical health of adults and children. This is a real area of opportunity to enhance the quality of life that is on offer for all residents of Wirral.

- *Connected infrastructure* - Leverhulme land can be used to facilitate improved east west connectivity and to relieve localised congestion hotspots. Comprehensively planned development can support improved bus and rail services.

- *Thriving rural economy* - The centre of Wirral is home to a number of village communities including Thornton Hough, Raby, Brimstage and Storeton. The future economy and vitality of these villages can, through effective planning, be supported by enhanced connectivity, farm diversification and support for rural and community enterprises.

- *Leisure and tourism* - Leverhulme's vision involves new walking and cycling leisure trails as part of the green infrastructure plan to widen Wirral's appeal to visitors, reveal its heritage and places of interest and support the local economy. As the farming economy evolves there are opportunities for further diversification projects to ensure historic farm buildings have a viable long-term use.

4.2.3 Whilst each of the Phase 1 development sites being brought forward as part of the Leverhulme Vision are deliverable in their own right, and none are inter-dependent, there are objectives which are shared between these development proposals. Indeed, the overarching objective of the Leverhulme Vision is to deliver a series of developments which help to address the pressing need for new homes within the Borough, within a short time period. It aims to do this by bringing forward a number of high quality residential developments together with social infrastructure and environmental benefits where relevant and possible. A number of sites have been selected which are locations which benefit from good access to existing local services, infrastructure, and open space, or

indeed can deliver benefits to these elements. Environmental considerations were also a significant factor in the site selection process. In particular, a rigorous Green Belt Site Selection study was undertaken specifically to identify Leverhulme land parcels most appropriate for development when considered against the Green Belt purposes as set out at Paragraph 138 of the National Planning Policy Framework ('NPPF'). Additional detail is provided at Paragraph 4.4.3 of this Chapter.

4.2.4 All of the proposed Phase 1 developments would be obliged by planning condition to accord with the Leverhulme Design Charter which is submitted with the planning applications. The Leverhulme Design Charter sets out Leverhulme's ten commitments to high quality placemaking, which derive from the characteristics of well-designed places identified in the National Design Guide[1] and National Model Design Code[2]. All of the proposed Phase 1 developments include provision for 30% affordable housing tenures, and some proposals also include provision for 10% self/custom build development.

4.3 The Proposed Development

Quantum of Development

4.3.1 The description of development is:

> *'Residential development for up to 38 dwellings (Use Class C3), including 30% affordable housing; safeguarded land for the expansion of Autism Together facilities; delivery of green infrastructure including a new pocket park and play area, wildlife habitats and green corridors; and off-site environmental, biodiversity and accessibility enhancements, including an off-road pedestrian and cycle connection between the site and Blakeley Road.'*

4.3.2 To summarise, the proposal comprises:

- A maximum 38 new C3 dwellings (housing mix has not yet been formulated at this stage noting that the application is in outline form);
- Circa 1.47 hectares land for residential use;
- 30% of the proposed dwellings (up to 11 dwellings) will be provided for affordable tenures;

[1] The ten characteristics of well designed places, National Design Guide, Ministry of Housing, Communities and Local Government, 2021
[2] National Model Design Code, Ministry of Housing, Communities and Local Government, 2021

- Circa 0.97 hectares green and blue infrastructure (ports pitches, woodland, grassland and wetland habitat, amenity green space and drainage attenuation features);
- An area of 0.33 hectares (10%) safeguarded for future use by Autism Together; and
- Zone for a footpath corridor of 0.53 hectares.

Masterplan Approach

4.3.3 The Applicant's overarching vision for the Site is to create a new residential development of new homes to help to address the pressing housing need within the Borough.

4.3.4 There have been a number of design and environmental drivers within the masterplan process, notably:

- the provision of a landscape-led scheme which accords with the Leverhulme Design Charter;
- providing a high quality development which responds to urban design principles (so far as possible at this outline stage), including the protection of amenity of neighbouring residents;
- providing an efficient form of development which seeks to meet the housing needs of the Borough;
- enabling a high standard of accommodation which meets all technical standards in respect of internal and external space, and the provision of on-site open space as appropriate;
- seeking to encourage sustainable travel by enhancing pedestrian and cycle links;
- ensuring a safe environment for all users;
- minimising any adverse effects on flood risk, and enhancing flood risk management where possible;
- avoiding the loss of trees or ecological habitats, and seeking to enhancements where possible; and
- seeking to minimise impacts on landscape visual amenity.

Parameters Plan

4.3.5 The Parameter Plan in relation to land use, landscaping and green infrastructure, and access and movement is provided at Appendix 1.2. The design approach has been adopted largely given the existing site constraints and characteristics. It shows the

provision of public open space positioned around the south, north, and western boundaries. In particular, a generous area of open space is provided to the west of the Site incorporating a drainage attenuation feature. Noise constraints associated with the M53 to the west would be mitigated through the provision of acoustic barrier and planting screening (which will be fixed in location on the Parameter Plan). The residential built form is focussed within the central and eastern parts of the main (western) part of the Site, with an inclusive local play area provided toward the eastern part of the Site (indicative location). The indicative Parameter Plan also shows the easternmost part of the Site safeguarded for future use by Autism Together.

4.3.6 With the exception of proposed drainage features, no significant alterations to the existing ground levels are proposed. The heights of the new buildings will comprise typically two storey and two storey with dormers, with occasional three storey buildings, with a maximum height of 12 metres in height above ground level.

Access

4.3.7 A single vehicular access point is proposed directly onto Raby Hall Road, which will serve the residential area. The proposed access is shown on drawing 078244-CUR-00-XX-DR-TP-75001-P03 at Appendix 1.3.

4.3.8 The linear eastern part of the Site provides an off road footpath, connecting the Site with the Blakeley Road to the east, enhancing connectivity to future residents of the development as well as Autism Together.

Implementation and Phasing

4.3.9 A key component of the Leverhulme Vision is that the development sites selected are able to deliver new housing within a short time frame, to respond to the existing need for new housing in the borough.

Construction Phase

4.3.10 As set out in Chapter 2, it is anticipated that the construction phase of development would last from 2024 to 2026/27, and it is anticipated that the development would be fully operational in 2027.

4.3.11 Individual technical chapters within this ES consider the construction phase of development as required. Where technical ES chapter authors have made assumptions for the construction timetable as part of their assessments, these are set out within the ES chapters, and justification for this approach is also provided.

4.3.12 It is considered that a Construction Environmental Management Plan ('CEMP'), or similar, would be required by planning condition. This would control the potential for adverse environmental effects during the construction phase. This is considered in more detail within the technical ES chapters as required.

Management and Maintenance

4.3.13 It is envisaged that the green infrastructure, including public open space (incorporating grassed attenuation basin and habitat) will be managed and maintained by an independent management trust or company for the benefit of residents and wildlife.

4.4 Consideration of Alternatives

4.4.1 The EIA Regulations require an outline of any alternatives considered, with regard to consideration of alternative sites if relevant, plus the consideration of alternatives of how to bring the site forward in terms of the scale and disposition of uses across the site, and other design or masterplanning issues and options considered.

'Do-nothing' Scenario

4.4.2 The Site currently comprises undeveloped agricultural land which is currently used for farming. It is currently designated Green Belt with no other land use designations or allocations. Therefore, if the Proposed Development does not come forward, the Site will be retained in agricultural use, and the following benefits would not be delivered:

- Contribution of up to 38 new homes to addressing the chronic housing shortage in Wirral
- Contribution of up to 11 new affordable homes
- Circa 0.97 hectares green and blue infrastructure (ports pitches, woodland, grassland and wetland habitat, amenity green space and drainage attenuation features);
- An area of 0.33 hectares (10%) safeguarded for future use by Autism Together; and
- A new pedestrian route.

Alternative Sites

4.4.3 As highlighted previously, this Site is one of eight Phase 1 sites which the applicant has decided to take forward to outline planning application stage for residential development. All of the Phase 1 sites were selected out of the applicant's significant ownership through a comprehensive assessment process. This included consideration of access to existing local services, infrastructure, and open space, together with consideration of environmental issues. In particular, a rigorous Green Belt site selection study was undertaken specifically to identify Leverhulme land parcels most appropriate for development when considered against the Green Belt purposes as set out at Paragraph 138 of the National Planning Policy Framework ('NPPF'). The study (by Barnes Walker, on behalf of Leverhulme) identified that all of the Phase 1 sites were located within Green Belt parcels that were assessed as making a weak contribution to the five purposes of the Green Belt.

Alternative Uses

4.4.4 The proposed residential development of the Site derives from the overarching objective of the Leverhulme Vision to deliver new homes to help address the pressing need within the Borough, within a short time period. In this respect, the planning application is a response to the need for new homes in the Borough, cognisant that the Local Plan is out-of-date. Moreover, given the location of the Site (adjacent to existing residential development), the Site is considered to be well suited to residential use.

Alternative Design Approaches

4.4.5 The Site has been subject to extensive masterplanning, which has included a variety of layouts being considered, in developing the proposal that is now the subject of the current application. As highlighted previously, the proposal has been designed to minimise any adverse environmental impacts as far as practicable.

4.4.6 It is considered that the overall scale of development proposed is logical, given that the Site is contained by established development to the east, and the M53 to the west.

4.4.7 A number of alternative design layouts were explored by the applicant's team as part of the iterative design process. Of the options explored, it is considered that the Proposed Development set out in this planning application represents the best masterplan design, as it provides an efficient use of land whilst accommodating and responding to environmental considerations.

4.4.8 The Design and Access Statement provides further detail about the design evolution, with reference to some of the alternative approaches considered. It highlights that the initial concept scheme was based on the focused housing in the eastern part of the Site, with a public open space including a play area, habitat buffer and drainage basin located in the west of the Site adjacent to the existing woodland. Baseline technical assessments then informed an illustrative masterplan which was produced in July 2021. Following highways advice the location of the proposed access was adjusted eastwards. Ecology and landscape assessments advised that the layout should include habitat buffers to the woodland to the west and a green corridor to preserve the root protection of trees fronting Raby Hall Road. Noise assessment identified the need for an acoustic fence in the western part of the Site. Following discussions with Autism together, the eastern part of the Site was designed with two potential pedestrian connections into the Autism Together complex and the play area was relocated to this part of the Site so that it could be used by Autism Together and the local community. Subsequent refinements were later made – notably the Site boundary was extended to ensure that the provision of an off-road pedestrian link to Blakeley Road.

Environmental Statement
Chapter 5: Socio-economics

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

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5. Socio-Economics

5.1. Introduction

5.1.1 This chapter has been prepared by Strutt and Parker and considers the likely significant socio-economic effects of the Project upon the site and surrounding area. These considerations are most commonly related to the effects upon the human population that live in close proximity to the site. The analysis focuses on provision of housing, the local economy and social infrastructure within the predominantly residential area surrounding the site.

5.1.2 This chapter describes the methods used to determine the effect; the baseline conditions currently existing at the site and surrounding area; an assessment of the effects incorporating embedded mitigation; any further mitigation measures required to reduce or offset any significant adverse effects; and the residual effects after these measures have been employed. Appendices 5.1 and 5.2 summarise the effects of development for the construction and operational phases respectively.

5.2. Policy and Legislative Context

5.2.1 Details of the planning policy framework is set out at Chapter 2, however a summary of the relevant points are set out below.

National Planning Policy Framework (NPPF 2021)

5.2.2 The NPPF sets out a presumption in favour of sustainable development, which for decision-taking means approving development proposals that accord with an up-to-date development plan without delay.

5.2.3 Paragraph 8 states that *'Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives)'.* In respect of socio-economics this includes:
*'a) **an economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*

*'b) **a social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being;*

5.2.4 Paragraph 34 states that *'Plans should set out the contributions expected from development. This should include setting out the levels and types of affordable housing provision required, along with other infrastructure (such as that needed for education, health, transport, flood and water management, green and digital infrastructure). Such policies should not undermine the deliverability of the plan.'*

5.2.5 Paragraph 60 of the NPPF states that *'To support the Government's objective of significantly boosting the supply of homes, it is important that a sufficient amount and variety of land can come forward where it is needed, that the needs of groups with specific housing requirements are addressed and that land with permission is developed without unnecessary delay.'*

5.2.6 Paragraph 61 sets out that the approach to determine the minimum number of homes needed should be informed by a local housing need assessment, conducted using the standard method in national planning guidance - – unless exceptional circumstances justify an alternative approach which also reflects current and future demographic trends and market signals. In addition to the local housing need figure, any needs that cannot be met within neighbouring areas should also be taken into account in establishing the amount of housing to be planned for.

5.2.7 Paragraph 62 states that *'the size, type and tenure of housing needed for different groups in the community should be assessed and reflected in planning policies (including, but not limited to, those who require affordable housing, families with children, older people, students, people with disabilities, service families, travellers, people who rent their homes and people wishing to commission or build their own homes).'*

5.2.8 Paragraph 81 states that *'Planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development. The approach taken should allow each area to build on its strengths, counter any weaknesses and address the challenges*

of the future. This is particularly important where Britain can be a global leader in driving innovation, and in areas with high levels of productivity, which should be able to capitalise on their performance and potential.'

5.2.9 Paragraph 85 states that *'Planning policies and decisions should recognise that sites to meet local business and community needs in rural areas may have to be found adjacent to or beyond existing settlements, and in locations that are not well served by public transport. In these circumstances it will be important to ensure that development is sensitive to its surroundings, does not have an unacceptable impact on local roads and exploits any opportunities to make a location more sustainable (for example by improving the scope for access on foot, by cycling or by public transport). The use of previously developed land, and sites that are physically well-related to existing settlements, should be encouraged where suitable opportunities exist.'*

5.2.10 Paragraph 92 states that *'Planning policies and decisions should aim to achieve healthy, inclusive and safe places which (inter alia):*

> *c) enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling.'*

5.2.11 Paragraph 93 states that '*To provide the social, recreational and cultural facilities and services the community needs, planning policies and decisions should:*

'a) plan positively for the provision and use of shared spaces, community facilities (such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments;
b) take into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community;
c) guard against the unnecessary loss of valued facilities and services, particularly where this would reduce the community's ability to meet its day-to-day needs;
d) ensure that established shops, facilities and services are able to develop and modernise, and are retained for the benefit of the community; and
e) ensure an integrated approach to considering the location of housing, economic uses and community facilities and services.'

Local Planning Policy

5.2.12 The current adopted local development plan for this area comprises the Wirral Unitary Development Plan (UDP) adopted in 2000 (as saved 2007).

Wirral Unitary Development Plan (2000)

5.2.13 The adopted Wirral UDP (as saved 2007) sets out a series of retained policies potentially relevant to socio-economic matters.

- URN1 (Development and Urban Regeneration)
- EMP1 (Provision of Employment Land)
- EM1 – EM5 (Land allocations for Employment Uses)
- EM6 (General Criteria for new Employment Development)
- EM8 (Development within Primarily Industrial Areas)
- EM9 (Non-Employment Uses in Industrial Areas
- EM12 (Employment Development in Primarily Residential Areas)
- HS1 (Land Allocated for Residential Development)*
- HS4 (Criteria for New Housing Development)*
- HSG2 (Affordable Housing)*
- HS6 (Principles for Affordable Housing)*
- HS7 (Sheltered Housing)
- HS8 (Nursing Homes/Residential Care Homes)
- HS9 (Mobility Housing)
- HS12 (Pre-School Day Care)
- HS14 (Houses in Multiple Occupation)
- GRE1 (The Protection of Urban Greenspace)
- GR1 (The Protection of Urban Greenspace)
- GR2 (Land Designated as Urban Greenspace)
- GR3 (The Protection of Allotments)
- GR6 (Greenspace Within New Family Housing Development)*
- REC1 (Principles for Sport and Recreation)*
- RE1 (Criteria for Urban Recreation Facilities)
- RE6 (Sports Grounds for Protection from Development)
- RE8 (Criteria for Artificial Playing Pitches)
- RE10(Criteria for Community Centres and Facilities)
- RE11 (Criteria for Children's Play Facilities)*
- RE12 (Sites for New Children's Play Equipment)

- RE13 (Criteria for Sports Facilities in the Green Belt)
- TLR1 (Principles for Tourism Development)
- TL9 (The Protection of Rural Tourist Attractions and Resources)
- TL11 (Development at Countryside Recreation Sites)
- TL14 (Protecting and Extending Public Rights of Way)*
- SHO1 (Principles for New Retail Development)
- SH9 (Criteria for Out-of-Centre and Edge-of-Centre Retail Development)
- SH10 (Design and Location of Out-of-Centre and Edge-of-Centre retail Development)

Wirral Local Plan 2021 – 2037

5.2.14 WBC is in the process of preparing a new Local Plan for the period 2021 – 2037. At the time of writing, a seven-week public consultation is underway regarding the Regulation 19 Submission Draft Local Plan, ending on 24th June 2022. The actual date of the examination, following reflection on the matters raised during the consultation, has not yet been confirmed.

5.2.15 The draft Plan is predicated on a proposal that all of the borough's housing needs over the next 15 years (a minimum of 13,360 net additional dwellings) can be met within existing built-up areas, largely through the redevelopment of brownfield sites in and around Birkenhead. For clarity, Leverhulme considers the spatial strategy set out in the draft Plan unsound for reasons it will set out in its formal consultation response – notwithstanding, specific draft policies in respect of relevant socio-economic matters are summarised below.

Dwelling Mix

5.2.16 Paragraph 3.57 identifies a need across all tenures of almost 61% of housing and 65% of market housing to have three or more bedrooms to accommodate families. Draft Policy WS3.4 states that all new residential developments must provide homes of an appropriate type, size and tenure to meet the needs of the local community including specialist housing for the older population and other specialist needs where appropriate. Outside identified Regeneration Areas, a minimum of 70% of market dwellings will be developed for larger dwellings of three or more bedrooms.

5.2.17 In respect of affordable housing, Paragraph 3.53 of the Plan identifies a need for 374 affordable homes each year in Wirral. Draft Policy WS3.3 seeks to achieve 20% tenure

blind affordable housing within proposals of 10 or more homes in the relevant Viability Zone.

Self-Build/Custom Build Housing

5.2.18 Paragraph 3.51 of the Plan states that during the period March 2016 – January 2021 there were 304 households on the Councils Self Build Register. Draft Policy WS3.5 states that the Council will work with developers on sites of more than 50 dwellings in areas where a need is identified to secure the delivery of serviced plots for custom and self-build dwellings.

Specialist Housing

5.2.19 In respect of the need for other specialist groups, draft Policy WS3.6 states that specialist housing for older people, or groups with particular housing needs will be supported provided it can be demonstrated that the development is in a sustainable location. Draft Policy WS3.1 also states that on developments of 17 or more new build dwellings, at least 6% will be 'wheelchair adaptable' in line with Part M4(3)(2)(a) of the Building Regulations or any successor standard.

Employment Growth

5.2.20 Draft Policy WS4.1 sets out the Council's proposed strategy to delivering employment growth, including the allocation of 65.60 hectares of land for main employment uses. Draft Policy WS4.2 sets out the Council's preferred approach to protecting designated employment areas.

5.3. Methodology & Assessment Criteria

Scope of the Assessment

5.3.1 There are a number of general effects on the population that can arise from socio-economic changes. Direct economic effects can relate to labour supply and training, wage levels, the characteristics of employment and whether job opportunities are created locally, or at a distance. Wider economic effects include retail expenditure, labour market pressures, and the effect on the supply chain.

5.3.2 Demographic effects can include changes in population size (temporary and permanent), and changes in the characteristics of the population, for example household size. These have a bearing on the housing requirements, including tenure (private and non-private), house prices and homelessness.

5.3.3 The assessment will consider various social and community matters:

i. Population and Housing
ii. Local Economy
iii. Education Facilities
iv. Healthcare Facilities
v. Social/Community Facilities
vi. Open Space, Sports and Recreational Facilities

Construction Phase Assessment

5.3.4 The methodology used to calculate the effects of the Proposed Development on the population during the construction phase is to measure the difference between the baseline scenario with the position if the Proposed Development is implemented.

5.3.5 Inevitably, there will be some effect on the local population during construction but, with the exception of the opportunities this will create for training and job creation, this will be largely confined to landscape noise, air quality, and construction traffic. These issues are dealt with separately in this ES in the chapters relating to Landscape and Visual Amenity (Chapter 7), Acoustics (Chapter 9), Air Quality (Chapter 10), and Transport (Chapter 6), as appropriate.

Operational Phase Assessment

5.3.6 The issues relating to Landscape and Visual Amenity, Acoustics, Air Quality and Transport population during the operational phase of the Proposed Development are all dealt with in the relevant chapters in this ES and are therefore not assessed here.

5.3.7 The methodology used to calculate the effects of the Proposed Development on the population and community is to measure the difference between the existing baseline scenario with the position if the Proposed Development is implemented.

Assessment Area

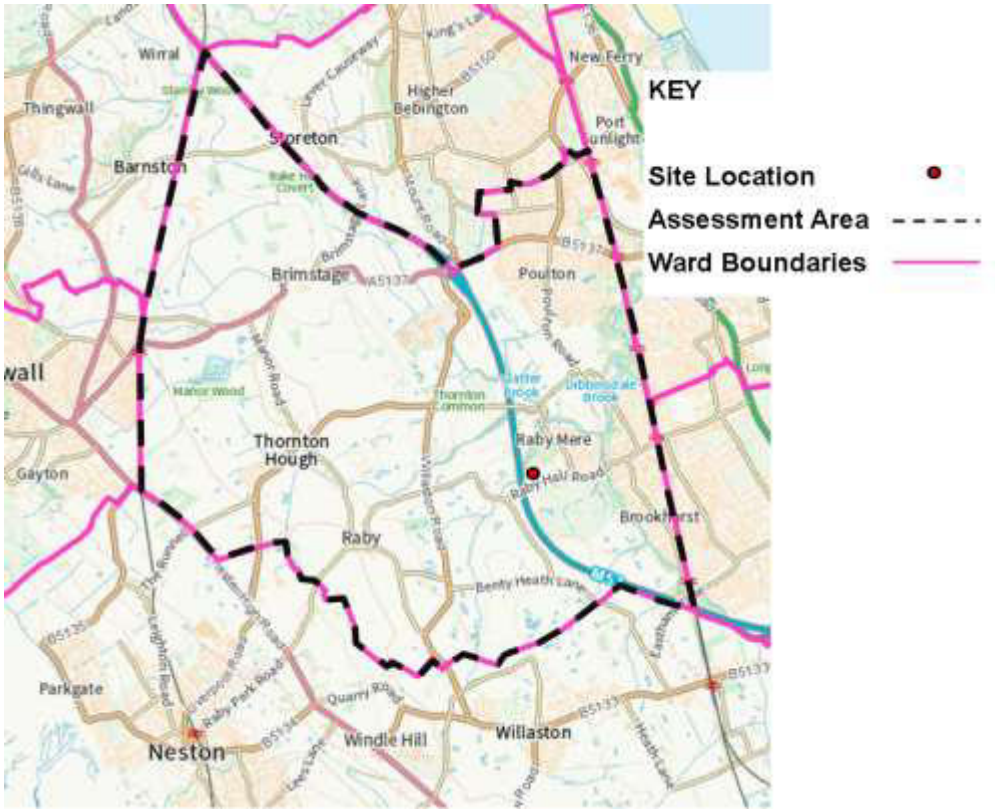
5.3.8 In defining the Assessment Area, regard has been had to the location of the site and the need for the Assessment Area to be consistently represented within data sources used

within the assessment. The Office for National Statistics uses various levels of geography in providing statistics, including region, local authority, and wards.

5.3.9 The Site is positioned within the Clatterbridge ward, which covers the established residential areas to the east to the railway line (incorporating Raby Mere, Poulton and Brookhurst), and rural areas to the west. Given the scale and nature of the development and potential socio-economic impacts on the surrounding residential areas, it is considered that this ward boundary comprises a suitable Assessment Area for the purpose of this assessment. Whilst there are Lower Layer Super Output Areas which cover Wirral, it is held that these areas are too limited in their scope, whereas the ward boundary provides an appropriate Assessment Area for this assessment. Additionally, ward level data is generally more attainable than Lower Layer Super Output Area data.

5.3.10 The Assessment Area (Clatterbridge ward) for the purposes of this assessment is shown at Figure 5.1.

Figure 5.1 – Assessment Area



5.3.11 Notwithstanding the above, the site is also related to other areas not within the Assessment Area, and so when considering socio-economic impacts, a geographical criteria is selected to identify the baseline criteria and to base the assessment upon.

Method of Baseline Data Collection

5.3.12 Baseline information has been collected from a desktop assessment of various comparative national and local datasets. Wherever possible the most up-to-date information has been presented. In most instances 2011 Census data has been presented within this Chapter (2021 Census data has not been published to date).

5.3.13 The Council has also published local ward statistics which provides socio-economic facts and figures to support the Local Plan.

5.3.14 Other information utilised within this chapter derives from various sources, including studies and reports produced by the local authority as well as reputable internet sources and direct contact with organisations.

5.3.15 All information sources drawn upon are identified and referenced. Information sources include:

i. Office for National Statistics ('ONS');
ii. National Online Manpower Information System ('NOMIS');
iii. WBC Regulation 18 New Local Plan (2020) and evidence base;
iv. National Health Service ('NHS') England;
v. Sport England ('SE');
vi. Public Health England ('PHE').

Identification of Sensitive Receptors

5.3.16 The scope of the assessment has been set out previously. For the purposes of this assessment, the receptors identified are those socio-economic factors previously highlighted:

i. Population and Housing Needs
ii. Local Economy
iii. Education Facilities
iv. Healthcare Facilities
v. Social/Community Facilities
vi. Open Space, Sports and Recreational Facilities

5.3.17 There is no generally accepted criteria for defining the sensitivity of socio-economic receptors, and professional judgement has been used by assessing importance and resilience (i.e. the extent to which housing, economic, or social infrastructure issues etc. are present in an area). The receptor sensitivity has been assessed on a case-by-case basis, with the receptors classified as high, medium, or low sensitivity.

5.3.18 Table 5.1 highlights the identified sensitivities of receptors.

Table 5.1 – Receptor Sensitivity

Receptor	High	Medium	Low
Population and Housing	X		
Local Economy	X		
Education facilities	X		
Healthcare facilities	X		
Social/Community facilities		X	
Open space, sports and recreational facilities		X	

Magnitude of Change

5.3.19 Magnitudes of change are rated as High, Medium, Low and Negligible and can be direct or indirect as set out in Table 5.2 below.

Table 5.2 – Magnitude of Change

Magnitude	Criteria
High	Total loss or major/substantial alteration to elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Medium	Loss or alteration to one or more elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Low	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible / detectable but the underlying character / composition / attributes of the baseline condition will be similar to the pre-development.
Negligible	Very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable, approximating to a 'no change' situation.

Assessment of Effects

5.3.20 As set out in Chapter 2, effect significance will be calculated based on the matrix in Table 5.3 below. This illustrates the interaction between the receptor sensitivity and the magnitude of an effect.

Table 5.3 – Assessment of Effect Significance

Magnitude	Sensitivity		
	High	**Medium**	**Low**
High	Major Adverse/Beneficial	Major – Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial
Medium	Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial
Low	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

5.3.21 Effects will be reported as beneficial or adverse; short or long term; permanent or temporary; and direct or indirect.

5.3.22 There is no generally accepted criteria for assessing the significance of socio-economic effects and, in some cases, it can be difficult to quantify or measure such effects. Where this is the case, qualitative professional judgment has been applied, based on experience.

5.4. Existing Baseline Conditions

Baseline Assessment

i. Population and Housing

Population and Demographics

5.4.1 The AA has a population of 14,411 (in 2011), representing 4.51% of the population of the Wirral Metropolitan Borough ('WMB') local authority area (319,783), and 0.20% of the population of the North West ('NW') region (7,052,177).

5.4.2 Population projections for the AA are not available, however the 2018 based population projections from ONS suggest a growth rate of 4.06% for WMB from 323,235 in 2018 to

336,348 in 2043. Over the same period there is a projected growth rate of 8.51% for the NW from 2018 through to 2043 (7,292,093 to 7,912,587). Compared to the predicted population growth rate for England of 10.30% in this same period (55,977,178 to 61,744,098) and the region, WMB is predicted will grow at a somewhat slower rate.

5.4.3 Table 5. below shows the population in the AA by age band, compared with those for WMB, the NW and England.

Table 5.4 – Population by Age Band - 2011 (%)

	Assessment Area	Wirral (Local Authority)	North West (Region)	England (Nation)
All Persons; Aged 0-15	16.04	18.54	18.78	18.91
All Persons; Aged 16-24	9.15	10.58	12.17	11.86
All Persons; Aged 25-64	50.37	61.61	45.82	52.90
All Persons; Aged 65 and Over	24.43	9.27	7.71	16.34

Source: ONS 2011 Census

5.4.4 In the AA the main age group is 25 – 64 year olds (50.37%), which is the main economically active age group – this is a significantly lower proportion than at local authority level (61.61%) but higher than at regional level. The AA population has a substantially higher proportion of people aged 65 and older (24.43%) compared to the local authority, regional and national trends. It also has a lower percentage of 0-15 year olds (16.04%) and 16 to 24 year olds (9.15%) compared to the local authority, regional and national trends. It is therefore considered that the AA has an older age profile compared to most areas.

5.4.5 Population projections by age group are not available for the AA. However, as set out earlier, the 2018-based population projections indicate that Wirral's population overall is projected to grow by 4.06% in the period 2018 to 2043, although this projection by the ONS is merely a casting forward of the patterns of change in births, deaths and migration from today. The projections contain details of specific age groups and allow for examination of specific age groups who place demands on health services: children, women of child-bearing age and older people. The numbers of 0-29 year olds are projected to fall from 108,481 in 2018 to 101,505 by 2043 – a decrease of 6,976 or 6.43%. However, as indicated previously the population of the borough is set to increase overall by 13,113 (or 4.06%).

The majority of this increase is due to come from the older age groups, with the numbers of older people projected to increase substantially. There were 3,422 persons of 90 + years in 2018, but by 2043 there are projected to be 6,716 (an increase of 96.27%). Similarly, there will be 62.70% more 85 – 89 year olds, 69.98% more 80 – 84 year olds and 56.29% more 75 to 79 year olds. In total this represents an increase of 21,083 in 75+ year olds.

5.4.6 Females make up a slightly larger proportion of the population within both the AA and WMB at 51.5% and 51.9% respectively. This is a little higher than regional (50.9%) and national (50.8%) trends, and likely reflects the older population within the AA and WMB (noting that females have a greater life expectancy than males).

5.4.7 In relation to ethnicity, the 2011 Census data shows that 96.45% of AA residents consider themselves to be 'White English/Welsh/Scottish/Northern Irish/British'. This is broadly consistent with the figure for Wirral where 94.97 of people identified themselves in the same category. In comparison only 87.08% of people regionally and 79.8% of people nationally identify themselves in this category. This indicates that the AA and WMB are less ethnically diverse than the region or nation as a whole.

Housing Needs

5.4.8 The NPPF sets out the approach to developing planning policies within England. At Paragraph 61 it states that to determine the minimum number of homes needed, strategic policies should be informed by a local housing need assessment, conducted using the standard method in national planning guidance – unless exceptional circumstances justify an alternative approach which also reflects current and future demographic trends and market signals. In addition to the local housing need figure, any needs that cannot be met within neighbouring areas should also be taken into account in establishing the amount of housing to be planned for.

5.4.9 A Local Plan evidence base document 'Exploring the computation of housing need in Wirral' prepared by University of Liverpool (March 2020) indicates at Paragraph 2.29 that the standard methodology produces an annual requirement for WMB of 782 new dwellings per annum which equates to 11,730 over the period 2020-2035. Paragraph 4.6 highlights that on the basis of the evidence presented in that report, it would be difficult to sustain the argument that WMB experiences exceptional local circumstances when compared to other English local authorities.

5.4.10 There are 5,924 households in the AA, which equates to 4.07% of WMB's households which total 145,693 (in 2011).

5.4.11 Table 2.1 of the I&O document sets out key housing statistics for the Liverpool City Region, which incorporates the local planning authority areas of Halton, Knowsley, Liverpool, Sefton, St Helens and Wirral. It states that in 2019 there were 142,132 homes in WMB and that the additional 12,000 new households across WMB in the period 2020-2035 represents an increase in the housing stock of 8.2%. This sits just below the overall level for the city region at 8.7%.

5.4.12 In 2011 the average household size in the AA was 2.38 persons, based on the total dwellings (6,059) and population (14,411). Married/civil partnership and co-habiting couples with dependent children represent 20.71% of households which is a little higher than consistent with the WMB figure (17.01%) NW figure (18.41%) and broadly consistent with the national figure (19.34%). Overall the level of one family households is high in the AA (71.13%) compared to across WMB (60.95%), the NW (61.24%) and England (61.78%).

5.4.13 One-person households (aged 65 and over) amounts to 13.76% of the households in the AA. This is broadly consistent with the WMB (14.67%), the NW (12.85%) and across England (12.35%).

5.4.14 Property Tenure data is presented below (2011) in Table 5.5. The AA has a high level of owner occupation (87.37% compared with 67.46% in WMB, 64.51% in the NW, and 61.8% nationally). Social rental/rental from the local authority, and private rental is low in the AA, compared to WMB, regional and national figures.

Table 5.5 – Household Tenure - 2011 (%)

Tenure	Assessment Area	Wirral (Local Authority)	North West (Region)	England (Nation)
Owned	87.37	67.46	64.51	63.34
Owned outright	48.95	33.29	31.04	30.57
Owned with a mortgage or loan	38.42	34.17	33.48	32.77
Shared ownership (part owned and part rented)	0.29	0.51	0.52	0.79
Social rented	3.04	15.17	18.29	17.69
Rented from council (Local Authority)	0.76	5.17	7.70	9.43
Other	2.28	10.00	10.59	8.27
Private rented	8.17	15.84	15.38	16.84

Tenure	Assessment Area	Wirral (Local Authority)	North West (Region)	England (Nation)
Private landlord or letting agency	7.28	14.68	14.11	15.42
Other	0.89	1.17	1.27	1.42
Living rent free	1.13	1.01	1.29	1.34

Source: ONS 2011 Census

5.4.15 The AA housing stock is made up of 45.19% detached (compared with 16.71% across WMB, 17.72% regionally and 22.26% nationally) and 42.88% semi-detached houses (compared with 40.99% across WMB, 35.68% regionally and 30.71% nationally). 8.24% are terraced properties (compared with 24.78% across WMB, 29.98% regionally and 24.49% nationally). 3.09% are flats/maisonettes (compared with 17.51% across WMB, 16.34% regionally and 22.11% nationally). This highlights that the housing stock in the AA is tilted significantly towards family homes, particularly detached and semi-detached properties, in comparison to local authority, regional, and national averages.

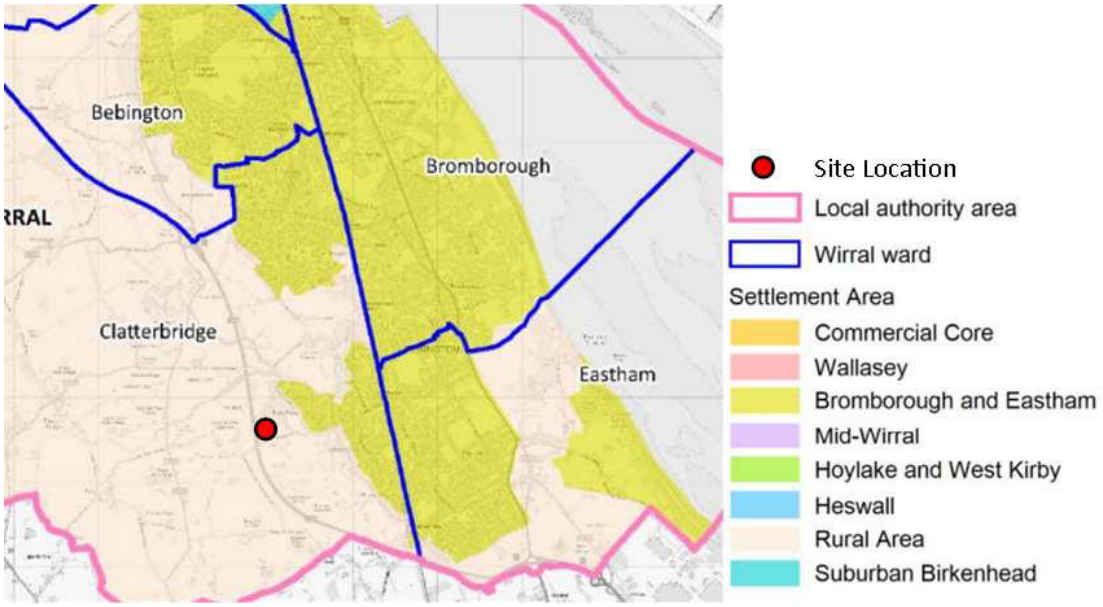
5.4.16 There are an average 3.2 bedrooms per household in the AA, compared to 2.9 in WMB, 2.7 regionally, and 2.7 nationally, reflecting the dominance of family dwellings in the area.

5.4.17 As previously indicated, Paragraph 3.57 of the draft Local Plan identifies a need across all tenures of almost 61% of housing and 65% of market housing to have three or more bedrooms to accommodate families. This demonstrates that across the borough there is a need for all sizes of accommodation, but in particular for family sized housing.

5.4.18 In relation to affordability, the Wirral Strategic Housing Market Assessment Update (2021) ('SHMA') provides analysis of housing affordability in the borough. Paragraph 3.18 summarises that on a borough-wide basis, households on lower quartile incomes cannot afford any tenure option/product at the current borough prices, and that this equates to around 25% of households. For households on median incomes, social/affordable and lower quartile market rents are affordable, along with shared ownership at 25%. By comparison, households on median incomes cannot afford market sales at any of the price points or the majority of the intermediate tenure affordable products.

5.4.19 Within the SHMA the site is identified within the 'Rural Area' by colour coding, however the nearby residential areas are identified within the 'SA4 Bromborough & Eastham' area, which is considered to be more representative.

Figure 5.2 – SHMA Settlement Areas



5.4.20 Within the Bromborough & Eastham area, the SHMA at Table 3.9 (data for Bromborough & Eastham repeated within Table 5.6 below), shows that an income (2018 based) of £ £45,000 is required for an average market sale property, compared to a median gross household income of £25,000 in the area. It also demonstrates that within the Bromborough & Eastham area:

- households on lower quartile incomes cannot afford any tenure option/product at the current borough prices; and
- households on median incomes cannot afford market sales at any of the price points or the majority of the intermediate tenure affordable products.

Table 5.6 - Household income required for tenure to be affordable (based on 25% of income for rents and 3.5x income for buying)

Tenure option	Income Required (2018)
Social Rent (average monthly)	£16,923
Affordable Rent (monthly)	£24,422
Market rent - lower quartile	£26,160
Market rent - median	£29,952
Market sale - lower quartile	£30,528
Market sale - median	£34,971
Market sale - average	£45,000
Shared ownership (50%)	£47,022
Shared ownership (25%)	£31,305
Help to buy	£26,118
Discounted Home Ownership (30%)	£35,000
Discounted Home Ownership (25%)	£32,500

Discounted Home Ownership (20%)	£35,000
Income data for information	
Lower quartile gross household income	£15,000
Median gross household income	£25,000

Source – Wirral Strategic Housing Market Assessment Update (2021)

5.4.21 As indicated within the SHMA, this comparison of local incomes with the cost of local house prices and rents illustrates the affordability challenge faced by residents within the borough overall, and also in the locality specifically.

ii. Local Economy

5.4.22 In 2011 within the AA, 66.0% of all usual residents aged 16 to 74 were economically active. This is broadly consistent with the 65.4% in Wirral, 67.8% regionally and 69.9% nationally.

5.4.23 People of working age living within the AA are mainly employed in human health and social work activities (14.89%), followed by wholesale and retail trade and vehicle repair (13.42%), manufacturing (11.71%) and education (11.43%). These are also the predominant industries at district and regional level. In terms of occupation, the resident population mainly works in 'Professional occupations', 'Associate professional and technical occupations', and 'Administrative and secretarial occupations', at figures higher than at local authority, regional, and national level, as indicated in Table 5.7 below.

Table 5.7 – Resident Occupation - 2011 (%)

Occupation Categorisation	Assessment Area	Wirral (Local Authority)	North West (Region)	England (Nation)
Managers, directors and senior officials	10.76	9.31	9.89	10.87
Professional occupations	21.99	17.68	16.33	17.49
Associate professional and technical occupations	14.62	12.02	11.53	12.79
Administrative and secretarial occupations	14.56	12.87	11.75	11.46
Skilled trades occupations	9.80	10.87	11.29	11.36
Caring, leisure and other service occupations	8.31	10.92	10.07	9.33
Sales and customer service occupations	7.27	8.56	9.43	8.42

Occupation Categorisation	Assessment Area	Wirral (Local Authority)	North West (Region)	England (Nation)
Process plant and machine operatives	5.77	7.64	8.07	7.19
Elementary occupations	6.92	10.14	11.64	11.10

Source: ONS 2011 Census

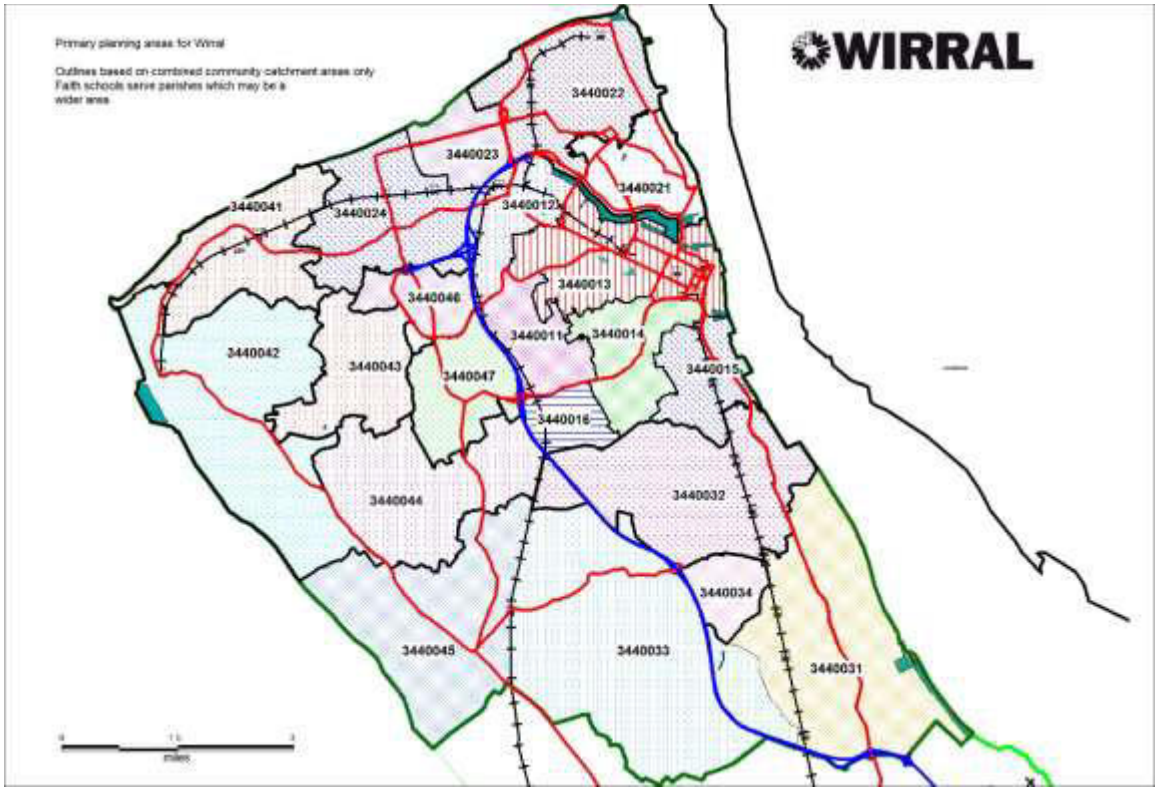
5.4.24 Recent data from NOMIS indicates that within the AA, 120 people claimed Out-Of-Work Benefits in September 2021, representing 1.6% of the resident population aged 16-64 (2019). That compares with 5.0% in WMB and 5.0% across Great Britain in the same period. This demonstrates that the AA benefits from a low rate of unemployment.

iii. Education Facilities

5.4.25 Local authorities have a statutory duty to secure sufficient school places within their area. The school that any particular child attends is a matter of parental choice and availability of capacity at the selected school. It is, however, always subject to the overriding requirements of any published admission criteria that the school has, as well as an appeals procedure for individual pupils.

5.4.26 WBC is the Local Education Authority covering the AA and has a statutory duty to ensure that there are sufficient school places in WMB to meet present and future demand for school places. For primary school planning purposes, WBC categorises the district into 21 Primary Planning Areas (‘PPAs’), which can contain between 1 and 10 individual schools. The PPAs are shown at Figure 5.3 below.

Figure 5.3 – Primary Planning Areas for Wirral



Source - Wirral Pupil Place Planning Strategy 2021-2026

5.4.27 The Wirral Pupil Place Planning Strategy 2021-2026 explains that the outlines are based on combined community catchment areas only, and that faith schools serve parishes which may be a wider area. The plan showing the Primary Planning Areas for Wirral at Figure 5.2 above is at a wide scale and with few physical items on infrastructure shown, making it difficult to accurately identify the Site location. However, it would appear to show the Site within the Spital PPA (3440034), but also close to the Thornton Hough PPA (3440033) and Bromborough PPA (3440031). For secondary schools, Wirral is a single planning area.

5.4.28 The Wirral Local Plan 2020-2035 Infrastructure Delivery Plan (Draft Phase 1: Infrastructure Delivery Plan) ('WIDPP1') January 2020 identifies essential infrastructure to support growth from planned development in the proposed Local Plan. This highlights that the Council undertakes its own projections of likely demand for school places on an annual basis, covering a five-year period for primary school places. These projections are based on a combination of factors including; birth registrations, birth rate trends, the physical capacity of schools and parental preferences.

5.4.29 The WIDPP1 at page 59 highlights a number of 'pinch points' for school place demand with a number of PPAs currently over capacity, including Heswall.

5.4.30 We have provided our own assessment of school capacity based on up to date Department for Education data. For the purposes of this assessment we have considered all primary schools within the AA and within the Spital, Heswall and Bromborough PPAs.

5.4.31 There is one secondary school within the AA, Pensby High School. Notwithstanding, it is clear that children will travel a longer distance, and outside of the AA, to attend secondary school, and so all secondary schools within 5 km of the Site have been assessed.

5.4.32 The capacity of all schools within these areas are included at Table 5.8 below. All of the schools identified within the WIDPP1 were categorised within that report as being 'At or Near Capacity'. The Expansion Potential column is derived from the WIDPP1.

Table 5.8 – Capacity of Schools

School Name	Distance from Site (km)	Age Range	Capacity 2022 (no. of school places)	Number of Pupils 2022	Surplus/ Capacity	Expansion Potential
Primary Schools						
Brookhurst Primary School	1.2	4 to 11	242	209	33	Possible
Raeburn Primary School	1.7	3 to 11	420	415	5	Difficult
Mendell Primary School	2.3	3 to 11	236	185	51	Possible
Christ The King Catholic Primary School	2.3	3 to 11	420	438	-18	Difficult
Heygarth Primary School	2.8	3 to 11	321	395	-74	None
Co-op Academy Woodslee	3.1	3 to 11	322	252	70	Possible
Poulton Lancelyn Primary School	3.2	4 to 11	420	430	-10	Possible
Millfields CofE Primary School	3.5	2 to 11	210	151	59	Possible
Thornton Hough Primary School	4.0	4 to 11	175	181	-6	None
Primary School Total			2,766	2,656	110	

School Name	Distance from Site (km)	Age Range	Capacity 2022 (no. of school places)	Number of Pupils 2022	Surplus/ Capacity	Expansion Potential
Secondary Schools						
South Wirral High School	2.8	11 to 18	1,220	901	319	Possible
Wirral Grammar School for Boys	4.2	11 to 18	1,194	1,056	138	None
Wirral Grammar School for Girls	4.4	11 to 18	1,207	1,194	13	None
Co-op Academy Bebington	4.7	11 to 18	1,220	901	319	Possible
Secondary School Total			4,877	4,270	607	

Sources:www.compare-school-performance.service.gov.uk

www.get-information-schools.service.gov.uk

Wirral Infrastructure Delivery Plan Baseline (Phase 1) Report January 2020

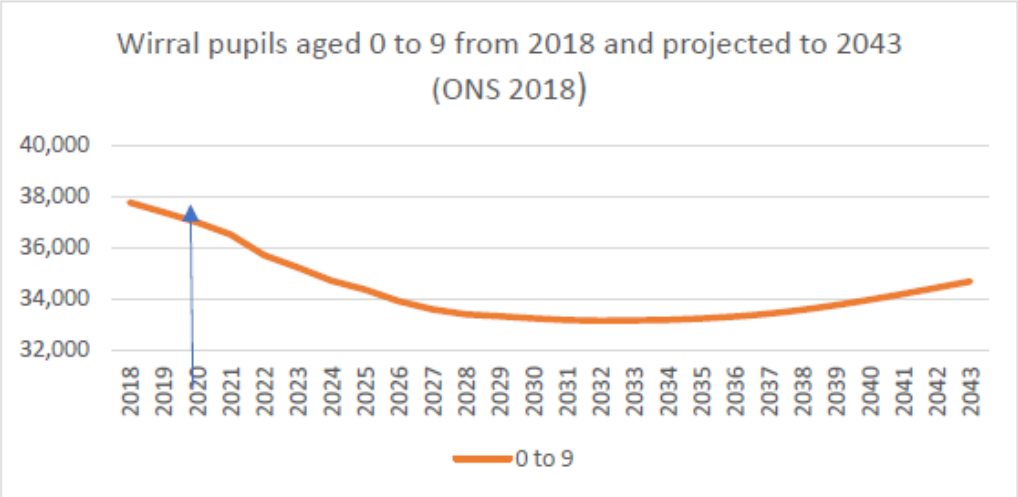
5.4.33 Overall, there currently appears to be some spare capacity within both the local primary and secondary schools as indicated above, to a lesser extent at primary school level.

5.4.34 In terms of projected pupil forecasts, Wirral Council has also published a Pupil Place Planning Strategy 2021 – 2026 (March 2021) which sets out a framework for reviewing pupil place planning alongside a suggested schedule of reviews to take place over the next five years.

5.4.35 The PPPS states that *'in Wirral, the figure of 4 to 6 pupils per year group per 100 homes has generally been quoted based on national figures, with a proviso that flats, and retirement housing generate few children. A 2019 analysis of all residential property in Wirral has provided a lower actual yield. Current Wirral residential property (all types) generates on average 2.4 pupils per year group per 100 homes.'* The earlier WBC paper Primary School Places Demographic Update (January 2019) indicates that for projection purposes, the Audit Commission formula of 4 pupils per year group, per 100 homes, is used to generate future pupil numbers from any development.

5.4.36 As indicated within the strategy, the ONS is currently projecting the primary age population to decrease to 2032-2033, then rise gradually again to 2043. There are projected to be 3,800 fewer children than the current point by 2032-33, with the level in 2043 remaining ~2,300 below current levels, as shown at Figure 5.4.

Figure 5.4 – Wirral Pupils aged 0 to 9 from 2018 and projected to 2043

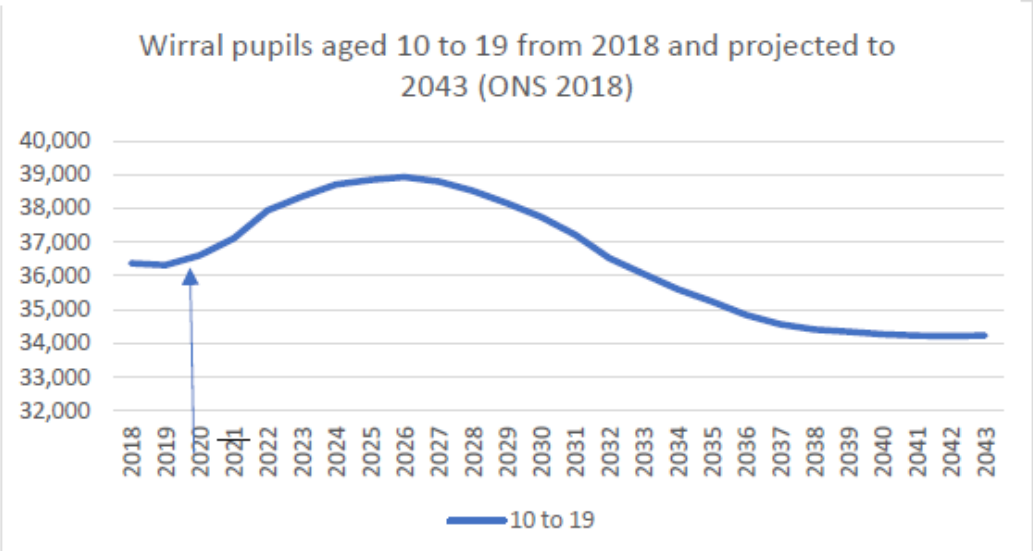


Source – Wirral Pupil Place Planning Strategy 2021 – 2026

5.4.37 The PPPS indicates that that there are currently 15 primary schools with more than 25% surplus places in Wirral, and that by 2026, in line with the pupil forecasting methodology and predictions, there are likely to be 27 schools in this position, although it does not highlight specific schools.

5.4.38 The PPPS states that the ONS projects that the number of secondary age children in the borough will rise by approximately 2,300 pupils from 2020 to 2026, followed by a decline resulting in about 2,400 pupils below the 2020 level to 2043, as shown in Figure 5.5 below.

Figure 5.5 – Wirral Pupils aged 10 to 19 from 2018 and projected to 2043



Source – Wirral Pupil Place Planning Strategy 2021 – 2026

5.4.39 The WIDPP1 states at page 59 that *'population estimates and school projections indicate that by 2024 none of secondary schools in Wallasey and West Wirral will be over capacity.'*

iv. Healthcare Facilities

5.4.40 According to the 2011 Census 5.18% of all residents within the AA described their health as 'bad' or 'very bad'. This is broadly consistent with the average within WMB (7.50%) and the NW (6.79%), and the national average (5.49%). 19.19% of all residents within the AA had their day-to-day activities limited a lot or a little, compared to 10.74% within WMB, 9.98% within the NW, and 8.26% within England.

5.4.41 The WIDPP1 highlights that across the Borough, the Wirral Clinical Commissioning Group (WCCG) commissions services from the following providers:

- Primary Care: 58 GP practices;
- Secondary Care: Wirral University Teaching Hospital NHS Foundation Trust;
- Mental Health: Cheshire and Wirral Partnership NHS Foundation Trust;
- Community: Wirral Community Trust; and
- Social Care: Wirral Borough Council.

5.4.42 Other healthcare related providers include:

- 94 pharmacies;
- 45 dentists; and

- 33 opticians.

5.4.43 The Site is served by Spire Murrayfield Hospital 9.3km to the north west and Arrowe Park Hospital located 11.6km to the north. Spire Murrayfield Hospital is a private hospital offering access to consultations with specialists in a wide range of treatments. Arrowe Park Hospital is managed by the Wirral University Teaching Hospital (WUTH) NHS Foundation Trust. As well as the full range of acute health services, there is an Accident & Emergency (A&E) unit, a Maternity Unit and a Walk-In Centre. Also at the Arrowe Park hospital site, Wirral Women and Children's Hospital offers an integrated and comprehensive service for women and children. Clatterbridge Hospital 3.4km to the north west specialises in cancer treatment.

5.4.44 The WIDPP1 indicates that WUTH is refreshing the plan for its Estate, with plans to reduce pressure at the Arrowe Park Hospital site through the provision of increase car parking numbers and transferring a number of services to Clatterbridge Hospital.

5.4.45 There are no GP surgeries within 2km of the site, however Table 5.9 below lists the nearest General Practitioner ('GP') surgery, number of GPs at the surgery, and whether new patients are being accepted (as at February 2022). The WIDPP1 indicates that expansion is possible at the Eastham Group practice.

Table 5.9 – GP Facilities

Practice Name	Distance from Site (km)	No. of GPs	Patients on roll	Patients per GP
Eastham Group Practice (Tree Tops Primary Health Care Centre)	2.4	7.2	11,453	1,591

Source: fingertips.phe.org.uk, hpgpwirral.nhs.uk, NHS General Practice Workforce Interactive dashboard

5.4.46 As highlighted within the WIDPP1, WBC use an average standard of 1 GP per 1,800 patients (which is the NHS average). It states that using this average, and after discussions with NHS Wirral, it is expected that existing GP practices will accommodate the overall level of growth planned (based on national housing requirements in the draft new Local Plan). It goes on to state that, however, sites will be considered on an individual and cumulative basis within the final IDP to identify areas where there may be increased pressure on existing services and if additional capacity is required. It states that the primary issue for WUHT is not overall capacity, but the demographics of householders that are

attracted to new build housing, which may increase demand on particular services such as e.g. maternity or Department of Medicine for the Elderly.

5.4.47 There are no NHS dental practices within 2km of the Site. The nearest practice is at Allport Dental Practice (75 Allport Lane, CH62 7HL), 2.6km from the Site.

v. Social/Community Facilities

5.4.48 Community centres, village halls, and other multi-use community facilities support a wide range of local activity and social cohesion. The WIDPP1 highlights an extensive network of community groups, activities and services operating from community centres, public halls and places of worship across the borough. It highlights two community facilities within the AA. The report states that demand as arising from growth, is likely to be catered for within existing facilities.

5.4.49 There are currently 24 libraries in Wirral. None are located within the AA. The nearest library is Pensby Library (2.8km from the Site).

5.4.50 In terms of catering for demand as arising from growth, the WIDPP1 notes that there are opportunities to introduce other agencies into libraries or either incorporate libraries into other facilities through outreach opportunities rather than create new physical capacity.

vi. Open Space, Sports and Recreational Facilities

5.4.51 Open space improves people's quality of life by enhancing the environment in which people live, improving the biodiversity of an area and, not least, providing opportunities for outdoor sport and recreation. Open space may also provide opportunities for nature conservation and education.

5.4.52 The WIDPP1 divides Wirral into eight Settlement Areas, reflecting different characteristics of the main urban areas, as shown in Figure 2 and Table 1 of the report. The Site itself lies within 'Settlement Area 8' (Rural Area), with the established developed area of Raby Mere to the east falling within 'Settlement Area 4' (Bebington, Bromborough and Eastham). The report provides an analysis of the provision of the different types of open space against these different areas. The boundaries used within the WIDPP1 assessment do not relate spatially to this socio-economic assessment, so the findings have not been transposed into this socio-economic assessment.

5.4.53 However, Figure 35 of the WIDPP1 shows the provision of open space within the borough, and an extract showing the site is included at Figure 5.6 below. This shows that the site is served by the following types of open space within 1km:

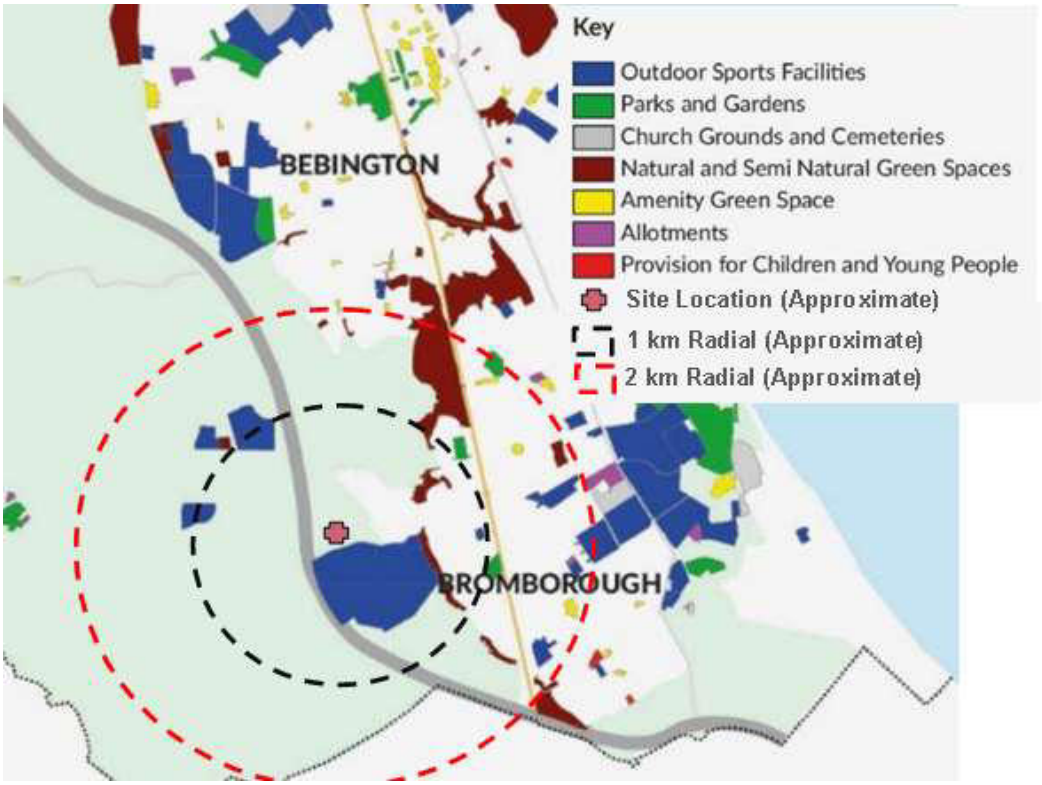
- Outdoor Sports Facilities
- Parks and Gardens
- Natural and Semi Natural Green Spaces
- Amenity Green Space

5.4.54 It also shows the site is served by the following types of open space within 2km:

- Outdoor Sports Facilities
- Parks and Gardens
- Church Grounds and Cemeteries
- Natural and Semi Natural Green Spaces
- Amenity Green Space

5.4.55 The analysis also shows that the Site does not have easy access to Church Grounds and Cemeteries, Allotments or Provision for Children and Young People.

Figure 5.6 – Wirral Open Space



5.4.56 The WIDPP1 highlights that Local Plan policy will define the requirements for green infrastructure provision. Strategic spatial options will have a significant impact on open space requirement provisions. An assessment of individual site allocations will be undertaken to identify the appropriate new green infrastructure or enhancement to existing provision taking into account the open space standards.

5.4.57 In terms of indoor sports and recreation, WBC runs and maintains a series of leisure centres and facilities across the borough:

- Europa Pools Leisure Centre
- Guinea Gap Leisure Centre
- Leasowe Leisure Centre
- The Oval Leisure Centre
- West Kirby Concourse Leisure Centre
- West Kirby Marine Lake - Sailing Centre
- Wirral Tennis and Leisure Centre
- Woodchurch Leisure Centre
- Municipal Golf Courses – three 18 holes golf courses and one 9-hole golf course

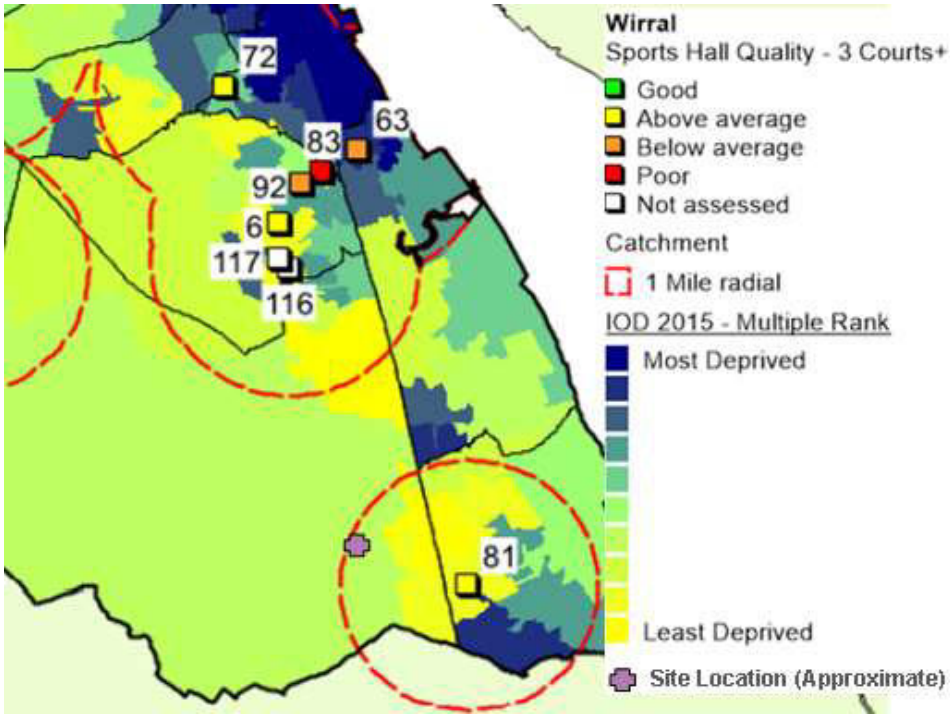
5.4.58 An Indoor Sports Facilities Needs Assessment ('ISFNA') prepared by WBC in 2019 summarised the provision in WMB and future requirements to accommodate growth. There are currently across the borough:

- 71 sports halls on 51 sites
- 21 swimming pools on 14 sites
- One indoor tennis centre
- One 6-lane floodlit athletics track
- 10 gymnastics and/or trampoline clubs (five are located in dedicated facilities and five in non-dedicated venues)
- One dry ski slope
- sailing clubs
- 14 golf courses

5.4.59 The ISFNA found that the whole population of Wirral resides within 20 minutes' drive time of a sports hall and swimming pool. 80.3% of the population lives within one mile of a sports hall and just over two fifths within one mile of a pool. The study suggests that current swimming facilities are located in the correct locations to address demand.

5.4.60 Figure 4.4 of the ISFNA shows the provision of three + court sports halls by condition, with a 1 mile catchment area overlaid. An extract is provided at Figure 5.7 of this report below, and the indicative Site location has been included within this extract. This shows that the Site is within around 1 mile (0.6km) of an above average facilities (South Wirral High School).

Figure 5.7 – Three+ court sports halls by condition with 1-mile radial catchment IMD 2015



5.5. Assessment of Potential Effects

Construction Phase Impacts

5.5.1 This section reviews the likely significant socio-economic impacts that would arise from the Construction Phase of the Project.

5.5.2 Effects during construction are likely to be limited to employment and the local economy.

5.5.3 Temporary jobs will be created during the construction phase of the development for the construction of the new buildings and associated infrastructure. The total construction cost of the Project would amount to millions of pounds, and a significant proportion of that would be connected to employment costs related to job creation.

5.5.4 As set out in the House Builders Federation document 'The Economic Footprint of House Building in England and Wales' prepared by Lichfields (2018), it is estimated that for every 50,000 homes built, approximately 75,000 direct jobs (i.e. those working within the house building supply chain) and 50,000 indirect jobs (for example providing goods and services to house builder, subcontractor and supplier employees) are supported. This equates to 1.5 direct jobs and 1 indirect jobs being supported per new home built. It can therefore be estimated that 57 direct jobs and 38 indirect jobs could be supported during the course of the construction period. The House Builders Federation Housing Calculator (2018) also indicates that a scheme of 38 new homes within Wirral would generate 1 'apprentices, graduates, trainees'.

5.5.5 The construction phase may increase demand for temporary accommodation, depending on the level and availability of locally sourced labour and phasing with the construction of other large schemes in the locality. This will arise primarily during weekdays for construction workers.

5.5.6 In the light of the above, the potential effects of the construction works upon the local economy are considered to be **Temporary, Short-Term, Direct, of Local Scale and Minor Beneficial in EIA terms** (Not Significant).

5.5.7 Effects on population and housing needs, education, healthcare, social/communal facilities, formal sports facilities and public open space are expected to be **Negligible in EIA terms** during the construction phase (Not Significant).

5.5.8 No mitigation measures are required in terms of socio-economic factors for the construction phase.

Operational Phase Impacts

i. <u>Population and Housing</u>

Population and Demographics

5.5.9 This application is submitted in outline and the exact unit mix is not known. As stated earlier, the average household size in the AA (in 2011) is 2.38 people per household. On this basis it is expected that the resident population arising from the proposed 38 new homes would be 90 people. This will represent an increase of 0.62% over and above the existing population of the AA of 14,411 (talking the total population to 14,501), and an

increase of 0.03% over and above the existing population of the WMB of 319,783 (taking the total population to 319,873).

5.5.10 These additional population figures are based on the assumption that all residents of the new dwellings would come from outside the AA and WMB. In reality, a significant proportion of the new homes are likely to be occupied by existing local residents buying first homes, residents trading up or downsizing, or people on the waiting list for affordable housing. Such relocation of existing residents would free up existing dwellings for occupation by other new residents, not necessarily adding to the total population. For the purpose of assessing the worst case scenario, it will be assumed that all of the population increase would be additional to the local area.

5.5.11 Any demographic changes in terms of gender or ethnicity at the AA level as a result of the Proposed Development are likely to be negligible.

5.5.12 The effects of such population growth will depend on a range of other factors, such as health and education provision, which are considered in due course later in this socio-economic assessment. These direct effects will not necessarily be negative provided adequate levels of community infrastructure are provided to meet the additional needs generated by the Proposed Development.

5.5.13 On this basis, the socio-economic effect of the Proposed Development on population and demographics is considered to be beneficial, provided any adverse socio-economic effects are mitigated where necessary. These matters are considered further in later sections of this chapter.

Housing Needs

5.5.14 The main impact on the local housing market will be the increase of the current housing stock by a maximum total of 38 new dwellings. This constitutes an increase of 0.63% on the existing housing stock of the AA (6,059 as existing to 6,097) and a modest increase of 0.03% of the existing housing stock of WMB (145,693 as existing to 145,731).

5.5.15 The baseline data highlighted earlier in this Chapter also highlights the very significant issues around housing affordability in the borough as a whole and also within this locality – the data demonstrating that:

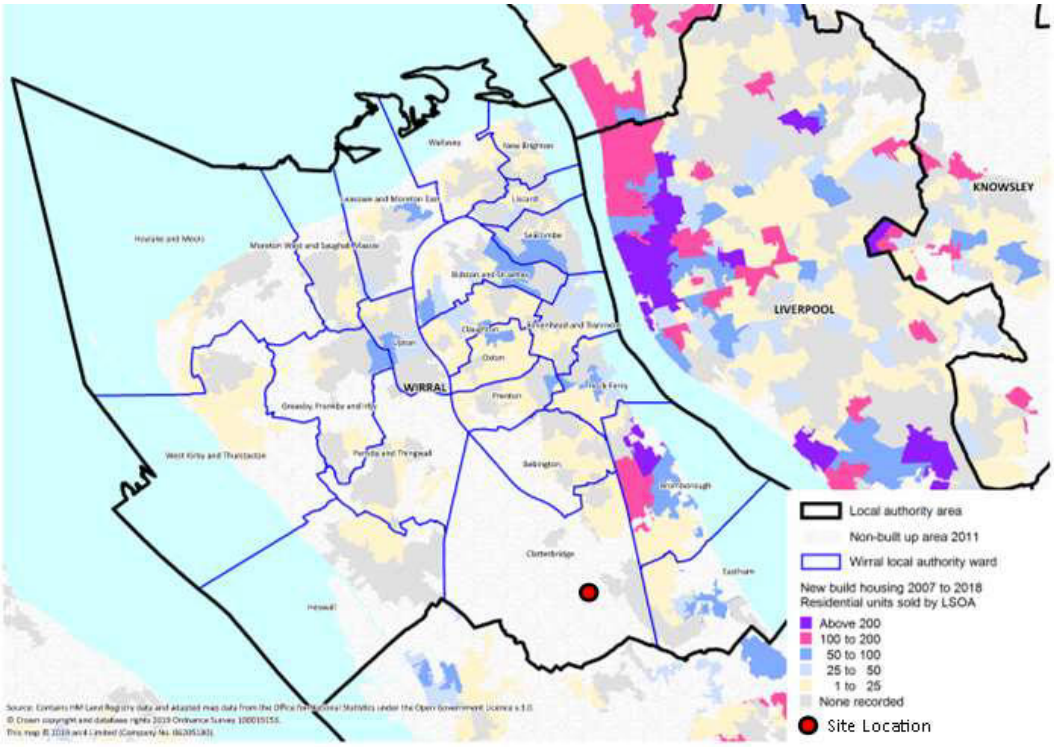
- households on lower quartile incomes cannot afford any tenure option/product at the current borough prices; and

- households on median incomes cannot afford market sales at any of the price points or the majority of the intermediate tenure affordable products.

5.5.16 The main contribution to this affordability issue is the lack of new housing delivery. Indeed, as indicated previously, emerging planning policy and the supporting evidence base highlights the need to deliver 800 new dwellings per annum across the borough. However, the WBC most recent Annual Monitoring Report ('AMR') for the period 2018 – 2019 (published 2021) indicates that against that requirement (with the required 20% buffer), it can demonstrate a five year housing land supply of only 3.1 years.

5.5.17 Map 2.2 of the SHMA shows where new build development in Wirral over the period 2007 to 2018 has been distributed. It demonstrates that there has been very modest levels of new housing in the borough in this period, but that where there has been new housing, this has been focussed more in the eastern part of the borough. It is provided at Figure 5.8 below (with site location shown) for reference.

Figure 5.8 – New build development in Wirral 2007-2018



Source – WBC Strategic Housing Market Assessment 2021

5.5.18 On the basis of these significant supply and affordability issues, the provision of 38 new homes will contribute to new housing in the Assessment Area, and in the borough.

5.5.19 Of the proposed 38 residential dwellings, 30% (11) will be affordable, which represents a modest contribution towards the affordable housing stock for WMB, particularly noting the significant issues in respect of affordable housing supply and affordability. Whilst the scheme is in outline form, it is envisaged that the Proposed Development would provide a range of dwelling sizes, thereby enhancing the quality and quantity of available housing in the area.

5.5.20 On this basis, the effects of the Proposed Development on housing needs is considered to be **Permanent, Long-Term, Direct, of Local Scale and Minor Beneficial in EIA terms** (Not Significant).

vii. Local Economy

5.5.21 Future demand for workers is a material consideration in determining the impact of the Proposed Development. The scheme does not include employment uses itself but would provide up to 38 new homes for current employees and future employment growth in the locality. It also provides some safeguarded space and an enhanced route through to Autism Together, contributing to the long term security of that use.

5.5.22 Additionally, a small number of jobs will be supported as part of the management of the open space and playspace.

5.5.23 Indirectly, jobs would be supported as a result of increased local spend generated from residents and employees. Principally, they are likely to be in comparison and convenience retail, leisure facilities including bars, cafes, restaurants or hotels, and with jobs linked to transport.

5.5.24 Notably, the ONS Living Costs and Food Survey indicates that in the North West in 2020 (latest available data), the average household spend on ‘recreation and leisure’, and ‘restaurants and hotels’ was £116.30 weekly, or £6,047.60 annually. Therefore, it can be assumed that the Proposed Development, that would equate to an annual contribution of £229,808.90 to the local recreation and leisure economy annually.

5.5.25 The same Living Costs and Food Survey also indicates that within the North West, average household spend on ‘Food & non-alcoholic drinks’, ‘Alcoholic drinks, tobacco & narcotics’, and ‘Miscellaneous goods & services’ cumulatively totalled £114.40 weekly, or £5,948.80 annually. Therefore, it can be assumed that the Proposed Development, that would equate

to an annual contribution of £226,054.40 to the local convenience goods and services economy annually.

5.5.26 It is highlighted that the aforementioned figures do not include other local spend such as spend on convenience goods such as 'clothing and footwear' or 'household goods and services' (as such expenditure may not be spent in the local economy particularly as trends shift more towards online shopping). Therefore, this is likely to be a conservative estimate as to the contribution to the local economy.

5.5.27 Residents of the Proposed Development would also generate demand for a range of public services, including health, education and a range of public administration functions which in turn is likely to generate the need for additional staff.

5.5.28 The contribution of the new housing will also generate local Council Tax revenues, which fund local authority services. Table 5.10 shows the distribution of likely Council Tax bands based on a conservative estimate for the purposes of this assessment (based on a greater proportion of lower value properties than may be the case), and the annual Council Tax revenue generated from that, based on WBC 2022 Council Tax charges. This shows that the Proposed Development could generate an indicative £70,198.16 in annual council tax contributions to WBC towards the ongoing funding of local socio-economic infrastructure.

Table 5.10 - Indicative Council Tax Generation

Band	Proportion (%)	Indicative No dwellings	WBC Annual Council Tax Charge for 2022	Indicative Council Tax Generated
Band B	35	13.3	£1,596.45	£21,232.79
Band C	40	11.4	£1,824.51	£20,799.41
Band D	20	11.4	£2,052.58	£23,399.41
Band E	5	1.9	£2,508.71	£4,766.55
Total				£70,198.16

5.5.29 Overall, it is considered that the effects of the Proposed Development in terms of the local economy will be **Permanent, Long-Term, Direct, of Local Scale and Minor Beneficial in EIA terms** (Not Significant)**.**

viii. Education Facilities

5.5.30 The Proposed Development of 38 dwellings will generate additional school aged children, which will therefore have implications for local education provision.

5.5.31 It is difficult to accurately estimate the number of children that will occupy these dwellings that will be new to the area. This is because some children will arrive as migrants to the Wirral whilst others will simply be part of families moving to the Proposed Development from other existing residential areas in the AA or the borough.

5.5.32 Assuming all children are new to the area, and using the typical standard of 4 pupils per year group, per 100 homes, the development could generate a need for the following number of places (based on 38 new dwellings):

Table 5.11 – Pupil Generation of Proposed Development

Stage of Education	School Year	No Pupils
Primary	Reception	1.52
	1	1.52
	2	1.52
	3	1.52
	4	1.52
	5	1.52
	6	1.52
	Total	11
Secondary	7	1.52
	8	1.52
	9	1.52
	10	1.52
	11	1.52
	Total	7.6
Sixth Form/College	12	1.52
	13	1.52
	Total	3.04
All years - Total		21.28

5.5.33 Based on the assessment of baseline data set out earlier in this Chapter, the ONS are currently projecting the primary age population in the borough to decrease, with the level in 2043 remaining ~2,300 below current levels. As shown at Table 5.8, however there is

currently a surplus capacity of 110 places within primary schools within the AA and PPA (recognising that some of the school capacity data covers slightly different age ranges). Therefore, the 11 primary school aged children to be generated by the development could be accommodated within the existing local school infrastructure.

5.5.34 WBC consider all secondary schools as a single planning area, and the WBC PPPS states that the ONS projects that the number of secondary age children in the borough will rise by approximately 2,300 pupils from 2020 to 2026, followed by a decline resulting in about 2,400 pupils below the 2020 level to 2043. As shown at Table 5.8, there is currently a surplus capacity of 607 places within secondary schools within 5km of the site. Therefore, the assessment would indicate that the secondary school aged children to be generated by the development could be accommodated within the existing local school infrastructure.

5.5.35 Although current sixth form capacities at sixth form level are not available within the local area, based on the child yield identified it can be considered that, without mitigation, there could potentially be an effect on sixth form provision due to the additional burden on resources.

5.5.36 Overall, the additional population increase generated by the Proposed Development on educational facilities before mitigation would have a **Permanent, Long Term, Direct, Minor Adverse effect of Local Scale in EIA terms** (Not Significant).

5.5.37 The provision of appropriate contributions relating to primary, secondary and sixth form level educational requirements if required would ensure that the Proposed Development makes suitable provisions to accommodate the education pressures of the Proposed Development. This is addressed later in this assessment.

viii. Healthcare Facilities

5.5.38 The proposal will generate an additional indicative 90 ‘new’ residents which will require healthcare. The baseline data provided at Table 5.9 indicates that the existing healthcare infrastructure has some spare capacity, with the Tree Tops Primary Health Care Centre currently running at 1,591 patients per GP, below the 1,800 patients per GP average. If all 90 ‘new’ residents registered with the Tree Tops Primary Health Care Centre it would take the ratio to 1,603 patients per GP.

5.5.39 Hospitals are funded through Primary Care Trusts (‘PCTs’) as purchasers of hospital services. Funding is adjusted according to population. As population increases through

development on the site the funding for PCTs should increase, thereby meeting demands on the local hospital. The Proposed Development will therefore have a neutral impact on the availability of provision of hospital care.

5.5.40 Overall, it is considered that the additional population increase would have a **Permanent, Long Term and Direct Local Scale Minor Adverse effect in EIA terms** on existing healthcare facilities before mitigation (Not Significant). The provision of appropriate contributions would ensure that the Proposed Development makes suitable provisions to accommodate the healthcare pressures of the Proposed Development. This is addressed later in this assessment.

ix. Social/Community Facilities

5.5.41 The Proposed Development will generate a new population of 90 new residents as previously highlighted within this assessment. These new residents will use the existing social/community facilities within the area. In most instances these will be seen as supporting existing facilities where increased use of such facilities will be seen as beneficial. In other instances it could be perceived that an increased use of services would result in an increased use of resources, however as previously highlighted the WIDPP1 states that demand as arising from growth, is likely to be catered for within existing facilities.

5.5.42 The proposal also incorporates land safeguarded for use by Autism Together, and enhanced accessibility to that facility, though that is a specialist social facility.

5.5.43 Overall, it is considered that the additional population increase would have a **Negligible effect in EIA terms** on existing social/community facilities (Not Significant). Notwithstanding, there is potential for the provision of financial contributions to ensure that the Proposed Development contributes to social/community infrastructure, as appropriate. This is addressed later in this assessment.

x. Open Space, Sports and Recreational Facilities

5.5.44 The increase in the level of population as a consequence of the Proposed Development will lead to an additional demand for both formal and informal open space which, without mitigation would result in long term adverse effects. However, the proposals include the provision of open space incorporating recreational space, in accordance with Local Plan requirements. The Parameter Plan also shows the provision of a new footpath route from

the east of the site to Blakely Road, thereby encouraging travel by healthy modes of transport such as walking and cycling.

5.5.45 Overall, it is considered that the Proposed Development in respect of existing and new open space, sports and recreational facilities would have a **Permanent, Long Term and Direct Minor Beneficial Effect of Local Scale in EIA terms** (Not Significant).

Mitigation

Construction Phase

5.5.46 The potential direct and indirect effects of the construction works upon job creation and expenditure are considered to be beneficial, and there are not expected to be any significant effects on population, housing, education, health and other community facilities. Therefore no mitigation measures in respect of socio-economics are considered necessary.

Operation Phase

5.5.47 Full details of the Proposed Development are set out within the EIA Parameters Plans and Chapter 2 of this ES. The approach taken in identifying the land for residential development and in developing the Proposed Development has sought to ensure that the site is well located to accommodate additional residential development in socio-economic terms, and that the Proposed Development incorporates on-site open space and recreation space to benefit the new resident population.

5.5.48 In this way, the Proposed Development has responded to the baseline assessment and the potential effects in order to establish a proposal that seeks to minimise adverse socio-economic effects and maximise benefits where possible, cognisant of the scale of development and local needs.

5.5.49 As demonstrated through this assessment, the majority of the effects which have been identified as a result are beneficial/neutral, as the assessment has found that the socio-economic infrastructure proposed as part of the development could accommodate, or would be improved by, the Proposed Development.

5.5.50 In respect of education, whilst existing infrastructure could accommodate the additional population generated through the Proposed Development, the effects are assessed as permanent minor and adverse should mitigation not be provided. However, these effects

could be sufficiently mitigated through the provision of developer contributions to support the existing education infrastructure, and potentially support expansion if required. These contributions will be negotiated and finalised through the normal planning application and Section 106 process.

5.5.51 In respect of healthcare, whilst existing infrastructure could accommodate the additional population generated through the Proposed Development, the effects are assessed as permanent minor and adverse should mitigation not be provided. However, these effects can be sufficiently mitigated either through the provision of developer contributions to support the existing healthcare facilities, and potentially support future expansion if required. These contributions will be negotiated and finalised through the normal planning application and Section 106 process.

5.5.52 There is also potential to provide financial contributions to ensure that the Proposed Development contributes to social/community infrastructure, as appropriate. These contributions will be negotiated and finalised through the normal planning application and Section 106 process.

5.6. Residual and Cumulative Effects

Residual Effects

5.6.1 This assessment has found that the effects of the Proposed Development on housing needs is considered to be **Minor Beneficial in EIA terms** (Not Significant). Additionally, the impact on the local economy will be **Minor Beneficial in EIA terms** (Not Significant).

5.6.2 The majority of socio-economic infrastructure within the locality could accommodate, or (in the case of access to open space) would be improved by, the Proposed Development. Whilst there was found to be capacity within education and healthcare infrastructure, the new population generated from the Proposed Development would also use capacity within these resources, and so would potentially result in minimal adverse effects. However, it is considered that there are appropriate measures in place within the planning application procedure for any adverse effects to be appropriately mitigated if required, through development contributions to both education and healthcare infrastructure.

5.6.3 In summary, there are a number of potential positive effects of the Proposed Development. Before mitigation, the Proposed Development would have negative effects on education

and healthcare facilities. Following mitigation, these effects would be **Negligible in EIA terms** (Not Significant).

Cumulative Effects

Inter-Project Effects

Construction Phase

5.6.4 During the construction process, the main implication of new housing development is in respect of employment opportunities and the wider local economy.

5.6.5 Using the multiplier of 1.5 direct jobs and 1 indirect jobs being supported by the construction of each new dwelling built, it can be estimated that, cumulatively, the development of 1,495 new homes could support 2,243 direct jobs and 1,495 indirect jobs during the course of the construction periods. The House Builders Federation Housing Calculator (2018) also indicates that the construction of 1,495 new homes within Wirral would generate 50 'apprentices, graduates, trainees'.

5.6.6 The level of employment generation to be provided as a result of the cumulative developments is difficult to identify given the variables involved, although each could potentially be developed within a five year period. However, cumulatively, the effects are considered to **be Temporary, Short Term, Indirect, Major - Moderate Beneficial and of Local Scale** (Significant). No socio-economic mitigation measures are required.

Operational Phase

5.6.7 Cumulative environmental effects arising from the Project and other projects within the locality should be assessed using a consistent approach as set out previously.

i. Population and Housing Needs

5.6.8 Table 5.12 below calculates the total new population to be generated in the event that all of these cumulative development projects are delivered. The existing average household size for each local area surrounding each site have been utilised – the relevant Assessment Areas have been utilised for the Leverhulme sites, and ward data has been used for the non-Leverhulme sites.

Table 5.12 – Population Generation of Development Projects

Site Name	Application Type and Status	Distance From Site (km)	Assessment Area	Assessment Area Average Household	Proposed Number of Homes	Approximate Population Generation
F. Land West of Raby Hall, Raby Hall Road, Raby Mere	Subject planning application	N/A	Clatterbridge ward	2.38	up to 38	90
G. Land East of Raby Hall, Raby Hall Road, Raby Mere	Planning application (submission May 2022)	c. 0.1	Clatterbridge ward	2.38	up to 80	190
Land at Acre Lane and Meadowside Road, Bromborough	Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295). In construction.	c. 1.6	Eastham Ward	2.27	217	493
E. Land at Milner Road and Barnston Road, Heswall	Planning application (submission May 2022)	c. 5.0	Heswall and Pensby & Thingwall Wards	2.21	Up to 120	265
D. Land West of Barnston Road, North of Gills Lane, Barnston	Planning application (submission May 2022)	c. 5.9	Pensby & Thingwall Ward	2.19	up to 153	335
C. Land East of Thorncroft Drive, North of Gills Lane, Pensby	Planning application (submission May 2022)	c. 6.2	Pensby & Thingwall Wards	2.19	up to 15	33
B. Land East of Dale View Close, North of Gills Lane, Pensby	Planning application (submission May 2022)	c.6.2	Pensby & Thingwall Ward	2.19	up to 92	210
Fishers Lane, Pensby	Full planning permission granted March 2019 (LPA ref: APP/18/01266). Constructed (known as 'The Willows')	c. 7.2	Pensby & Thingwall Ward	2.24	35	78
A. Land East of Glenwood Drive, Irby	Planning application	c.7.5	Greasby, Franky & Irby, and	2.24	up to 290	650

	(submission May 2022)		Pensby & Thingwall Wards			
H. Land East of Rigby Drive, Greasby	Upcoming planning application (2022)	c. 9.1	Greasby, Franky & Irby Ward	2.29	up to 250	573
Wirral Business Park, Arrowe Brook Road, Upton	Full planning permission granted March 2020 (LPA ref: APP/19/00315). Under construction.	c. 9.1	Greasby, Franky & Irby Ward	2.29	127	291
Girtrell Court, Woodpecker Close, Upton	Full planning permission granted October 2018 (LPA ref: APP/18/01002). Constructed (known as 'Poppyfields').	c. 10.8	Moreton West and Saughall Massie Ward	2.21	78	172
Total					**1,495**	**3,372**

5.6.9 This assessment shows that a population of 3,372 would be generated in the event that all of the development projects are delivered. This would represent an increase of 1.06% over and above the existing population of the Wirral of 319,783 (taking the total population to 323,155).

5.6.10 Any demographic changes in terms of gender or ethnicity at the borough level are likely to be negligible.

5.6.11 As set out in Table 5.13 set out above, the Proposed Development together with the cumulative development sites would increase the current housing stock by a maximum total of 1,495 new C3 dwellings. This represents an increase of 1.03% of the existing housing stock of WMB (145,693 as existing to 147,230). 30% of the new homes on the Leverhulme sites (up to 311 homes) would comprise affordable housing tenures. Additionally, up to 66 homes would comprise self/custom build homes.

5.6.12 On this basis, the effects of the Proposed Development on housing needs are considered to be **Permanent, Long Term, Direct, of District Scale and Major - Moderate Beneficial in EIA terms** (Significant).

ii. Local Economy

5.6.13 The provision of the maximum 1,495 new C3 dwellings in the borough is considered to have a limited positive impact in providing housing for current employees and future employment growth in the locality.

5.6.14 There is potential for some complementary employment provision within the Site, and the Girtrell Court consent also includes an employment generating use (extra care).

5.6.15 Indirectly, jobs would be supported as a result of increased local spend generated from residents and employees. Principally, they are likely to be in comparison and convenience retail, leisure facilities including bars, cafes, restaurants or hotels, and with jobs linked to transport.

5.6.16 Using the same methodology as set out previously, it can be assumed that the Proposed Development could equate to an annual contribution of £9,041,162 to the local recreation and leisure economy, and £8,893,456 to the local convenience goods and services economy annually.

5.6.17 Residents of the Proposed Development would also generate demand for a range of public services, including health, education and a range of public administration functions which in turn is likely to generate the need for additional staff.

5.6.18 The contribution of the new housing will also generate local Council Tax revenues, which fund local authority services. Table 5.13 shows the distribution of likely Council Tax bands based on a conservative estimate for the purposes of this assessment (based on a greater proportion of lower value properties than may be the case), and the annual Council Tax revenue generated from that, based on WBC 2022 Council Tax charges. This shows that the 1,495 new homes cumulatively could generate an indicative £2,761,743.40 in annual council tax contributions to WBC towards the ongoing funding of local socio-economic infrastructure.

Table 5.13 - Indicative Council Tax Generation

Band	Proportion (%)	Indicative No dwellings	WBC Annual Council Tax Charge for 2022	Indicative Council Tax Generated
Band B	35	523.25	£1,596.45	£835,342.46
Band C	40	448.5	£1,824.51	£818,292.74
Band D	20	448.5	£2,052.58	£920,582.13
Band E	5	74.75	£2,508.71	£187,526.07
Total				£2,761,743.40

5.6.19 Overall, it is considered that the effects of the Proposed Development in terms of the local economy will be **Permanent, Long-Term, Direct, of Local Scale and Moderate Beneficial in EIA terms** (Significant).

iii. Education Facilities

5.6.20 Using the methodology applied previously in this assessment, it is held that the maximum 1,495 new C3 dwellings would generate a need for following number of school places as shown at Table 5.14 below:

Table 5.14 – Pupil Generation of Development Projects

Stage of Education	School Year	No Pupils
Primary	Reception	59.8
	1	59.8
	2	59.8
	3	59.8
	4	59.8
	5	59.8
	6	59.8
	Total	419
Secondary	7	59.8
	8	59.8
	9	59.8
	10	59.8
	11	59.8

Stage of Education	School Year	No Pupils
	Total	299
Sixth Form/College	12	59.8
	13	59.8
	Total	119.6
All years - Total		837.2

5.6.21 As indicated previously, the ONS projects the primary age population in WMB to decrease, with the level in 2043 remaining ~2,300 below current levels.

5.6.22 Notwithstanding, there would clearly be an impact of the Proposed Development on existing school capacity. Given that the residential development from these cumulative development sites would be spread out across the borough within various PPAs it is not possible to accurately identify the impact on any specific school capacity. Overall, it is considered that the additional population increase generated by the cumulative development proposals on educational facilities before mitigation would have a **Permanent, Long-term, Direct, Moderate Adverse effect of District Scale in EIA terms** (Significant).

5.6.23 However, there are provisions for such major developments to make a contribution to education infrastructure through Section 106 contributions (which is calculated based on site specific effects on infrastructure) as relevant. The draft WIDPP1 also identifies a number of opportunities for potential school expansion across the borough, if required.

5.6.24 Consequently, it is held that the cumulative effects of the Proposed Development with the other cumulative development sites on education facilities, following mitigation, would be **Negligible in EIA terms** (Not Significant).

v. Healthcare Facilities

5.6.25 The cumulative development proposals would together generate an additional indicative 3,372 ‘new’ residents which will require healthcare. As a result, there would be an impact of the cumulative developments on existing healthcare facilities. Given that the residential development from these cumulative development sites would be spread out across the borough it is not possible to accurately identify the impact on any specific healthcare practices. Overall, the additional population increase generated by the cumulative development proposals on educational facilities before mitigation would have a

Permanent, Long Term, Direct, Moderate Adverse effect of District Scale in EIA terms (Significant).

5.6.26 However, there are provisions for such major developments to make a contribution to healthcare infrastructure through Section 106 contributions (which is calculated based on site specific effects on infrastructure) as relevant. The draft WIDPP1 also identifies a number of opportunities for potential healthcare facility expansion across the borough, if required.

5.6.27 Consequently, it is held that the cumulative effects of the Proposed Development with the other cumulative development sites on healthcare facilities, following mitigation, would be **Negligible in EIA terms** (Not Significant).

vi. Social/Community Facilities

5.6.28 The cumulative development proposals will generate a new population of 3,372 'new' residents which will use the existing social/community facilities within the area. In most instances these will be seen as supporting existing facilities where increased use of such facilities will be seen as beneficial. In other instances it could be perceived that an increased use of services would result in an increased use of resources, however as previously highlighted the WIDPP1 states that demand as arising from growth, is likely to be catered for within existing facilities.

5.6.29 Overall, it is considered that the additional population increase from the cumulative development projects would have a **Negligible effect in EIA terms** on social/community facilities (Not Significant). Notwithstanding, there is also potential for the cumulative development proposals to provide financial contributions to ensure that the Proposed Development contributes to social/community infrastructure, as appropriate.

vii. Open Space, Sports and Recreational Facilities

5.6.30 The increase in the level of population as a consequence of the cumulative development projects will lead to an additional demand for both formal and informal open space which, without mitigation, would result in long term major adverse effects. However, each of the proposals include the provision of open spaces as appropriate, cognisant of Local Plan requirements (and the scale of development).

5.6.31 Overall, it is considered that the cumulative development projects in respect of existing and new open space, sports and recreational facilities would have a **Permanent, Long Term and Direct Moderate Beneficial effect of District Scale in EIA terms** (Significant).

Intra-Project Effects

5.6.32 Socio-economics represents a distinct environmental issue, where the receptors assessed are unique and not related to any of the other technical disciplines considered as part of the EIA.

5.7 List of Abbreviations

Abbreviations	
A&E	Accident & Emergency
AA	Assessment Area
EIA	Environmental Impact Assessment
ES	Environmental Statement
GP	General Practitioner
NHS	National Health Service
NW	North West (Region)
ISFNA	Indoor Sports Facilities Needs Assessment
NOMIS	National Online Manpower Information System
ONS	Office for National Statistics
PHE	Public Health England
PPA	Primary Planning Area
PPPS	Pupil Place Planning Strategy
SE	Sport England
WCCG	Wirral Clinical Commissioning Group
WIDPP1	Wirral Infrastructure Delivery Plan Phase 1
WMB	Wirral Metropolitan Borough
WBC	Wirral Metropolitan Borough Council
WUTH	Wirral University Teaching Hospital

5.8 List of References

- Wirral Unitary Development Plan prepared by WBC (2000)
- Wirral Local Plan 2020-2035 Issues and Options Consultation prepared by WBC (January 2020)
- Wirral Local Plan 2021 to 2037 - Submission Draft (Regulation 19) prepared by WBC (May 2022)
- Exploring the computation of housing need in Wirral' prepared by University of Liverpool (March 2020)
- Wirral Local Plan 2020-2035 Infrastructure Delivery Plan (Draft Phase 1: Infrastructure Delivery Plan), prepared by WBC (January 2020)]
- Wirral Strategic Housing Market Assessment Update Final Report, prepared by arc4 (October 2021)
- Wirral Annual Monitoring Report 2018-2019, prepared by WBC (January 2021)
- Wirral Pupil Place Planning Strategy 2021 – 2026 prepared by WBC (March 2021)
- Wirral Primary School Places Demographic Update prepared by WBC (January 2019)
- Wirral Borough Council Indoor Sports Facilities Needs Assessment (Draft Report) prepared by Knight, Kavanagh & Page (December 2019)
- National population projections (2018-based) by Office for National Statistics
- Living Costs and Food Survey, prepared by Office for National Statistics (2021)
- The Economic Footprint of House Building in England and Wales, prepared by Lichfields (2018)

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- https://www.healthcareers.nhs.uk/explore-roles/doctors/roles-doctors/general-practice-gp/working-life

Environmental Statement
Chapter: 6. Transport

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

April 2022

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Statement of Competency

This technical chapter has been prepared by Danny Jones. Danny is a Transport Planning Associate at Curtins with nine years' experience in development planning. He leads the Liverpool transport planning team, managing projects at all stages of the planning process from initial development feasibility to detailed planning submission and the discharge of planning conditions. He prepares Transport Assessments, Travel Plans and transport chapters of Environmental Statements as part of the Environmental Impact Assessment (EIA) process.

Danny has a wide range of development experience across a variety of land uses, including residential sites, that have involved an EIA. He is conversant with transport planning guidance and policy, including those related to the EIA process, and he provides advice on a wide range of transport and highways matters. Danny is a Chartered Member of the Royal Town Planning Institute (MRTPI).

6. Transport

6.1. Introduction

6.1.1 This chapter of the ES assesses the likely significant effects of the Development with respect to Traffic and Transportation. This Chapter also describes the methods used to assess the effects; the baseline conditions currently existing at the Site and surrounding area; the mitigation measures required to prevent, reduce or offset any significant negative effects; and the likely residual effects after these measures have been adopted.

6.1.2 The chapter should be read alongside an accompanying documentation:

- Transport Assessment, document reference 078244-CUR-00-XX-RP-TP-001.
- Interim Travel Plan, document reference 078244-CUR-00-XX-RP-TP-002.
- Cumulative Transport Assessment, document reference 077829-CUR-00-XX-RP-TP-002.
- Framework Travel Plan, document reference 077829-CUR-00-XX-RP-TP-003.

6.1.3 The above Transport Assessment and Interim Travel Plan documents include relevant plans and drawings referred to throughout this chapter, whereas, at the request of Wirral Borough Council (WBC) Highways and National Highways (NH), the over-arching Cumulative Transport Assessment and Framework Travel Plan considers the cumulative impact of all Leverhulme residential proposals.

6.1.4 For clarity and in accordance with the prevailing EIA guidance, this Transport Chapter considers the effects of both the Proposed Development Site on an individual basis as well as within a cumulative context with other relevant committed developments.

6.2. Policy and Legislative Context

National Planning Policy Framework (NPPF), 2021

6.2.1 The forthcoming Transport EIA Chapter will be produced in consideration of relevant local and national planning policy. Within this context, Section 9 of the NPPF is entitled Promoting Sustainable Transport and outlines the important role that transport policies have to play in facilitating sustainable development. The section states that:

"The planning system should actively manage patterns of growth …Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes."

6.2.2 Paragraph 111 of the NPPF states that:

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

6.2.3 The Proposed Development accords with the principles of the NPPF. This position is discussed further throughout the accompanying Transport Assessment, document reference 078244-CUR-00-XX-RP-TP-001.

Guidelines for the Environmental Assessment of Road Traffic (1993)

6.2.4 Guidance from the Institute of Environmental Assessment (IEA) has been considered throughout this EIA Chapter. The guidance document entitled "Guidelines for the Environmental Assessment of Road Traffic"[1] at has been used to inform the methodology of assessment.

6.2.5 The IEA 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;**
- **Fear and Intimidation;**
- **Accidents and safety;**
- Hazardous loads;

[1] Institute of Environmental Assessment (1993) Guidelines for the Environmental Assessment of Road Traffic, IEA, Lincoln.

- Air pollution;
- Dust and dirt;
- Ecological impact; and
- Heritage and conservation.

6.2.6 Of these effects, many are considered in chapters elsewhere within this document and wider planning application due to the specialist skills required; namely noise, vibration, visual impact, air pollution, ecological effects and heritage and conservation. Those effects highlighted in bold text are assessed in this Transport ES chapter.

Wirral Borough Council Unitary Development Plan (UDP)

6.2.2 WBC's Unitary Development Plan (UDP) was adopted in February 2000. It sets out the council's current policies and proposals for the use of land within the Borough and is an important factor in assessing and determining planning applications. The UDP is in two parts. Part One contains a statement of the Plan's aims and strategy, together with general, Borough-wide policies. Part One has regard to the following:

- National and regional planning policies;
- Strategic Guidance issued by the Secretary of State;
- The plans and proposals of the Merseyside Development Corporation;
- The resources likely to be available; and,
- Social considerations.

6.2.7 Part Two translates the Part One general policies into more specific policies and proposals for specific areas or individual sites. Part Two also contains reasoned justifications for all the policies and proposals in the Plan, and a detailed Proposals Map.

6.2.8 Chapter 15 of the UDP includes the policies relating specifically to Transport. The key transport policies relevant to this application have been extracted below:

"Policy TRT1 – Provision for Public Transport

In considering development proposals, the Local Planning Authority will give emphasis to the following key considerations:

i. The need to make best use of existing transport facilities;

ii. *That, where appropriate, adequate physical provision is made for public transport services and facilities with new developments; and,*
iii. *That the development would not prejudice any proposals for development of public transport services or facilities.*

Policy TRT2 – Safeguarding Land for Highway Schemes

The Local Planning Authorities will safeguard the land required for new highway schemes and proposed highway improvement schemes and will not grant permission for any development which would prejudice their implementation.

Policy TRT3 – Transport and the Environment

In assessing the environmental impact of transport infrastructure and proposals, the Local Planning Authority will pay particular attention to the following:

i. *Main transport corridors;*
ii. *The design of new highway schemes and highway improvement schemes;*
iii. *Reducing unnecessary traffic in environmentally sensitive or primarily residential areas;*
iv. *Parking and servicing arrangements;*
v. *Minimising vehicular – pedestrian conflict;*
vi. *Meeting the needs of cyclist;*
vii. *Securing access for disabled people;*
viii. *Minimising noise, visual impact and air pollution; and*
ix. *Minimising the need to travel."*

Wirral Borough Council Emerging Local Plan

6.2.9 The New Wirral Local Plan will play an important part in shaping the future of our towns, villages, infrastructure, environment and economy. In order to be successful, the Local Plan needs to adequately:

- Plan for the infrastructure, homes and jobs that our residents needs;
- Support the development of our local economy;
- Support more sustainable travel; and,
- Protect and enhance our environment.

6.2.10 The Plan will set out the Council's priorities for development and will cover housing, commercial, public and private developments. At the time of writing, the latest stage of the development of the Local Plan was the publication of a Local Plan 'Issues and Options' (Regulation 18) document for public consultation. The 'Issues and Options' document sets out the following:

"Key issues the Local Plan must address;

- *Draft vision and strategic priorities;*
- *Housing and employment development needs which the plan must allocate sufficient land for;*
- *Preferred option for meeting these needs within the urban area, and other alternative options for meeting any remaining need through Green Belt release;*
- *Proposed urban housing and employment allocations;*
- *Potential Broad Locations for Growth;*
- *Information on key strategic sites; and,*
- *Council's proposed policy approach across a range of topics including environment, climate change, infrastructure, open space and heritage."*

6.2.11 Once complete the New Local Plan will replace WBC's existing UDP.

6.2.12 At the time of writing the Local Plan is at an early stage of preparation, and therefore limited weight should be given to the policies contained within it, in accordance with national planning policy.

6.3. Methodology and Assessment Criteria

Scope of the Assessment

6.3.1 As part of the related Transport Assessment work, it was agreed with WBC Highways by return of comments on the scoping note submitted by Curtins, that baseline traffic counts at a total of 39 junctions across the Wirral could be undertaken.

6.3.2 Subsequently, consideration of an additional two junctions in Bromborough were requested by WBC Highways, taking the total scope for data collection to 41 junctions. This data collection exercise was undertaken with a view to providing capacity assessments at all 41

junctions to understand the cumulative impact of the Proposed Development together with the other Leverhulme Estate Cumulative Development Sites. It was agreed that the scope of assessment for each individual Leverhulme site would differ in appreciation of the number of dwellings and proximity to each of the junctions. Site references A – H have been used throughout this Chapter as follows:

- Site A: Land East of Glenwood Drive, Irby
- Site B: Land East of Dale View Close, North of Gills Lane, Pensby
- Site C: Land East of Thorncroft Drive, North of Gills Lane, Pensby
- Site D: Land West of Barnston Road, North of Gills Lane, Barnston
- Site E: Land at Milner Road and Barnston Road, Heswall
- Site F: Land West of Raby Hall, Raby Hall Road, Raby Mere (The Proposed Development Site)
- Site G: Land East of Raby Hall, Raby Hall Road, Raby Mere
- Site H: Land East of Rigby Drive, Greasby

6.3.3 Baseline counts at the following junctions in Table 6.1 will be used within the various assessment work that underpins this Transport ES Chapter.

Table 6.1 – Baseline Surveyed Junctions

Area	Ref.	Junction
SRN	1	M53 Junction 3
	2	M53 Junction 4
Greasby	3	Site H Access/Arrowe Rd
	4	Greasby Rd/Arrowe Rd
	5	B5139/Greasby Rd
	6	Arrowe Rd/Arrowe Brook Lane
Upton	7	Upton By-Pass/B5139/Old Greasby Rd
	8	Upton By-Pass/A551/A5027/Upton Retail Park Rbt
	9	Upton By-Pass/M53 Moreton Spur Rbt
	10	B5192 Saughall Massie Road/Upton By-pass
Woodchurch (Arrowe Park)	11	Arrowe Park Rd/Arrowe Brook Rd
	12	Arrowe Park Rd/Arrowe Park Hospital
	13	A552/Arrowe Park Rd/Church Lane
	14	A552/Ackers Rd
	15	A552/ASDA
Irby/Thurstaston	16	Site A Access/Thingwall Rd
	17	Thingwall Rd/Whaley Ln
Thingwall	18	Arrowe Park Rd/Landican Cemetery
	19	Arrowe Park Rd/Thingwall Rd Rbt
	20	B5138 Pensby Rd/Thingwall Rd
	21	B5138 Pensby Rd/Whaley Lane
Pensby/Barnston	22	Sites B-C-D Access/Gills Lane
	23	A551 Barnston Rd/Gills Lane
	24	B5138 Pensby Rd/Fishers Lane/Gills Lane

Area	Ref.	Junction
	25	A551 Barnston Rd/Storeton Lane
	26	B5138 Pensby Rd/Downham Rd
Heswall	27	Site E/Milner Road & A551 Barnston
	28	A551 Barnston/Milner Rd
	29	B5138 Pensby Rd/Irby Rd
	30	B5138 Pensby Rd/Grange Rd/Whitfield Lane
	31	A551 Barnston Rd/Whitehouse Lane
	32	A5137 Brimstage Rd/Whitehouse Lane
	33	A540 Telegraph/B5138 Pensby Rd/The Mount
	34	A5137 Brimstage Rd/A551 Barnston Rd
	35	A540 Telegraph Rd/A540 Chester Rd
Bidston/Wallasey/ Birkenhead/Prenton/ Oxton	36	A552 Borough Rd/Singleton Avenue
	37	A552/Storeton Rd/Singleton Avenue
	38	A552/Holmlands Drive/Prenton Hall Road
Bebington/Clatterbridge	39	Bebington/Clatterbridge
Bromborough	40	Allport Rd/Plymyard Ave/Greenfields Ave
	41	Allport Rd/Allport Ln/Bridle Rd

Method of Baseline Data Collection

6.3.4 It is an accepted industry position that baseline traffic flows should be taken under 'neutral' traffic conditions.

6.3.5 Whilst this position was initially enshrined in Guidance for Transport Assessments and Design Manual for Roads and Bridges documentation (both now withdrawn/superseded), the current national guidance provided by the Ministry of Housing, Communities & Local Government (found online[2] at the time of writing) states the following:

"In general, assessments should be based on normal traffic flow and usage conditions (eg non-school holiday periods, typical weather conditions) but it may be necessary to consider the implications for any regular peak traffic and usage periods (such as rush hours)."

6.3.6 The Covid pandemic has presented challenges with regard to obtaining traffic flow data given the impact government advisories and law have had on travel. Therefore, during scoping discussions, Curtins explored options of obtaining traffic datasets from 3rd parties. Three main options were considered:

- **Historical Data –** Curtins has discussed opportunities to use 3rd party data held by Wirral or freely available in the public domain. However, following an extensive search in the public domain and following feedback from WBC Highways, there are

[2] https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements

no significant amounts of relevant datasets with the majority of developments and data collection undertaken in the eastern areas of Wirral.

- **Wirral SATURN Model –** built and maintained by Mott Macdonald on behalf of Wirral Council. The model was constructed in 2015, using data from the same year. There is little prospect of the model being updated in the foreseeable future, and the model is predominantly confined to the eastern extents of the Wirral. Whilst overall traffic assignments can be considered accurate, turning proportions/counts at individual junctions should be treated with caution as the model has not been validated to this level. There are significant gaps in the dataset where the model inevitably does not cover a number of junctions of interest for the Proposed Development sites.

- **Undertaking Traffic Surveys –** WBC Highways expressed initial concerns over the reliability of undertaking traffic surveys during the meeting on the 10th February 2021. These concerns were on the basis of a somewhat unknown impact associated with Covid. Whilst these concerns are understood, there is a recognition that traffic flows may take a number of months or even years to return to pre-Covid levels. Alternatively, there is also the potential that flows may never return to these levels (certainly in the foreseeable future) due to a drastic change in working from home habits. Highways England indicated in an email response to the Scoping Note on 6th April 2021 that evidence and justification for any data collection must be robust.

6.3.7 Given the lack of available historical datasets, Curtins discussed the prospect of obtaining new traffic datasets again with Wirral Highways on 17th March 2021. A summary of these discussions is provided below:

- There were agreed limitations of 3rd party datasets. It was also agreed that the SATURN model does not cover all the junctions (being primarily focused on the eastern side of Wirral and a lack of coverage of many junctions including the access points) and is not validated to the level of turning counts at individual junctions.

- However, Wirral Highways could not fully endorse traffic counts undertaken in March 2021, stating it is likely to be June before traffic flows can be considered representative. Notwithstanding, it is not the case that counts in March 2021 would

be automatically disregarded as unrepresentative should the sites come forward for planning.

- Whilst there are 41 junctions in the suggested scope of assessment, it was agreed that not all of these junctions would be especially sensitive to the Proposed Development traffic – so neither party could foresee a situation where Curtins would need to recount the full scope of junctions further down the line.

6.3.8 The unpredictability of Covid and lack of certainty that data would return to pre-Covid levels any time in the foreseeable future heavily influenced the decision of surveying the majority of junctions on Tuesday 23rd March 2021.

6.3.9 Table 6.2 sets out the key Covid restriction updates from 16th March 2020 to 21st June 2021, highlighting the times of baseline data collection in bold:

Table 6.2 – Traffic Survey Covid Status

Key Dates	Government Covid Status
16th March 2020	Advice from PM: stop non-essential contact and travel
26th March 2020	First lockdown legally comes into force
1st June 2020	Phased re-opening of schools in England
15th June 2020	Non-essential shops re-open in England
4th July 2020	First local lockdown initiated in Leicestershire
14th September 2020	Social gatherings above six banned in England
14th October 2020	3-tier restriction system comes into force
5th November 2020	Second lockdown legally comes into force
2nd December 2020	Second lockdown ends with a return to a stricter 3-tier
21st December 2020	Stricter Tier 4 measures come into force in London and SE
26th December 2020	Tier 4 measures come into force across more areas
4th January 2021	Advice from PM: children should return to schools
6th January 2021	Third lockdown legally comes into force
8th March 2021	Schools re-open
23rd March 2021	**Traffic Counts undertaken at the majority of junctions**
29th March 2021	Outdoor gatherings of up to 6 people/two households allowed, 'stay at home' order relaxed but people encouraged
12th April 2021	Non-essential shops re-open in England
17th May 2021	Indoor gatherings of up to 6 people/two households allowed, outdoor limit relaxed to 30 people and indoor venues reopen

Key Dates	Government Covid Status
21st June 2021	All legal limits on social contact relaxed
8th July 2021	**Traffic Counts undertaken at junctions impacted by replacement works to the M53 Moreton North Bridge**
7th September 2021	**Storeton Lane/Barnston Road junction re-surveyed due to a suspected inconsistency found in the raw survey data**
23rd September 2021	**Traffic Counts undertaken at junctions in Bromborough following a request from Wirral Highways to consider them**

6.3.10 Surveys were undertaken at a time when schools had re-opened, and at a time that that did not coincide with Easter Sunday (4th April 2021) or a week either side of it. With reference to the table above, the time of survey is considered to be one of the most representative times for surveying since the start of Covid.

6.3.11 Surveys were delayed at the following junctions until Thursday 8th July 2021 because of the replacement works to the M53 Moreton North Bridge restricting access onto the M53 southbound at Junction 2:

- M53 Junction 3 (Junction Reference 1);
- M53 Junction 4 (Junction Reference 2);
- Upton By-Pass/M53 Moreton Spur Rbt (Junction Reference 9); and
- B5192 Saughall Massie Road/Upton By-pass (Junction Reference 10).

6.3.12 These surveys were undertaken at a time when all legal limits on social contact were relaxed, and did not conflict with any football Euro 2020 England games. With reference to the table above, the time of survey is considered to be one of the most representative times for surveying since the start of Covid.

6.3.13 Surveys were undertaken at the following junctions in September 2021 in order to check a suspected inconsistency in the raw traffic data flows along Storeton Lane, and to survey junctions in Bromborough following a request from WBC Highways to consider them:

- Barnston Road/Storeton Lane;
- Allport Road/Plymyard Avenue/Greenfields Avenue; and
- Allport Road/Allport Lane/Bridle Road.

6.3.14 These surveys were undertaken at a time when all legal limits on social contact were relaxed, and outside of school holidays. With reference to the table above, the time of survey is considered to be one of the most representative times for surveying since the start of Covid.

6.3.15 Significant care has been taken to ensure that the observed traffic counts are as reflective of typical vehicle flows as possible. It is maintained that the traffic surveys were undertaken at times considered to be one of the most representative times for surveying since the start of Covid, and that there are no other realistic options to obtain 3rd party historical datasets.

6.3.16 However, it is also recognised that, to provide a robust assessment, the traffic count data collected in March and July 2021 should be uplifted to pre-Covid levels using an appropriate adjustment factor. Therefore, as agreed with WBC Highways by return of comments on the scoping note, a total of 16 Automatic Traffic Count (ATC) loops were also commissioned. Some of the loops were positioned in the location of historic Department for Transport (DfT) counts so that the observed traffic counts can be amended to pre-Covid levels through an adjustive factor.

6.3.17 The baseline counts will also be factored to 2026 and 2031 using a TEMPro growth factor. The full details of the 2021, 2026 and 2031 baseline flows are provided within the accompanying Transport Assessment and overarching Cumulative Transport Assessment.

Identification of Receptors

6.3.18 The IEA guidance document entitled “Guidelines for the Environmental Assessment of Road Traffic” has been used to inform the methodology of assessment. At paragraph 2.5 of the document, the following groups and special interests which could be affected by the proposed and therefore may be considered receptors:

- *“People at home;*
- *People in work places;*
- *Sensitive groups including children, elderly and disabled;*
- *Sensitive locations, e.g. hospitals, churches, schools, historical buildings;*
- *People walking;*
- *People cycling;*
- *Open spaces, recreational sites, shopping areas;*
- *Sites of ecological/nature conservation value;*

- *Sites of tourist/visitor attraction."*

6.3.19 In addition to the above, this Chapter also considers equestrians, people using public transport, and existing traffic on the local highway network as receptors.

Assessment Criteria

6.3.20 The IEA 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;**
- **Fear and Intimidation;**
- **Accidents and safety;**
- Hazardous loads;
- Air pollution;
- Dust and dirt;
- Ecological impact; and
- Heritage and conservation.

6.3.21 Of these effects, many are considered in chapters elsewhere within this document and wider planning application due to the specialist skills required; namely noise, vibration, visual impact, air pollution, ecological effects and heritage and conservation. Those effects highlighted in bold text are assessed in this Traffic and Transportation ES chapter.

Development Effects

Sensitivity of Receptors

6.3.22 The sensitivity of receptors will be taken into consideration when determining the overall significance of the effects. The categories used are shown in Table 6.3 below, as derived

from EIA guidance. In order to provide a robust assessment, all receptors are considered to be of 'High' sensitivity:

Table 6.3: Matrix of Sensitivity of Receptors for the Consideration of Environmental Effects

Sensitivity of Receptor		
High	**Moderate**	**Low**
People at home. Sensitive groups including children, elderly and disabled. Sensitive locations, e.g. hospitals, churches, schools, historical buildings. People walking. People cycling. People using public transport. People in work places. Open spaces, recreational sites, shopping areas. Sites of ecological/nature conservation value. Sites of tourist/visitor attraction. Existing traffic on the local highway network	None.	None.

6.3.23 As there is significant cross-over between the receptors listed above, the receptors referred to throughout this Technical Chapter have been simplified to cover all those listed above who use the road and PRoW network affected by the development proposals, specifically:

- Pedestrians;
- Cyclists;
- Equestrians;
- Public transport users; and
- Motorists.

Significance of Receptor

6.3.24 The Guidelines for the Environmental Assessment of Road Traffic EIA guidance states 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 will increase by more than 30%); and*
- *"Include any other specifically sensitive areas where traffic flows have increased by 10%, or more."*

6.3.25 The IEA 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.

6.3.26 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.

Magnitude of Potential Effects

6.3.27 The magnitude of potential effects (both beneficial and adverse) on environmental baseline conditions will be identified through the detailed consideration of the Site, taking into account the following:

- Relevant legislation, policy or guidelines;
- The degree to which the environment is potentially affected for example, whether the quality is enhanced or impaired;
- The scale or degree of change from baseline conditions as a result of The Project;
- The duration of the effect for example, whether it is temporary or permanent; and
- The reversibility of the effect.

6.3.28 The scale/magnitude of effects will be assessed for the construction and operational phases using the following indicative criteria which have been established with reference to the various guidance noted above and/or through professional experience and judgement. The assessment criteria are described in Table 6.4.

6.3.29 The EIA terms to describe the level of magnitude 'Moderate' and 'Minor' have been altered to 'Medium' and 'Low' respectively in order to be consistent with other chapters in this EIA.

6.3.30 In line with the IEA Guidance, this assessment criteria in Table 6.4 will only be used in the case of an increase in two-way traffic flows of 30% or above (or 10% for any links considered sensitive). As there is no specific guidance on equestrians within the IEA Guidance, people horse-riding will be considered in a similar manner to pedestrians.

Table 6.4: Magnitude of Effect

Level of Magnitude	Effect on	Definition of Magnitude
High	Driver delay	Over 4 minutes increase, averaged over all arms at a junction.
	Public transport users	Over 4 minutes increase in delay along bus routes in vicinity of site.
	Pedestrian/Equestrian delay	Over 4 minutes increase in delay for pedestrians at crossing point.
	Pedestrian amenity	Doubling of traffic flow where the footway width is sub-standard (versus current design standards).
	Fear and intimidation	Change in degree of hazard from moderate to extreme.
	Severance	Over 90% increase in traffic flows on relevant links
	Accidents and road safety	Over 50% increase in traffic flows at location with existing adverse accident record (blackspot).
Medium (Moderate)	Driver delay	Between 3 – 4 minutes increase in delay, averaged over all arms at a junction.
	Public transport users	Between 3 – 4 minutes increase in delay along bus route in vicinity of site.
	Pedestrian/Equestrian delay	Between 3 - 4 minutes increase in delay for pedestrians at crossing point.
	Pedestrian amenity	Between 50%-100% increase in traffic flow where the footway width is sub-standard.
	Fear and intimidation	Change in degree of hazard from great to extreme.
	Severance	Between 60%-90% increase in traffic flows on relevant links.
	Accidents and road safety	30%-50% increase in traffic flows at location with accident rate above DMRB default for junction type.
Low (Minor)	Driver delay	Between 2 - 3 minutes increase in delay, averaged over all arms at junction.
	Public transport users	Between 2 - 3 minutes increase in delay along bus route in vicinity of site.
	Pedestrian/Equestrian delay	Between 2 - 3 minutes increase in delay for pedestrians at crossing point.
	Pedestrian amenity	Doubling of traffic flow where the footway width is satisfactory or up to 50% increase where the footway width is sub-standard.
	Fear and intimidation	Change in degree of hazard from moderate to great.
	Severance	Between 30%-60% increase in traffic flows on relevant links.
	Accidents and road safety	10%-30% increase in traffic flows at location with accident rate above DMRB default for junction type.

Level of Magnitude	Effect on	Definition of Magnitude
Negligible	Driver delay	Less than 2-minute increase in delay, averaged over all arms at a junction.
	Public transport users	Less than 2-minute increase in delay along bus route in vicinity of site.
	Pedestrian/Equestrian delay	Less than 2-minute increase in delay for pedestrians at crossing point.
	Pedestrian amenity	Less than doubling of traffic flow where the footway width is satisfactory.
	Fear and intimidation	No change in degree of hazard.
	Severance	Less than 30% increase in traffic flows on relevant links.
	Accidents and road safety	Less than 10% increase in traffic flows at location with accident rate above DMRB default for junction type.

Significance of Effects

6.3.31 The significance of the transport and access effects, adverse or beneficial, will be determined based on their magnitude and the sensitivity of the receptor. The receptor will be considered to be all road users, i.e. pedestrians, cyclists, public transport users and motorists.

6.3.32 The significance of change in traffic flow volume on road users for each of the environmental effects will be considered in relation to the significance matrix in Table 6.5:

Table 6.5: Matrix of Significance for the Consideration of Environmental Effects

Magnitude of Change	Sensitivity of Receptor		
	High	Moderate	Low
High	Major Adverse/ Beneficial	Major – Moderate Adverse/ Beneficial	Moderate – Minor Adverse / Beneficial
Medium	Major – Moderate Adverse / Beneficial	Moderate – Minor Adverse/ Beneficial	Minor Adverse/ Beneficial
Low	Moderate – Minor Adverse/ Beneficial	Minor Adverse/ Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

6.3.33 Within the assessment the level of magnitude will be defined on the basis of relevant guidance and the application of standard transport planning practice. Considering the table above the following terms will be used to assess the significance of environmental effects:

- Major adverse or beneficial effect – where the Development would cause a significant improvement or deterioration to the receptor;
- Moderate adverse or beneficial effect - where the Development would cause a noticeable improvement or deterioration to the receptor;
- Minor adverse or beneficial effect - where the Development would cause a barely noticeable improvement or deterioration to the receptor; and
- Negligible effect – where the Development would cause no noticeable improvement or deterioration to the receptor.

6.3.34 Any effect of 'Moderate' or 'Major' will be considered as significant. This ES chapter will reflect the findings of the TA, whilst assigning levels of significance to the assessed effects. The chapter will set out the requisite mitigation measures and the residual effects once these are incorporated into the proposals.

Duration of the Effect

6.3.35 The duration of effects will be taken into consideration when determining the overall significance of the effects. The timescales that will be used are shown in Table 6.6 below:

Table 6.6: Duration of Effect

Timescale	Definition
Short Term	0 to 5 years to cover the full anticipated period of construction
Long Term	5 years onwards for the life of the constructed development

Assessment of Effects

6.3.36 The magnitude of potential effects (both beneficial and adverse) on environmental baseline conditions will be identified through the detailed consideration of the proposed development, taking into account the following:

- Relevant legislation, policy or guidelines;
- The degree to which the environment is potentially affected for example, whether the quality is enhanced or impaired;
- The scale or degree of change from baseline conditions as a result of the development;
- The duration of the effect for example, whether it is temporary or permanent; and
- The reversibility of the effect.

6.3.37 To assess the overall significance of an effect it is necessary to establish the magnitude of the effect occurring i.e. the changes to the existing baseline conditions as a result of the Project, and the sensitivity or importance of the receiving environment or receptor.

6.3.38 The magnitude of effects will be assessed for the construction and operational phases using the following criteria which have been established with reference to the various guidance noted above and/or through professional experience and judgement.

6.3.39 For those links passing the 30% threshold or any links deemed to be sufficiently sensitive for a 10% threshold, the environmental impact methodologies are set out in the following subsections:

Severance

6.3.40 Severance is a perceived division that occurs when a traffic link separates part of an existing community. This can occur when a road becomes too heavily trafficked (making crossing the road a problem) or when a new route divides existing land creating a physical barrier.

6.3.41 The Guidelines for Environmental Assessment of Road Traffic states that:

"The measurement and prediction of severance is extremely difficult. The correlation between the extent of severance and the physical barrier of a road is not clear and there are no predictive formulae which give simple relationships between traffic factors and levels of severance."

6.3.42 The following indicators are set out in the Guidelines:

- 30% flow increase – slight separation effects.
- 60% flow increase – moderate separation effects.
- 90% flow increase – substantial separation effects.

6.3.43 These indicators along with consideration of a number of factors including road width, traffic speeds, crossing facilities and existing crossing provision will be used to form the basis of the criteria against which the assessment will be carried out in the Transport EIA Chapter.

Driver Delay

6.3.44 Changes in delay to drivers will be considered throughout the accompanying Transport Assessment using industry standard software packages. These programs give output ratios of flow to capacity (RFC), degrees of saturation (DoS) and queue lengths which give an indication of the overall operational capacity of the junctions.

6.3.45 The results of the capacity assessments is summarised later in this Chapter.

Pedestrian Delay and Amenity

6.3.46 A change in vehicular demand affects the ability of pedestrians to cross local routes, which results in an impact on delay and on an individual's desire to make a particular walking journey. Changes in the volume, speed or composition of traffic and the physical condition at crossing points affect pedestrian amenity.

6.3.47 Pedestrian delay and amenity is not precisely defined within the EIA guidelines, which suggest assessment should be made with 'knowledge of local factors and conditions'.

6.3.48 In general, however, the Guidelines for the Assessment of Environmental Impact of Road Traffic suggest that pedestrian delay at an individual link should not exceed 40 seconds for a link without the provision of crossing facilities. This indicative threshold along with an application of professional experience and judgement forms the basis of the assessment of Pedestrian Delay and Amenity within this ES Chapter.

Fear and Intimidation

6.3.49 Fear and intimidation can also increase as a result of rising traffic flows. This is influenced by a number of things including the volume of traffic, HGV content, nature and frequency of cycle infrastructure, and the width of the footpath.

6.3.50 In addition, The Guidelines for Environmental Assessment of Road Traffic gives the following example of fear and intimidation thresholds in Table 9 (included at Table 6.7 below). These thresholds will be considered alongside the use of professional judgement within the EIA chapter:

Table 6.7 – Fear and Intimidation Thresholds

Degree of Hazard	Average Traffic Flow over 18 hr Day (vehicles/hour)	Total 18 hr HGV Flow	Average Speed over 18 hr day (mph)
Extreme	1,800 +	3,000 +	20 +
Great	1,200 – 1,800	2,000 – 3,000	15 – 20
Moderate	600 – 1,200	1,000 – 2,000	10 – 15

Accidents and Safety

6.3.51 The Proposed Development impact on accidents and safety will be assessed throughout the Transport Assessment by way of reviewing local accident data on the surrounding roads. Within this Transport ES Chapter, professional judgement has been used in the context of:

- Any existing accident clusters exposed in the local data which could identify an area with an existing accident/safety concern; and
- The percentage increase in vehicular flows along nearby links and junctions as a result of the proposed development.

Potential Effects

6.3.52 It is expected the proposals would increase the number of vehicular, pedestrian, cycle and public transport trips in the area. This could result in potential impacts on existing users and surrounding commercial and residential properties.

6.3.53 The below receptors presented in Table 6.8 are all users of the road and PRoW network affected by the development proposals. Therefore, in accordance with paragraphs 6.2.22 and 6.3.23 of this chapter, they are all considered as one 'Receptor':

Table 6.8 – Transport Receptors

Receptor	Impact/Effect	Potential Effect
Pedestrians	Severance, pedestrian delay, pedestrian amenity, accidents and safety, fear and intimidation	May affect the attractiveness and safety of walking. Mitigation may be proposed to reduce impact during both the Construction and Operation phases.

Receptor	Impact/Effect	Potential Effect
Cyclists	Accidents and safety, fear and intimidation	May affect the attractiveness and safety of cycling. Mitigation may be proposed to reduce impact during both the Construction and Operation phases.
Equestrians	Accidents and safety, fear and intimidation, equestrian delay	May affect the attractiveness and safety of horse riding. Mitigation may be proposed to reduce impact during both the Construction and Operation phases.
Public Transport Users	Driver delay	May affect the attractiveness of public transport. Mitigation may be proposed to reduce impact during both the Construction and Operation phases.
Motorists	Driver delay, accidents and safety	May affect the operation of existing traffic. Mitigation may be proposed to reduce impact during both phases.

Assumptions/Limitations

6.3.54 All traffic flows have been taken from data provided by an independent survey company. Curtins assumes the accuracy of these vehicle flows.

6.3.55 Curtins has derived the baseline flows using a combination of TEMPro and adjusting 'C-Factors' where appropriate to account for the impact Covid may have had on flows. The full details of these calculations are provided within the accompanying Transport Assessment (document reference 078244-CUR-00-XX-RP-TP-001) and Cumulative Transport Assessment (document reference 077829-CUR-00-XX-RP-TP-002) documents.

6.3.56 Curtins has derived the development flows following a TRICS assessment and using Census Journey to Work statistics for traffic distribution. These are forecasted flows, and therefore are subject to limitations. The full details of these calculations are provided within the accompanying Transport Assessment (document reference 078244-CUR-00-XX-RP-

TP-001) and Cumulative Transport Assessment (document reference 077829-CUR-00-XX-RP-TP-002) documents.

6.3.57 Capacity assessments have been undertaken using the industry-standard junction modelling software packages LINSig and Junctions 9 programs, more details of which are provided within the accompanying Transport Assessment (document reference 078244-CUR-00-XX-RP-TP-001) and Cumulative Transport Assessment (document reference 077829-CUR-00-XX-RP-TP-002) documents. These programs are an accurate reflection of junction capacities when used appropriately, but there are various assumptions included within each model.

6.3.58 AADT factors have been forecasted from peak hour flows using factors derived from 24hour flows surveyed using nearby ATCs. These calculations are therefore forecasts, and there are both limitations and assumptions associated with factoring traffic counts from peak hours to 24 hour AADT flows.

Consultation

Initial Introductory Meetings

6.3.59 Curtins attended pre-application meetings with representatives from WBC and Highways England (now National Highways (NH)) in February 2021 to discuss the eight Leverhulme sites across the Wirral, from an individual and cumulative perspective. At the meetings Curtins provided a high-level overview of the sites, as well as information regarding the quantum of development being considered and the potential access locations. WBC and NH provided commentary on each site, which has assisted in informing the indicative masterplans, as well as identifying any site-specific opportunities and constraints.

Curtins Scoping Note (March 2021)

6.3.60 In addition to the initial introductory meeting, a formal Scoping Note was produced by Curtins in March 2021 which expanded on these discussions and included the following:

- A summary of the pre-application discussions and work to date, in addition to defining initial residential quantum;
- The proposed TRICS Residential trip rates and the associated forecasted development trips;

- The suggested scope of assessment and the associated approach to capacity assessments and obtaining representative traffic data; and,
- The traffic assignment including details on a Census Journey to Work assessment and the associated traffic distribution and assignment.

Wirral Council Scoping Note Response

6.3.61 Following submission of the Scoping Note, WBC responded via email (dated 9th June 2021). Whilst the response was relatively brief it confirmed acceptance of key parts of the scoping note. This included confirmation that the methodology confirming trip generation and use of 'travel to work' surveys would be satisfactory.

6.3.62 Any remaining comments or points of clarification from WBC are addressed at appropriate points throughout the corresponding Transport Assessment and Cumulative Transport Assessment.

Highways England/National Highways Scoping Note Response

6.3.63 In addition to the above, given the proximity of the sites to the M53 motorway, the Scoping Note was submitted to officers at NH, who responded via email (dated 6th April 2021). The response confirmed acceptance of key parts of the scoping note.

6.3.64 Any remaining comments or points of clarification from NH are addressed at appropriate points throughout the corresponding Transport Assessment and Cumulative Transport Assessment.

Merseytravel Passenger Transport Executive

6.3.65 Curtins also held a meeting with Merseytravel on 20th September 2021 to discuss the various Leverhulme sites from a Passenger Transport Executive perspective. Key points as discussed are as follows:

- Merseytravel would be seeking good walking connections to new/existing bus facilities;
- Prospective residents should have access to bus services within 400m, with shelters complete with DDA kerbs; and
- With regard to the Proposed Development Site specifically, it was confirmed that current services along Blakeley Road operate as hail and ride. It was acknowledged

that it could be difficult to justify service enhancements given the Proposed Development quantum. It was agreed there are frequent rail services from Bromborough Railway station.

6.4. Existing Baseline Conditions

Sources of Baseline Information

6.4.1 Curtins has undertaken collection of baseline information from various data sources as set out in the following sub-sections:

Site Visits

6.4.2 Curtins Transport Planners, including the author of this ES Chapter, have visited the Site on several occasions including a thorough assessment of baseline information and characteristics on:

- 19th March 2021
- 11th May 2021
- 9th July 2021
- 11th March 2022

6.4.3 Photographs from the Site visits have been used on occasions throughout the Transport Assessment and Travel Plan.

Highway Safety

6.4.4 Personal Injury Accident (PIA) data for the highway network adjacent to the Site has been obtained from Crashmap for the most recent five years, the period being 2016 to 2020 (inclusive). Crashmap is a professional service which only publishes official data that is provided by the Department for Transport. This in turn is based on records submitted to Crashmap by police forces.

6.4.5 The Crashmap locational outputs have been supplemented by full collision records where appropriate.

Rights of Way and Adopted Highway

6.4.6 General Public Right of Way (PRoW) information has been obtained from WBC records, accessible online[3] at the time of writing.

6.4.7 Cycle route information has been obtained direct from WBC records, accessible online[4] at the time of writing.

6.4.8 Adopted highway boundary information has been obtained direct from the WBC Highways and Infrastructure team via an online enquiry[5] accessible at the time of writing.

Traffic Flow Data

Obtaining Traffic Flow Data

6.4.9 Curtins commissioned an independent third-party survey company to undertake traffic counts at all junctions identified within the scope of assessment. The full details of survey dates and circumstances can be found in Section 6.3 of this Transport ES Chapter.

Adjusting to Account for Covid

6.4.10 It is maintained that the traffic surveys were undertaken at times considered to be one of the most representative times for surveying since the start of Covid, and that there are no other realistic options to obtain 3rd party historical datasets.

6.4.11 However, it is also recognised that, to provide a robust assessment, the traffic count data collected in March and July 2021 should be uplifted to pre-Covid levels using an appropriate adjustment factor.

6.4.12 In order to be as reflective of the conditions as possible, it was deemed the adjustment factor (herein known as the 'C-Factor') would be at its most accurate when it is local to the junctions and links to which it is applied. A blanket factor was not considered to be as accurate due to the possibility of variance across the network.

[3] mapping.wirral.gov.uk/WM9/Map.aspx?MapName=PublicRightsOfWay
[4] www.wirral.gov.uk/sites/default/files/all/Leisure%20parks%20and%20events/outdoor%20activities/Wirral%20Cycle%20Map.pdf
[5] www.wirral.gov.uk/parking-roads-and-travel/roads-and-pavements/highway-searches

6.4.13 On this basis and as mentioned in scoping discussions with WBC Highways and NH Officers, alongside the traffic counts, Curtins commissioned a series of 16 Automatic Traffic Counters (ATCs); the majority of which were positioned in the same location as historic DfT traffic counters sourced online[6] at the time of writing.

Traffic Growth Projection to Future Years

6.4.14 For the purpose of projecting background traffic growth from 2021 to 2026 and 2031, TEMPro Version 7.2. The traffic growth scenarios are presented in Table 6.9:

Table 6.9 – TEMPro Traffic Growth Factors

Peak Time	Level		2021 - 26	2021 - 31
AM Peak	Authority	Wirral	1.0508	1.0900
PM Peak	Authority	Wirral	1.0483	1.0857

Baseline Assessment

Surrounding Highway Network

Raby Hall Road

6.4.15 The Proposed Development would be accessed via Raby Hall Road, which extends along an east/west alignment for approximately 2km, linking the Site to Raby in the west and Raby mere and Bromborough in the east. To the east the road commences as a continuation of Allport Road and terminates in the vicinity of Wirral Rabbit and Guinea Pig Boarding where the road continues west as Raby Mere Road.

6.4.16 Raby Hall Road is a single lane two-way road with a typical carriageway width of approximately 5.5m. For the most part the road is subject to a 30mph speed limit however towards its western section, where the route becomes more rural in nature, the road is subject to the national speed limit.

6.4.17 Whilst in the immediate vicinity of the Site there is no footway provision, there are footways provided as Raby Hall Road passes the Blakeley Road junction, approximately 350m to the east. Here the northern side of the carriageway benefits a wide pedestrian footway,

[6] roadtraffic.dft.gov.uk/#12/53.3714/-3.0836/basemap-countpoints

separated from the carriageway by grass verge along much of its length. This road can therefore be safely utilised by pedestrians when walking east towards Bromborough Village, and other surrounding residential areas.

Allport Road

6.4.18 As mentioned in the above paragraphs, Allport Road forms at the priority junction with Barrymore way, as a continuation of Raby Hall Road. The road then continues for a distance of approximately 1.5km north-east through the centre of Bromborough, where it terminates at a signalised junction with New Chester Road.

6.4.19 Allport Road provides access to a variety of services that would benefit future site users, such as a row of local shops including a Co-Op, pharmacy and post office, as well as providing access to Bromborough Railway Station. Allport Road operates as a single two-way carriageway with an approximate width of 7m and is subject to a 30mph speed limit for the entirety of its length.

6.4.20 The road is well lit with street lighting and has footways along both sides of the carriageway that are occasionally separated by a grass verge. Allport Road also benefits from formal pedestrian infrastructure such as dropped kerbs, tactile paving and signalised pedestrian crossing across key junctions (for example at the junction with Plymyard Avenue).

6.4.21 Allport Road also forms a key route for buses, providing several stops along its length. These stops can be utilised to access key areas of the Wirral such as Woodchurch, West Kirby and Birkenhead.

Blakeley Road

6.4.22 350m east of the Site Blakeley Road connects with Raby Hall Road via a simple priority T-junction arrangement. From here, Blakeley Road extends for approximately 760m in a northbound direction before merging with Poulton Hall Road, which continues towards Thornton Hough and Poulton Hall. Blakeley Road is a single two-way road with a typical carriageway width of approximately 6m. The road is subject to a 30mph speed limit.

6.4.23 Blakeley Road has a footway along the eastern side of the carriageway from its junction with Raby Hall Road up until Raby Drive. This footway is lit by street lighting and provides pedestrian access to the residential properties on the eastern side of the road.

Plymyard Avenue

6.4.24 Approximately 1.4km east of the Site, Plymyard Avenue connects with Allport Road and Greenfields Avenue via a signalised junction arrangement. From here, Plymyard Avenue extends for approximately 1.6km southbound towards its terminus at a simple priority arrangement with Eastham Rake. Plymyard Avenue forms a useful connection for journeys towards Bromborough and provides a convenient route for trips towards to the local amenities, schools and the M53 Junction 5.

6.4.25 Plymyard Avenue is a single lane two-way road with a typical carriageway width of 7m. For the entirety of its length, Plymyard Avenue is subject to a 30mph speed limit. This speed is set to at 30mph to due to the residential houses bordering both sides of the carriageway for much of its length.

6.4.26 Plymyard Road is well lit with street lighting and has footway along both sides of the carriageway, which is occasionally separated by a grass verge. Pedestrian infrastructure such as tactile paving, dropped kerbs and pedestrian crossing facilities are provided along this road at key desire lines, including at the signalised junction with Allport Road and Greenfields Avenue, located at the northern end of Plymyard Road.

M53

6.4.27 The Proposed Development Site is accessible from the M53, either via Junction 4 to the north, which can be accessed by traveling through Clatterbridge; or alternatively continuing south-east through Bromborough towards Junction 5. The M53 forms part of the strategic road network (SRN) and is a 30km motorway on the Wirral Peninsula in England.

6.4.28 The M53 motorway starts in Wallasey at the exit slip roads from the Kingsway Tunnel from Liverpool. It loops round the north-west of Birkenhead and then runs south as a dual 3-lane route between Upton, Woodchurch in the west and Prenton.

6.4.29 From Junctions 1 to 3 it runs parallel to the railway line. From Junction 3 it proceeds south past Bebington through Junction 4, before narrowing to dual 2 lanes. At Junction 5, traffic for Wales can take the A41, A550 and A494 to join the A55 near Ewloe.

Baseline Traffic Data

6.4.30 The following Table 6.10 provides AADT data for all junctions and links within the agreed junction scope. The 2021 C-Factor only has been provided as any development impact would be greatest without applying traffic growth factors.

Table 6.10 – Baseline 2021 C-Factor AADT Data

Junction			Link	2021 Observed C-Factor AM 2-way	2021 Observed C-Factor PM 2-way	Calculated C-Factor 24hr AADT 2021
SRN	1	M53 Junction 3	M53 (NB on slip)	719	726	8,263
			M53 (SB off slip)	712	760	8,417
			A552 (east)	2,131	1,718	22,010
			Prenton Way	927	1,057	11,345
			M53 (SB on slip)	871	699	8,978
			M53 (NB off slip)	769	897	9,527
			A552 (west)	2,732	2,513	29,996
	2	M53 Junction 4	M53 (NB on slip)	806	979	8,397
			M53 (SB off slip)	758	651	6,629
			B5151 Mount Road	1,699	1,682	15,906
			B5137 Brimstage Road (east)	1,886	1,928	17,943
			M53 (SB on slip)	758	651	6,629
			M53 (NB off slip)	734	846	7,433
			Clatterbridge Road	680	979	7,805
			B5137 Brimstage Road (west)	481	369	3,999
Greasby	3A	Site H Access/Arrowe Rd - Eastern Access	Arrowe Road (east)	733	587	6,985
			Eastern Site Access	-	-	-
			Arrowe Road (west)	733	587	6,985
	3B	Site H Access/Arrowe Rd - Western Access	Arrowe Road (east)	733	587	6,985
			Western Site Access	-	-	-
			Arrowe Road (west)	733	587	6,985
	4	Greasby Rd/Arrowe Rd	Greasby Road (north)	570	482	5,570
			Arrowe Road (east)	740	690	7,572
			MacDonald Drive	194	141	1,770
			Arrowe Road (west)	871	793	8,812
	5	B5139/Greasby Rd	B5139 Frankby Road (north)	1,583	1,439	15,995
			Greasby Road	561	474	5,480
			B5139 Frankby Road (south)	1,126	1,089	11,721
	6	Arrowe Rd/Arrowe Brook Lane	Arrowe Brook Road	1,200	1,054	11,935
			Arrowe Brook Lane	518	519	5,486
			Arrowe Road	766	591	7,183
Upton	7	Upton By-Pass/B5139/Old Greasby Rd	Upton By-pass (north)	1,670	1,552	19,789
			Old Greasby Road	735	681	8,697
			Upton By-pass (south)	1,423	1,476	17,806
			B5139 Greasby Road	1,582	1,482	18,823
	8		A551 Arrowe Park Road (north)	775	751	9,377

Junction			Link	2021 Observed C-Factor AM 2-way	2021 Observed C-Factor PM 2-way	Calculated C-Factor 24hr AADT 2021
		Upton By-Pass/A551/A5027/Upton Retail Park Rbt	A5027 Upton Road	1,210	1,262	15,182
			A551 Arrowe Park Road (south)	1,662	1,641	20,288
			Upton Retail Park	687	1,163	11,366
			Upton By-pass	1,407	1,472	17,682
	9	Upton By-Pass/M53 Moreton Spur Rbt	Spur to Moreton Road (north)	176	161	1,671
			M53	1,171	1,820	14,813
			Spur from Moreton Road (south)	148	128	1,368
			Upton By-pass	1,372	904	11,275
	10	B5192 Saughall Massie Road/Upton By-pass	Upton By-pass (north)	2,409	2,315	23,398
			B5192 Saughall Massie Road	1,877	1,907	18,745
			Upton By-pass (south)	1,555	1,536	15,313
Woodchurch (Arrowe Park)	11	Arrowe Park Rd/Arrowe Brook Rd	A551 Arrowe Park Road (north)	1,628	1,524	19,359
			Arrowe Brook Road	1,163	1,082	13,791
			A551 Arrowe Park Road (south)	1,774	1,700	21,341
	12A	Arrowe Park Rd/Arrowe Park Hospital (Northern Junction)	A551 Arrowe Park Road (north)	1,774	1,804	21,977
			Hospital (Northern Access)	428	460	5,455
			A551 Arrowe Park Road (south)	1,602	1,500	19,053
	12B	Arrowe Park Rd/Arrowe Park Hospital (Southern Junction)	A551 Arrowe Park Road (north)	1,585	1,500	18,954
			Hospital (Southern Access)	1,104	704	11,110
			A551 Arrowe Park Road (south)	2,010	1,955	24,353
	13	A552/Arrowe Park Rd/Church Lane	Church Lane	453	386	4,801
			A552	2,715	2,536	30,028
			A551 Arrowe Park Road (south)	2,035	1,951	22,794
			A551 Arrowe Park Road (west)	2,044	1,962	22,906
	14	A552/Ackers Rd	Ackers Road	1,107	889	11,412
			A552 (east)	3,720	3,354	40,453
			A552 (west)	2,654	2,478	29,346
	15	A552/ASDA	ASDA	349	633	5,618
			A552 (east)	3,719	3,398	40,700
			A552 (west)	3,713	3,353	40,406
Irby/ Thurstaston	16A	Site A Access/Thingwall Rd (Eastern Junction)	Eastern Site Access	-	-	-
			Thingwall Road (east)	654	683	7,139
			Thingwall Road (west)	654	683	7,139
	16B	Site A Access/Thingwall Rd (Western Junction)	Western Site Access	-	-	-
			Thingwall Road (east)	654	683	7,139
			Thingwall Road (west)	654	683	7,139
	17	Thingwall Rd/Whaley Ln	Thingwall Road (east)	641	665	6,978
			Whalley Road	283	255	2,874
			Thingwall Road (west)	723	715	7,684
Thingwall	18	Arrowe Park Rd/Landican Cemetery	Arrowe Park Road (north)	2,038	1,963	22,877
			Landican Cemetery	39	110	852
			A551 Arrowe Park Road (south)	2,011	1,908	22,412
	19	Arrowe Park Rd/Thingwall Rd Rbt	A551 Arrowe Park Road (north)	1,981	1,968	22,583
			A551 Barnston Road	797	832	9,320
			B5138 Thingwall Road East	1,529	1,520	17,435
	20	B5138 Pensby Rd/Thingwall Rd	B5138 Thingwall Road East	1,549	1,539	16,496
			B5138 Pensby Road	1,072	1,017	11,159

Junction			Link	2021 Observed C-Factor AM 2-way	2021 Observed C-Factor PM 2-way	Calculated C-Factor 24hr AADT 2021
			Thingwall Road	527	583	5,927
	21	B5138 Pensby Rd/Whaley Lane	B5138 Pensby Road (north)	1,212	1,094	12,321
			Whalley Road	1,210	1,115	12,421
			B5138 Pensby Road (south)	246	221	2,491
Pensby/Barnston	22A	Site B Access/Gills Lane	Site Access	-	-	-
			Gills Lane (east)	366	356	3,755
			Gills Lane (west)	366	356	3,755
	22B	Site C Access/Gills Lane	Site Access	-	-	-
			Gills Lane (east)	366	356	3,755
			Gills Lane (west)	366	356	3,755
	22C	Site D Northern Access/Barnston Road	Northern Site Access	-	-	-
			Barnston Road (north)	765	801	8,137
			Barnston Road (south)	765	801	8,137
	22D	Site D Southern Access/Barnston Road	Southern Site Access	-	-	-
			Barnston Road (north)	765	801	8,137
			Barnston Road (south)	765	801	8,137
	23	A551 Barnston Rd/Gills Lane	Barnston Road (north)	850	886	9,019
			Gills Lane	369	338	3,669
			Barnston Road (south)	1,130	1,139	11,791
	24	B5138 Pensby Rd/Fishers Lane/Gills Lane	B5138 Pensby Road (north)	1,094	1,095	11,371
			Gills Lane	324	335	3,424
			B5138 Pensby Road (south)	961	947	9,914
			Fishers Lane	401	356	3,934
	25	A551 Barnston Rd/Storeton Lane	A551 Barnston Road (north)	1,058	1,133	11,385
			Storeton Lane	698	610	6,797
			A551 Barnston Road (south)	1,166	1,223	12,414
	26	B5138 Pensby Rd/Downham Rd	B5138 Pensby Road (north)	868	839	8,867
			Downham Road	288	272	2,910
			B5138 Pensby Road (south)	691	684	7,142
Heswall	27A	Site E Northern Access/A551 Barnston	A551 Barnston Road (north)	1,209	1,040	11,685
			Northern Site Access	-	-	-
			A551 Barnston Road (south)	1,209	1,040	11,685
	27B	Site E Southern Access/A551 Barnston	A551 Barnston Road (north)	1,310	1,159	12,830
			Southern Site Access	-	-	-
			A551 Barnston Road (south)	1,310	1,159	12,830
	27C	Site E Access/Milner Road	Site Access	-	-	-
			Milner Road (east)	591	531	5,831
			Milner Road (west)	591	531	5,831
	28	A551 Barnston/Milner Rd	A551 Barnston Road (north)	1,337	1,242	13,399
			Milner Road	631	579	6,285
			A551 Barnston Road (south)	976	931	9,908
	29	B5138 Pensby Rd/Irby Rd	B5138 Pensby Road (north)	693	665	7,056
			B5138 Pensby Road (south)	946	864	9,408
			Irby Road	530	487	5,285
	30	B5138 Pensby Rd/Grange Rd/Whitfield Lane	B5138 Pensby Road (north)	946	864	9,408
			Whitfield Lane	384	355	3,841
			B5138 Pensby Road (south)	724	672	7,252

Junction			Link	2021 Observed C-Factor AM 2-way	2021 Observed C-Factor PM 2-way	Calculated C-Factor 24hr AADT 2021
			Grange Road	95	114	1,087
	31	A551 Barnston Rd/Whitehouse Lane	A551 Barnston Road (north)	1,284	1,178	12,789
			Whitehouse Lane	398	388	4,089
			A551 Barnston Road (south)	1,310	1,159	12,830
	32	A5137 Brimstage Rd/Whitehouse Lane	A5137 Brimstage Road (east)	1,025	979	9,427
			A5137 Brimstage Road (south)	512	607	5,264
			Whitehouse Lane	516	377	4,197
	33	A540 Telegraph/B5138 Pensby Rd/The Mount	B5138 Pensby Road	515	515	5,372
			Telegraph Road (east)	1,271	1,361	13,734
			The Mount	332	325	3,427
			Telegraph Road (west)	1,148	1,260	12,567
	34	A5137 Brimstage Rd/A551 Barnston Rd	A551 Barnston Road (north)	1,012	986	10,426
			A5137 Brimstage Road	682	618	6,786
			A551 Barnston Road (south)	1,660	1,572	16,864
	35	A540 Telegraph Rd/A540 Chester Rd	A551 Barnston Road	1,660	1,572	16,864
			A540 Chester Road	1,983	1,810	19,793
			Shell Garage	143	154	1,550
			A540 Telegraph Road	1,965	1,828	19,793
Birkenhead	36	A552 Borough Rd/Singleton Avenue	Borough Road (north)	1,374	1,267	14,251
			Borough Road (south)	898	689	8,563
			Singleton Avenue	774	784	8,407
	37	A552/Storeton Rd/Singleton Avenue	Storeton Road (north)	1,205	1,194	12,945
			Singleton Avenue	1,429	1,295	14,699
			Storeton Road (south)	1,439	1,402	15,330
			A552 Woodchurch Road	1,382	1,415	15,092
	38	A552/Holmlands Drive/Prenton Hall Road	Holmlands Drive	307	313	3,345
			A552 Woodchurch Road (east)	1,995	1,777	20,353
			Prenton Hall Road	771	636	7,592
			A552 Woodchurch Road (west)	2,661	2,310	26,823
Bebington	39	A5137 Brimstage Rd/Spital Rd/Poulton Rd/B5136 Church Rd	B5136 Church Road	1,359	1,084	11,495
			B5137 Spital Road	1,264	1,266	11,903
			Poulton Road	1,361	1,113	11,640
			B5137 Brimstage Road	2,262	2,091	20,475
Bromborough	40	Allport Rd/Greenfield Ave/Plymyard Ave	Greenfield Avenue	196	187	1,895
			Allport Road (east)	861	971	9,065
			Plymyard Avenue	493	563	5,225
			Alport Road (west)	930	985	9,476
	41	Allport Rd/Allport Ln/Bridle Ln	Allport Lane	526	648	5,809
			Allport Road (east)	581	746	6,566
			Bridle Lane	543	673	6,017
			Alport Road (west)	772	925	8,397

Highway Safety

6.4.31 PIA data for the highway network adjacent to the Site has been obtained from Crashmap for the most recent five years, the period being 2016 to 2020 (inclusive). Crashmap is a

professional service which only publishes official data that is provided by the Department for Transport. This in turn is based on records submitted to them by police forces and therefore there is no longer a requirement to obtain records direct from the Police.

Accessibility by Sustainable Modes of Transport

6.4.32 Given the semi-rural surrounds of the local area, there is a limited number of amenities in the immediate vicinity of the Site. Notwithstanding this, following the creation of a shared pedestrian/cycle link to Blakeley Road via land owned by Leverhulme embedded within the development proposals, there would be a pedestrian link through to Raby Mere and Bromborough. This route to the various amenities and facilities in Bromborough would be comparable in distance and quality to that taken by existing residents of Raby Mere.

6.4.33 Of the immediate roads surrounding the Site, a number are recommended or signed for cycling on carriageway, for example Raby Hall Road, Blakeley Road and Allport Road. These advisory routes are designated routes due to the existing low volumes of traffic. There are also several off-road tracks and bridleways in the immediate vicinity of the Site, providing useful connections east towards Bromborough.

6.4.34 Prospective residents would be able to access services along Blakeley Road, where bus number 17 operates a hail and ride service. The nearest physical bus stops are located as a pair on Brookhurst Avenue approximately 1km to the east of the Site.

6.4.35 Bromborough Station is located on Allport Road, approximately 1.3km walk/cycle distance from the centre of the Site. The station is managed Merseyrail and provides regular trains towards Liverpool Central, Ellesmere Port and Chester, as well as many of the nearby local stations.

6.4.36 It should be remembered that the Site is set in a semi-rural area, and the expectation of levels of accessibility should reflect this. Notwithstanding, it is considered that the Site is located such as to benefit from existing walking, cycling and public transport opportunities.

6.5. Assessment of Potential Effects

Construction Phase Impacts

6.5.1 The construction of the Proposed Development will result in a temporary increase of Heavy Goods Vehicles (HGVs) and cars carrying construction workers and materials on roads surrounding the Site. This has potential impacts in relation to noise, air, dust and dirt which are considered elsewhere within the wider ES.

6.5.2 The volume of construction traffic has not been determined in detail at this stage but based on previous experience it is not expected to represent a significant increase in traffic, and additional flows on any one link would be below the 10% increase in traffic set out in the IEA Guidelines.

6.5.3 As the impact is considered to be less than 10%, no further assessment is necessary. The significance of the effects of the Proposed Development at the construction phase is considered to be **Negligible** (temporary).

6.5.4 The impact of traffic and transportation during the construction phase can be considered **Not Significant.** A summary of the effects of the Construction Phase is provided in Appendix 6.1**.**

Mitigation

6.5.5 The impacts of the construction vehicles upon the traffic and transport-related environmental factors are anticipated to be **Negligible** (temporary) and **Not Significant**. No specific mitigation measures are therefore proposed with the exception of a construction environment management plan (CEMP).

6.5.6 A CEMP will ensure that any disruption caused during the construction phase of the development will be minimised.

6.5.7 Precise details of the plan will be agreed via planning condition, but it is envisaged that the plan will include:

- Agreed traffic management measures to restrict construction vehicles in certain locations and routes at certain times of the day;

- Travel Plan initiatives to encourage workers to travel to the Site in a sustainable manner; and
- Considerate construction practices (such as wheel washing) to mitigate impacts which are considered elsewhere in the noise, air and dust and dirt section of this EIA.

Operational Phase Impacts

6.5.8 The following Table 6.11 provides a percentage impact assessment of all agreed links, as affected by the Proposed Development traffic. Those links where the development traffic has not been assigned have a neutral percentage increase (i.e. 0.00%).

Table 6.11 – Proposed Development Impact

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Dev 24hr AADT 2021	Percentage Increase
SRN	1	M53 Junction 3	M53 (NB on slip)	8,263	8,263	0.00%
			M53 (SB off slip)	8,417	8,417	0.00%
			A552 (east)	22,010	22,010	0.00%
			Prenton Way	11,345	11,345	0.00%
			M53 (SB on slip)	8,978	8,982	0.05%
			M53 (NB off slip)	9,527	9,532	0.05%
			A552 (west)	29,996	30,001	0.02%
	2	M53 Junction 4	M53 (NB on slip)	8,397	8,412	0.18%
			M53 (SB off slip)	6,629	6,629	0.00%
			B5151 Mount Road	15,906	15,911	0.03%
			B5137 Brimstage Road (east)	17,943	17,943	0.00%
			M53 (SB on slip)	6,629	6,629	0.00%
			M53 (NB off slip)	7,433	7,433	0.00%
			Clatterbridge Road	7,805	7,822	0.22%
			B5137 Brimstage Road (west)	3,999	3,999	0.00%
Greasby	3A	Site H Access/Arrowe Rd - Eastern Access	Arrowe Road (east)	6,985	6,985	0.01%
			Eastern Site Access	-	0	-
			Arrowe Road (west)	6,985	6,985	0.01%
	3B	Site H Access/Arrowe Rd - Western Access	Arrowe Road (east)	6,985	6,985	0.01%
			Western Site Access	-	0	-
			Arrowe Road (west)	6,985	6,985	0.01%
	4	Greasby Rd/Arrowe Rd	Greasby Road (north)	5,570	5,570	0.00%
			Arrowe Road (east)	7,572	7,572	0.00%
			MacDonald Drive	1,770	1,770	0.02%
			Arrowe Road (west)	8,812	8,812	0.00%
	5	B5139/Greasby Rd	B5139 Frankby Road (north)	15,995	15,995	0.00%
			Greasby Road	5,480	5,480	0.00%
			B5139 Frankby Road (south)	11,721	11,721	0.00%
	6		Arrowe Brook Road	11,935	11,935	0.00%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Dev 24hr AADT 2021	Percentage Increase
		Arrowe Rd/Arrowe Brook Lane	Arrowe Brook Lane	5,486	5,486	0.00%
			Arrowe Road	7,183	7,183	0.00%
Upton	7	Upton By-Pass/B5139/Old Greasby Rd	Upton By-pass (north)	19,789	19,790	0.00%
			Old Greasby Road	8,697	8,698	0.01%
			Upton By-pass (south)	17,806	17,806	0.00%
			B5139 Greasby Road	18,823	18,823	0.00%
	8	Upton By-Pass/A551/A5027/Upton Retail Park Rbt	A551 Arrowe Park Road (north)	9,377	9,377	0.00%
			A5027 Upton Road	15,182	15,182	0.00%
			A551 Arrowe Park Road (south)	20,288	20,288	0.00%
			Upton Retail Park	11,366	11,366	0.00%
			Upton By-pass	17,682	17,682	0.00%
	9	Upton By-Pass/M53 Moreton Spur Rbt	Spur to Moreton Road (north)	1,671	1,671	0.00%
			M53	14,813	14,819	0.04%
			Spur from Moreton Road (south)	1,368	1,368	0.00%
			Upton By-pass	11,275	11,277	0.02%
	10	B5192 Saughall Massie Road/Upton By-pass	Upton By-pass (north)	23,398	23,401	0.01%
			B5192 Saughall Massie Road	18,745	18,749	0.02%
			Upton By-pass (south)	15,313	15,315	0.02%
Woodchurch (Arrowe Park)	11	Arrowe Park Rd/Arrowe Brook Rd	A551 Arrowe Park Road (north)	19,359	19,359	0.00%
			Arrowe Brook Road	13,791	13,791	0.00%
			A551 Arrowe Park Road (south)	21,341	21,341	0.00%
	12A	Arrowe Park Rd/Arrowe Park Hospital (Northern Junction)	A551 Arrowe Park Road (north)	21,977	21,977	0.00%
			Hospital (Northern Access)	5,455	5,455	0.01%
			A551 Arrowe Park Road (south)	19,053	19,053	0.00%
	12B	Arrowe Park Rd/Arrowe Park Hospital (Southern Junction)	A551 Arrowe Park Road (north)	18,954	18,954	0.00%
			Hospital (Southern Access)	11,110	11,120	0.09%
			A551 Arrowe Park Road (south)	24,353	24,363	0.04%
	13	A552/Arrowe Park Rd/Church Lane	Church Lane	4,801	4,801	0.00%
			A552	30,028	30,038	0.03%
			A551 Arrowe Park Road (south)	22,794	22,794	0.00%
			A551 Arrowe Park Road (west)	22,906	22,915	0.04%
	14	A552/Ackers Rd	Ackers Road	11,412	11,412	0.00%
			A552 (east)	40,453	40,462	0.02%
			A552 (west)	29,346	29,356	0.03%
	15	A552/ASDA	ASDA	5,618	5,618	0.00%
			A552 (east)	40,700	40,709	0.02%
			A552 (west)	40,406	40,415	0.02%
Irby/ Thurstaston	16A	Site A Access/Thingwall Rd (Eastern Junction)	Eastern Site Access	-	0	-
			Thingwall Road (east)	7,139	7,139	0.00%
			Thingwall Road (west)	7,139	7,139	0.00%
	16B	Site A Access/Thingwall Rd (Western Junction)	Western Site Access	-	0	-
			Thingwall Road (east)	7,139	7,139	0.00%
			Thingwall Road (west)	7,139	7,139	0.00%
	17	Thingwall Rd/Whaley Ln	Thingwall Road (east)	6,978	6,978	0.00%
			Whalley Road	2,874	2,874	0.02%
			Thingwall Road (west)	7,684	7,684	0.00%
Thingwall	18		Arrowe Park Road (north)	22,877	22,877	0.00%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Dev 24hr AADT 2021	Percentage Increase
		Arrowe Park Rd/Landican Cemetery	Landican Cemetery	852	852	0.01%
			A551 Arrowe Park Road (south)	22,412	22,412	0.00%
	19	Arrowe Park Rd/Thingwall Rd Rbt	A551 Arrowe Park Road (north)	22,583	22,583	0.00%
			A551 Barnston Road	9,320	9,320	0.00%
			B5138 Thingwall Road East	17,435	17,435	0.00%
	20	B5138 Pensby Rd/Thingwall Rd	B5138 Thingwall Road East	16,496	16,496	0.00%
			B5138 Pensby Road	11,159	11,159	0.00%
			Thingwall Road	5,927	5,927	0.00%
	21	B5138 Pensby Rd/Whaley Lane	B5138 Pensby Road (north)	12,321	12,321	0.00%
			Whalley Road	12,421	12,421	0.00%
			B5138 Pensby Road (south)	2,491	2,491	0.00%
Pensby/Barnston	22A	Site B Access/Gills Lane	Site Access	-	0	-
			Gills Lane (east)	3,755	3,755	0.00%
			Gills Lane (west)	3,755	3,755	0.00%
	22B	Site C Access/Gills Lane	Site Access	-	0	-
			Gills Lane (east)	3,755	3,755	0.00%
			Gills Lane (west)	3,755	3,755	0.00%
	22C	Site D Northern Access/Barnston Road	Northern Site Access	-	0	-
			Barnston Road (north)	8,137	8,137	0.00%
			Barnston Road (south)	8,137	8,137	0.00%
	22D	Site D Southern Access/Barnston Road	Southern Site Access	-	0	-
			Barnston Road (north)	8,137	8,137	0.00%
			Barnston Road (south)	8,137	8,137	0.00%
	23	A551 Barnston Rd/Gills Lane	Barnston Road (north)	9,019	9,019	0.00%
			Gills Lane	3,669	3,669	0.00%
			Barnston Road (south)	11,791	11,791	0.00%
	24	B5138 Pensby Rd/Fishers Lane/Gills Lane	B5138 Pensby Road (north)	11,371	11,371	0.00%
			Gills Lane	3,424	3,424	0.01%
			B5138 Pensby Road (south)	9,914	9,914	0.00%
			Fishers Lane	3,934	3,934	0.00%
	25	A551 Barnston Rd/Storeton Lane	A551 Barnston Road (north)	11,385	11,385	0.00%
			Storeton Lane	6,797	6,797	0.00%
			A551 Barnston Road (south)	12,414	12,414	0.00%
	26	B5138 Pensby Rd/Downham Rd	B5138 Pensby Road (north)	8,867	8,867	0.01%
			Downham Road	2,910	2,910	0.00%
			B5138 Pensby Road (south)	7,142	7,142	0.00%
Heswall	27A	Site E Northern Access/A551 Barnston	A551 Barnston Road (north)	11,685	11,685	0.00%
			Northern Site Access	-	0	-
			A551 Barnston Road (south)	11,685	11,685	0.00%
	27B	Site E Southern Access/A551 Barnston	A551 Barnston Road (north)	12,830	12,830	0.00%
			Southern Site Access	-	0	-
			A551 Barnston Road (south)	12,830	12,830	0.00%
	27C	Site E Access/Milner Road	Site Access	-	0	-
			Milner Road (east)	5,831	5,831	0.00%
			Milner Road (west)	5,831	5,831	0.00%
	28	A551 Barnston/Milner Rd	A551 Barnston Road (north)	13,399	13,399	0.00%
			Milner Road	6,285	6,285	0.01%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Dev 24hr AADT 2021	Percentage Increase
			A551 Barnston Road (south)	9,908	9,908	0.00%
	29	B5138 Pensby Rd/Irby Rd	B5138 Pensby Road (north)	7,056	7,056	0.00%
			B5138 Pensby Road (south)	9,408	9,408	0.00%
			Irby Road	5,285	5,285	0.00%
	30	B5138 Pensby Rd/Grange Rd/Whitfield Lane	B5138 Pensby Road (north)	9,408	9,408	0.00%
			Whitfield Lane	3,841	3,841	0.00%
			B5138 Pensby Road (south)	7,252	7,252	0.00%
			Grange Road	1,087	1,087	0.00%
	31	A551 Barnston Rd/Whitehouse Lane	A551 Barnston Road (north)	12,789	12,789	0.00%
			Whitehouse Lane	4,089	4,089	0.00%
			A551 Barnston Road (south)	12,830	12,830	0.00%
	32	A5137 Brimstage Rd/Whitehouse Lane	A5137 Brimstage Road (east)	9,427	9,427	0.00%
			A5137 Brimstage Road (south)	5,264	5,264	0.00%
			Whitehouse Lane	4,197	4,197	0.00%
	33	A540 Telegraph/B5138 Pensby Rd/The Mount	B5138 Pensby Road	5,372	5,374	0.04%
			Telegraph Road (east)	13,734	13,740	0.04%
			The Mount	3,427	3,429	0.07%
			Telegraph Road (west)	12,567	12,569	0.02%
	34	A5137 Brimstage Rd/A551 Barnston Rd	A551 Barnston Road (north)	10,426	10,426	0.00%
			A5137 Brimstage Road	6,786	6,786	0.00%
			A551 Barnston Road (south)	16,864	16,864	0.00%
	35	A540 Telegraph Rd/A540 Chester Rd	A551 Barnston Road	16,864	16,864	0.00%
			A540 Chester Road	19,793	19,799	0.03%
			Shell Garage	1,550	1,550	0.00%
			A540 Telegraph Road	19,793	19,799	0.03%
Birkenhead	36	A552 Borough Rd/Singleton Avenue	Borough Road (north)	14,251	14,251	0.00%
			Borough Road (south)	8,563	8,563	0.00%
			Singleton Avenue	8,407	8,407	0.00%
	37	A552/Storeton Rd/Singleton Avenue	Storeton Road (north)	12,945	12,950	0.04%
			Singleton Avenue	14,699	14,699	0.00%
			Storeton Road (south)	15,330	15,335	0.03%
			A552 Woodchurch Road	15,092	15,092	0.00%
	38	A552/Holmlands Drive/Prenton Hall Road	Holmlands Drive	3,345	3,345	0.01%
			A552 Woodchurch Road (east)	20,353	20,353	0.00%
			Prenton Hall Road	7,592	7,592	0.00%
			A552 Woodchurch Road (west)	26,823	26,823	0.00%
Bebington	39	A5137 Brimstage Rd/Spital Rd/Poulton Rd/B5136 Church Rd	B5136 Church Road	11,495	11,526	0.27%
			B5137 Spital Road	11,903	11,903	0.00%
			Poulton Road	11,640	11,671	0.27%
			B5137 Brimstage Road	20,475	20,475	0.00%
Bromborough	40	Allport Rd/Greenfield Ave/Plymyard Ave	Greenfield Avenue	1,895	1,895	0.01%
			Allport Road (east)	9,065	9,210	1.60%
			Plymyard Avenue	5,225	5,233	0.15%
			Alport Road (west)	9,476	9,628	1.60%
	41	Allport Rd/Allport Ln/Bridle Ln	Allport Lane	5,809	5,826	0.30%
			Allport Road (east)	6,566	6,622	0.86%
			Bridle Lane	6,017	6,089	1.19%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Dev 24hr AADT 2021	Percentage Increase
			Allport Road (west)	8,397	8,542	1.72%

6.5.9 Table 6.11 demonstrates that all links are comfortably within the 30% assessment threshold. The table also demonstrates that all links are comfortably within the 10% impact threshold for particularly sensitive receptors, and therefore there is no additional consideration necessary in this regard.

6.5.10 On this basis, it considered all links would be subject to a **Negligible** effect, and do not require further assessment. The effect is considered to be **Not Significant**. A summary of the effects of the Operational Phase is provided in Appendix 6.2.

Mitigation

6.5.11 In line with the conclusion that all links considered within this chapter would be subject to a **Negligible** effect and do not require further assessment, mitigation is not proposed for the Proposed Development Site in isolation.

6.6. Residual and Cumulative Effects

Residual Effects

6.6.1 For all of the junctions and links considered, the residual effects would be **Negligible** as a result of the proposed development.

Cumulative Effects

Inter-project Effects

6.6.3 The individual committed development sites (with planning permission) have not been considered individually as they comprise a collection of sites that are relatively minor in nature, and are spread out across Wirral.

6.6.4 However, in order to recognise an overall increase in traffic as a result of these developments and any others that may come forward as part of future development in Wirral, a blanket TEMPro traffic growth factor across all links to 2026 (i.e. the year of

opening) has been applied. This is a significantly more robust way of representing the additional trips associated with committed developments as it applies growth in the region of 5% to all links considered.

6.6.5 Additionally, as the Proposed Development Site is one of up to eight sites being brought forward across the Leverhulme Estate, it has been deemed appropriate to consider the cumulative impact of all proposed Leverhulme Estate development sites.

6.6.6 On that basis, the following Table 6.12 provides a percentage impact assessment of all links affected by the cumulative development traffic total of all eight proposed Leverhulme sites. The assessment compares the 2021 C-Factor base with the 2026 C-Factor + Cumulative Development scenarios.

Table 6.12 – Cumulative Development Impact

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
SRN	1	M53 Junction 3	M53 (NB on slip)	8,263	9,138	10.59%
			M53 (SB off slip)	8,417	9,250	9.90%
			A552 (east)	22,010	23,103	4.97%
			Prenton Way	11,345	11,906	4.95%
			M53 (SB on slip)	8,978	9,839	9.59%
			M53 (NB off slip)	9,527	10,372	8.87%
			A552 (west)	29,996	32,659	8.88%
	2	M53 Junction 4	M53 (NB on slip)	8,397	8,970	6.82%
			M53 (SB off slip)	6,629	7,065	6.58%
			B5151 Mount Road	15,906	16,731	5.18%
			B5137 Brimstage Road (east)	17,943	19,058	6.21%
			M53 (SB on slip)	6,629	7,065	6.58%
			M53 (NB off slip)	7,433	7,897	6.24%
			Clatterbridge Road	7,805	8,300	6.34%
			B5137 Brimstage Road (west)	3,999	4,542	13.59%
Greasby	3A	Site H Access/Arrowe Rd - Eastern Access	Arrowe Road (east)	6,985	8,156	16.76%
			Eastern Site Access	-	375	-
			Arrowe Road (west)	6,985	7,820	11.96%
	3B	Site H Access/Arrowe Rd - Western Access	Arrowe Road (east)	6,985	7,837	12.20%
			Western Site Access	-	375	-
			Arrowe Road (west)	6,985	7,744	10.87%
	4	Greasby Rd/Arrowe Rd	Greasby Road (north)	5,570	6,251	12.23%
			Arrowe Road (east)	7,572	8,490	12.12%
			MacDonald Drive	1,770	1,858	4.99%
			Arrowe Road (west)	8,812	9,388	6.53%
	5	B5139/Greasby Rd	B5139 Frankby Road (north)	15,995	16,788	4.96%
			Greasby Road	5,480	5,787	5.61%
			B5139 Frankby Road (south)	11,721	12,337	5.26%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
	6	Arrowe Rd/Arrowe Brook Lane	Arrowe Brook Road	11,935	13,452	12.71%
			Arrowe Brook Lane	5,486	5,776	5.28%
			Arrowe Road	7,183	8,482	18.08%
Upton	7	Upton By-Pass/B5139/Old Greasby Rd	Upton By-pass (north)	19,789	21,245	7.36%
			Old Greasby Road	8,697	9,188	5.65%
			Upton By-pass (south)	17,806	18,750	5.30%
			B5139 Greasby Road	18,823	20,225	7.45%
	8	Upton By-Pass/A551/A5027/Upton Retail Park Rbt	A551 Arrowe Park Road (north)	9,377	10,045	7.12%
			A5027 Upton Road	15,182	16,203	6.72%
			A551 Arrowe Park Road (south)	20,288	21,745	7.18%
			Upton Retail Park	11,366	12,058	6.09%
			Upton By-pass	17,682	18,598	5.18%
	9	Upton By-Pass/M53 Moreton Spur Rbt	Spur to Moreton Road (north)	1,671	1,772	6.05%
			M53	14,813	15,712	6.07%
			Spur from Moreton Road (south)	1,368	1,452	6.16%
			Upton By-pass	11,275	12,034	6.73%
	10	B5192 Saughall Massie Road/Upton By-pass	Upton By-pass (north)	23,398	24,928	6.54%
			B5192 Saughall Massie Road	18,745	19,701	5.10%
			Upton By-pass (south)	15,313	16,455	7.46%
Woodchurch (Arrowe Park)	11	Arrowe Park Rd/Arrowe Brook Rd	A551 Arrowe Park Road (north)	19,359	20,772	7.30%
			Arrowe Brook Road	13,791	15,590	13.05%
			A551 Arrowe Park Road (south)	21,341	23,581	10.50%
	12A	Arrowe Park Rd/Arrowe Park Hospital (Northern Junction)	A551 Arrowe Park Road (north)	21,977	24,351	10.80%
			Hospital (Northern Access)	5,455	5,817	6.63%
			A551 Arrowe Park Road (south)	19,053	21,191	11.22%
	12B	Arrowe Park Rd/Arrowe Park Hospital (Southern Junction)	A551 Arrowe Park Road (north)	18,954	21,087	11.25%
			Hospital (Southern Access)	11,110	11,950	7.56%
			A551 Arrowe Park Road (south)	24,353	27,040	11.03%
	13	A552/Arrowe Park Rd/Church Lane	Church Lane	4,801	5,039	4.96%
			A552	30,028	33,817	12.62%
			A551 Arrowe Park Road (south)	22,794	26,445	16.02%
			A551 Arrowe Park Road (west)	22,906	25,371	10.76%
	14	A552/Ackers Rd	Ackers Road	11,412	11,979	4.97%
			A552 (east)	40,453	44,759	10.64%
			A552 (west)	29,346	33,101	12.80%
	15	A552/ASDA	ASDA	5,618	5,894	4.91%
			A552 (east)	40,700	45,018	10.61%
			A552 (west)	40,406	44,710	10.65%
Irby/ Thurstaston	16A	Site A Access/Thingwall Rd (Eastern Junction)	Eastern Site Access	-	889	-
			Thingwall Road (east)	7,139	9,125	27.81%
			Thingwall Road (west)	7,139	8,382	17.41%
	16B	Site A Access/Thingwall Rd (Western Junction)	Western Site Access	-	889	-
			Thingwall Road (east)	7,139	8,382	17.41%
			Thingwall Road (west)	7,139	7,628	6.85%
	17	Thingwall Rd/Whaley Ln	Thingwall Road (east)	6,978	8,866	27.06%
			Whalley Road	2,874	3,186	10.85%
			Thingwall Road (west)	7,684	9,697	26.19%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
Thingwall	18	Arrowe Park Rd/Landican Cemetery	Arrowe Park Road (north)	22,877	26,532	15.97%
			Landican Cemetery	852	894	4.90%
			A551 Arrowe Park Road (south)	22,412	26,045	16.21%
	19	Arrowe Park Rd/Thingwall Rd Rbt	A551 Arrowe Park Road (north)	22,583	26,223	16.12%
			A551 Barnston Road	9,320	11,121	19.33%
			B5138 Thingwall Road East	17,435	20,011	14.77%
	20	B5138 Pensby Rd/Thingwall Rd	B5138 Thingwall Road East	16,496	18,887	14.49%
			B5138 Pensby Road	11,159	11,822	5.94%
			Thingwall Road	5,927	7,683	29.64%
	21	B5138 Pensby Rd/Whaley Lane	B5138 Pensby Road (north)	12,321	13,042	5.85%
			Whalley Road	12,421	13,316	7.20%
			B5138 Pensby Road (south)	2,491	2,783	11.73%
Pensby/Barnston	22A	Site B Access/Gills Lane	Site Access	-	558	-
			Gills Lane (east)	3,755	4,579	21.95%
			Gills Lane (west)	3,755	4,202	11.90%
	22B	Site C Access/Gills Lane	Site Access	-	84	-
			Gills Lane (east)	3,755	4,573	21.78%
			Gills Lane (west)	3,755	4,573	21.78%
	22C	Site D Northern Access/Barnston Road	Northern Site Access	-	374	-
			Barnston Road (north)	8,137	9,396	15.48%
			Barnston Road (south)	8,137	9,359	15.02%
	22D	Site D Southern Access/Barnston Road	Southern Site Access	-	198	-
			Barnston Road (north)	8,137	9,325	14.60%
			Barnston Road (south)	8,137	9,325	14.60%
	23	A551 Barnston Rd/Gills Lane	Barnston Road (north)	9,019	10,524	16.69%
			Gills Lane	3,669	4,401	19.95%
			Barnston Road (south)	11,791	13,332	13.07%
	24	B5138 Pensby Rd/Fishers Lane/Gills Lane	B5138 Pensby Road (north)	11,371	12,187	7.18%
			Gills Lane	3,424	3,854	12.57%
			B5138 Pensby Road (south)	9,914	10,776	8.69%
			Fishers Lane	3,934	4,245	7.90%
	25	A551 Barnston Rd/Storeton Lane	A551 Barnston Road (north)	11,385	12,905	13.35%
			Storeton Lane	6,797	7,228	6.34%
			A551 Barnston Road (south)	12,414	13,904	12.00%
	26	B5138 Pensby Rd/Downham Rd	B5138 Pensby Road (north)	8,867	9,664	8.99%
			Downham Road	2,910	3,054	4.95%
			B5138 Pensby Road (south)	7,142	7,853	9.96%
Heswall	27A	Site E Northern Access/A551 Barnston	A551 Barnston Road (north)	11,685	12,265	4.97%
			Northern Site Access	-	0	-
			A551 Barnston Road (south)	11,685	12,265	4.97%
	27B	Site E Southern Access/A551 Barnston	A551 Barnston Road (north)	12,830	13,934	8.61%
			Southern Site Access	-	291	-
			A551 Barnston Road (south)	12,830	13,584	5.88%
	27C	Site E Access/Milner Road	Site Access	-	62	-
			Milner Road (east)	5,831	6,194	6.23%
			Milner Road (west)	5,831	6,217	6.61%
	28		A551 Barnston Road (north)	13,399	14,375	7.28%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
		A551 Barnston/Milner Rd	Milner Road	6,285	6,619	5.32%
			A551 Barnston Road (south)	9,908	10,733	8.33%
	29	B5138 Pensby Rd/Irby Rd	B5138 Pensby Road (north)	7,056	7,763	10.02%
			B5138 Pensby Road (south)	9,408	10,277	9.23%
			Irby Road	5,285	5,592	5.80%
	30	B5138 Pensby Rd/Grange Rd/Whitfield Lane	B5138 Pensby Road (north)	9,408	10,282	9.29%
			Whitfield Lane	3,841	4,094	6.58%
			B5138 Pensby Road (south)	7,252	7,974	9.96%
			Grange Road	1,087	1,146	5.46%
	31	A551 Barnston Rd/Whitehouse Lane	A551 Barnston Road (north)	12,789	14,300	11.81%
			Whitehouse Lane	4,089	5,018	22.73%
			A551 Barnston Road (south)	12,830	14,153	10.31%
	32	A5137 Brimstage Rd/Whitehouse Lane	A5137 Brimstage Road (east)	9,427	10,553	11.94%
			A5137 Brimstage Road (south)	5,264	5,524	4.94%
			Whitehouse Lane	4,197	5,064	20.65%
	33	A540 Telegraph/B5138 Pensby Rd/The Mount	B5138 Pensby Road	5,372	6,008	11.84%
			Telegraph Road (east)	13,734	14,551	5.95%
			The Mount	3,427	3,724	8.67%
			Telegraph Road (west)	12,567	13,316	5.96%
	34	A5137 Brimstage Rd/A551 Barnston Rd	A551 Barnston Road (north)	10,426	11,278	8.17%
			A5137 Brimstage Road	6,786	7,123	4.97%
			A551 Barnston Road (south)	16,864	18,035	6.94%
	35	A540 Telegraph Rd/A540 Chester Rd	A551 Barnston Road	16,864	18,035	6.94%
			A540 Chester Road	19,793	21,126	6.73%
			Shell Garage	1,550	1,626	4.93%
			A540 Telegraph Road	19,793	20,790	5.04%
Birkenhead	36	A552 Borough Rd/Singleton Avenue	Borough Road (north)	14,251	15,363	7.80%
			Borough Road (south)	8,563	8,989	4.98%
			Singleton Avenue	8,407	9,229	9.78%
	37	A552/Storeton Rd/Singleton Avenue	Storeton Road (north)	12,945	13,685	5.72%
			Singleton Avenue	14,699	15,833	7.72%
			Storeton Road (south)	15,330	16,177	5.52%
			A552 Woodchurch Road	15,092	16,404	8.69%
	38	A552/Holmlands Drive/Prenton Hall Road	Holmlands Drive	3,345	3,527	5.43%
			A552 Woodchurch Road (east)	20,353	21,922	7.71%
			Prenton Hall Road	7,592	7,982	5.14%
			A552 Woodchurch Road (west)	26,823	28,742	7.15%
Bebington	39	A5137 Brimstage Rd/Spital Rd/Poulton Rd/B5136 Church Rd	B5136 Church Road	11,495	12,205	6.17%
			B5137 Spital Road	11,903	12,597	5.83%
			Poulton Road	11,640	12,357	6.16%
			B5137 Brimstage Road	20,475	21,696	5.96%
Bromborough	40	Allport Rd/Greenfield Ave/Plymyard Ave	Greenfield Avenue	1,895	1,989	4.97%
			Allport Road (east)	9,065	9,923	9.47%
			Plymyard Avenue	5,225	5,505	5.36%
			Alport Road (west)	9,476	10,376	9.50%
	41	Allport Rd/Allport Ln/Bridle Ln	Allport Lane	5,809	6,145	5.78%
			Allport Road (east)	6,566	7,050	7.36%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
			Bridle Lane	6,017	6,517	8.31%
			Allport Road (west)	8,397	9,222	9.82%

6.6.7 Table 6.12 demonstrates that all links are within the 30% assessment threshold. In consideration of this and in accordance with the EIA Guidance, all links can be considered to be subject to a **Not Significant** environmental impact, unless they are considered particularly sensitive links. In these such cases, further assessment should be considered.

6.6.8 Table 6.12 above demonstrates the following links breach the 10% threshold impact threshold, and therefore should be considered for additional assessment if they are deemed particularly sensitive:

- M53 Junction 3 (northbound on-slip);
- B5137 Brimstage Road at its junctions with the M53 J4 and Whitehouse Lane;
- Arrowe Road adjacent to the potential Site H access points, to the east of its junction with Greasby Road and to the west of its junction with Arrowe Brook Lane;
- Greasby Road, north of its junction with Arrowe Road;
- Arrowe Brook Road east of its junction with Arrowe Brook Lane and west of its junction with Arrowe Park Road;
- A551 Arrowe Park Road at its junctions with Arrowe Brook Road, Arrowe Park Hospital access points, Church Lane, Landican Cemetery;
- A552 to the east of its junction with Church Lane, Ackers Road and ASDA;
- Thingwall Road adjacent to the proposed Site A access points and at its junctions with Whalley Road and B5138 Pensby Road;
- Whalley Road south of its junction with Thingwall Road;
- A551 Barnston Road south of its junction with A551 Arrowe Park Road;
- B5138 Thingwall Road East at its junctions with A551 Arrowe Park Road and B5138 Pensby Road;
- B5138 Pensby Road at its junctions with Whalley Road, Irby Road and Telegraph Road;
- Gills Lane adjacent to the proposed Site B, C and D access points and at its junctions with A551 Barnston Road and Fishers Lane;
- A551 Barnston Road adjacent to the proposed Site D access points and at its junctions with Gills Lane, Storeton Lane and Whitehouse Lane; and

- Whitehouse Lane at its junctions with A551 Barnston Road and A551 Barnston Road.

6.6.9 Following a thorough review of the above links, there is nothing to suggest any specific link should be considered sensitive in the context of the EIA guidance. On this basis, it considered all links would be subject to a **Negligible** effect, and do not require further assessment.

6.6.10 Furthermore, it has been demonstrated throughout the accompanying Transport Assessment, document reference 078244-CUR-00-XX-RP-TP-001, that the Site is situated in an accessible location with suitable access to existing public transport provisions (WBC Local Plan Policy TR1). The Proposed Development includes a pedestrian/cycle link to Blakeley Road through Site G.

6.6.11 Leverhulme owns much of the land along the centre of the Wirral peninsula between its more urban areas in the east and west, and are keen to leave a positive legacy on the Wirral. Leverhulme is in an excellent position to assist the region with the development of transport infrastructure improvements (WBC Local Plan Policy TR2).

6.6.12 It has been demonstrated throughout the accompanying Cumulative Transport Assessment, document reference 077829-CUR-00-XX-RP-TP-002, that the residual cumulative impacts of the Proposed Development and other proposed Leverhulme Estate Cumulative Development Projects would not be 'severe' from a highways and transportation perspective (WBC Local Plan Policy TR3).

Inter-project Effects - Cumulative Mitigation

6.6.13 Notwithstanding the conclusion that all links considered within this chapter would be subject to a **Negligible** effect and do not require further assessment, the accompanying Cumulative Transport Assessment provides additional performance analysis of the affected highway network.

6.6.14 As a result of this analysis, mitigation is proposed as per the following schemes A – E. Full details are provided within the accompanying Cumulative Transport Assessment, document reference 077829-CUR-00-XX-RP-TP-001. However, in summary, the improvements above ensures the cumulative impact of the eight proposed development sites have the following impacts on capacity and junction operation:

- A: Arrowe Road/Arrowe Brook Lane
- B: A551/A552 Corridor
- C: Arrowe Park Road/Thingwall Road Roundabout
- D: B5138 Pensby Road/Thingwall Road East
- E: A551 Barnston Road/Storeton Lane

6.6.15 These schemes are further discussed in Table 6.13. Initial triggers for the mitigation schemes have also been included for information, although these are subject to change. Drawings referred to within the improvement description are presented within the Cumulative Transport Assessment, and reproduced in Appendix 6.3.

Table 6.13 – Proposed Cumulative Development Mitigation/Improvements

Proposed Mitigation		Improvement Description	Trigger
A:	Arrowe Road/Arrowe Brook Lane	**Drawing 77829-CUR-00-XX-DR-TP-75006** • Segregated left and right turn lanes along Arrowe Brook Lane using land under the ownership of Leverhulme. • A central island to channel traffic. • Retention of the existing lay-by through kerb amendments and hatching.	Site H is approved. Mitigation should be in place before 50% of dwellings are constructed and occupied.
B:	A551/A552 Corridor	SCOOT signal timings technology at the following junctions along the A551/A552 corridor: • Arrowe Park Rd/Arrowe Park Hospital (northern junction) • Arrowe Park Rd/Arrowe Park Hospital (southern junction) • A552/Arrowe Park Rd/Church Lane • Arrowe Park Rd/Landican Cemetery • Arrowe Park Rd/Golf Club and Toby Carvery To include any detector loops and signalling technology as required.	Any two or more of the following are approved: • Site H • Site A • Site D Mitigation should be in place before 50% of the total dwellings across the first two sites are constructed and occupied. - - - Or - - - Any three or more of the following are approved: • Site H • Site A • Site B • Site D • Site E Mitigation should be in place before 50% of the total dwellings across the first three sites are constructed and occupied.
C:	Arrowe Park Road/Thingwall Road Roundabout	**Drawing 77829-CUR-00-XX-DR-TP-75004** • Segregated straight-ahead lane from Arrowe Park Road to Barnston Road so that southbound movements can by-pass the roundabout;	Site A plus any two or more of the following are approved: • Site H • Site B • Site D

Proposed Mitigation		Improvement Description	Trigger
		• New or improved pedestrian crossing facilities. • New or improved bus stop facilities. • Retention of the existing access arrangement into Torrington Drive. • Retention of the existing off-road cycleway along the eastern side of the junction.	• Site E Mitigation should be in place before 50% of the total dwellings across the first three sites (which will include Site A) are constructed and occupied.
D:	B5138 Pensby Road/Thingwall Road East	**Drawing 77829-CUR-00-XX-DR-TP-75005** • New dedicated left and right turn lanes along Thingwall Road East. • Realigned and improved pedestrian refuge island across Thingwall Road East. • Ghost Island Right Turn pocket along the B5138.	Site A is approved. Mitigation should be in place before 50% of dwellings are constructed and occupied.
E:	A551 Barnston Road/Storeton Lane	**Drawing 77843-CUR-00-XX-DR-TP-75006** Widening of Storeton Lane using land under the ownership of Leverhulme to ensure two-way traffic movement is maintained along Storeton Lane.	Any one or more of the following are approved: • Site B • Site D • Site E Mitigation should be in place before 50% of the total dwellings across the one or more sites are constructed and occupied.

6.6.16 In summary, the improvements above ensures the cumulative impact of the eight proposed development sites have the following impacts on capacity and junction operation:

- A: Arrowe Road/Arrowe Brook Lane – **Minor Beneficial, Permanent, Direct (Not Significant)**
- B: A551/A552 Corridor – **Minor Beneficial, Permanent, Direct (Not Significant)**
- C: Arrowe Park Road/Thingwall Road Roundabout – **Major Beneficial, Permanent, Direct (Significant)**
- D: B5138 Pensby Road/Thingwall Road East – **Minor Adverse/Negligible, Permanent, Direct (Not Significant)**
- E: A551 Barnston Road/Storeton Lane – **Minor Beneficial, Permanent, Direct (Not Significant)**

6.6.17 The overall assessment of the proposed cumulative development mitigation schemes (assuming that all are delivered) is considered to be **Minor Beneficial, Permanent, Direct (Not Significant)**.

Intra-project Effects

6.6.18 The additional vehicular traffic and proposed mitigation/improvements associated with the construction and operation phases will have temporary and permanent impacts respectively on emissions; air quality (air pollution) and noise.

6.6.19 As demonstrated and discussed throughout this Technical Chapter, it is not considered that any of the effected links would experience an increase in traffic in excess of 30%. In consideration of this and in accordance with the EIA Guidance, all links can be considered to be subject to an insignificant environmental impact, unless they experience an increase in traffic in excess of 30% and are considered particularly sensitive links. For those links there is nothing to suggest any specific link should be considered sensitive in the context of the EIA guidance.

6.6.20 Therefore, no further transport assessment is required. On this basis, such impact is considered **Not Significant** from a transport technical perspective.

6.6.21 Impacts on emissions and air quality is considered further in the Air Quality Chapter, completed by SLR at Chapter 10. The overall assessment of the Proposed Development Site is considered by SLR to be **Negligible** and therefore considered to be **Not Significant** in terms of EIA.

6.6.22 Impacts on noise/acoustics is considered further in the Acoustics Chapter, also completed by SLR at Chapter 9. The overall assessment of the eight proposed Leverhulme sites (assuming that all are delivered) is considered to be **Negligible** and therefore considered to be **Not Significant** in terms of EIA.

6.7 List of Abbreviations

Abbreviations	
AADT	Average Annual Daily Traffic
ATC	Automatic Traffic Count
C-Factor	Covid Traffic Adjustment Factor
CIHT	Chartered Institute of Highways and Transportation
EIA	Environmental Impact Assessment
ES	Environmental Statement
HGV	Heavy Goods Vehicle
IEA	Institute of Environmental Assessment
NCN	National Cycle Network
NH	National Highways
NPPF	National Planning Policy Framework
TEMPro	Trip End Model Presentation Program
TRICS	Trip Rate Information Computer System
UDP	Unitary Development Plan
WBC	Wirral Borough Council

6.8 List of References

Unitary Development Plan, Wirral Metropolitan District Council (2000).

Ministry of Housing, Communities & Local Government (2021) *National Planning Policy Framework*, London, Crown Copyright.

Institute of Environmental Assessment (1993) *Guidelines for the Environmental Assessment of Road Traffic*, IEA, Lincoln.

Local Plan, Wirral Metropolitan District Council (unpublished in final form - emerging).

Environmental Impact Assessment
Chapter 7: Landscape and Visual Amenity

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

April 2022

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Statement of Competency

Nic Folland (Director/Landscape Architect), BA (Hons), Dip LA, CMLI

Nic has provided landscape planning and urban design-related consultancy services to local authorities, public companies and private clients for over 20 years and has been called upon for professional advice regarding the assessment of landscape and visual effects and the detailed design and management of a wide variety of developments. Nic has considerable experience in the design and assessment of residential and other development and on numerous occasions, has prepared and presented evidence as an expert witness at Public Inquiries and hearings for both appellants and Local Planning Authorities.

Paul Gray (Landscape Architect), BA (Hons), CMLI

Paul is a Landscape Architect with an extensive portfolio covering all elements of landscape and urban design developed from working within both public and private sectors. He has a wealth of experience on a variety of residential and commercial developments from conception, through the planning process to construction and management stages. Paul specialises in Landscape Visual Impact Assessments and inputs into Environmental Statements for schemes at a range of scales. He has worked on numerous appeals and appeared as an expert witness defending all matters relating to landscape. He has conducted various modules on streetscape and public realm, as well as Landscape and Visual impact at Manchester Metropolitan University for the Landscape Architecture course.

7 Landscape and Visual Amenity

7.1 Introduction

7.1.1 Barnes Walker Ltd has prepared this Landscape and Visual Amenity Chapter on behalf of Leverhulme Estates Limited, to accompany their planning application for residential development upon the Application Site, which is located on land to the west of Raby Hall, Raby Hall Road, Raby Mere (hereafter referred to as the 'Site').

7.1.2 This Landscape and Visual Impact Assessment has been undertaken by Chartered Members of the Landscape Institute and its key objectives are to provide an indication of the potential landscape and visual effects associated with the Proposed Development, whilst concurrently informing the design process for the Site.

7.2 Policy and Legislative Context

National Planning Policy Framework

7.2.1 Since March 2012 the National Planning Policy Framework (NPPF) has replaced the Planning Policy Guidance (PPG's) and Planning Policy Statements (PPS's). The NPPF distils the content of these documents into a single comprehensive and concise document and now represents relevant planning policy at a national level.

7.2.2 The original version of the 2012 NPPF has been revised since and the latest iteration was published in July 2021. The revised Framework contains 17no sub-sections and the following sections are considered to be of particular relevance to this assessment.

- Section 12: Achieving Well-Designed Places; and
- Section 15: Conserving and Enhancing the Natural Environment.

<u>Section 12: Achieving Well Designed Places</u>

7.2.3 Paragraph 126 states *'The creation of high-quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities.'*

7.2.4 Paragraph 130 states that policies and decisions should ensure that developments *'are sympathetic to local character and history, including the surrounding built environment and landscape setting…'*

Section 15: Conserving and Enhancing the Natural Environment.

7.2.5 Paragraph 174 states *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate.'

National Planning Policy Guidance

7.2.6 The NPPF is supplemented by Planning Practice Guidance, which incorporates elements of relevance to this LVIA. In addition to design related recommendations, the Planning Policy Guidance also incorporates issues related to the Natural Environment that reinforces the NPPF's commitment to recognising the intrinsic character and beauty of the countryside and supports the use of landscape character assessment as a tool for understanding local distinctiveness and the use of Natural England's guidance on landscape character assessment.

Local Planning Policy

7.2.7 WBC are currently preparing a new Local Plan for the plan period of 2020 to 2035. A Local Plan Issues and Options (Regulation 18) consultation was undertaken in early 2020. No draft (Regulation 19) iteration of the plan has been published to date.

7.2.8 Current adopted local planning policy is therefore contained within the Unitary Development Plan (adopted February 2000), the majority of which was 'saved' to remain in force by a direction issued by the Secretary of State on 18th December 2007.

7.2.9 The following UDP Policies are considered to be of relevance to the Site and its landscape context:

Table 7.1 – Relevant Current UDP Policies

WBC Unitary Development Plan 'saved' Policies	Policy Text
Policy GBT1: Green Belt Strategic Policy	The establishment of Green Belts around major cities has been promoted by the Government since the 1950's to check the unrestricted sprawl of large built-up areas, safeguard the surrounding countryside from further encroachment, prevent neighbouring towns from merging into one another, preserve the special character of historic towns and to assist in urban regeneration. Of these, the Green Belt in Wirral supports all except the preservation of the character of historic towns. The present boundaries of the Green Belt in Wirral as proposed in the Merseyside Structure Plan, were established in December 1983. The justification remains as valid now as it was then, in that it supports the main UDP themes of: - concentrating development and investment within the existing urban areas; and - improving the quality of the environment in the most blighted areas whilst protecting the environment elsewhere in the Borough. Recently there has been great pressure for urban development in Wirral's areas of countryside. A Green Belt has been considered, since the 1961 West Cheshire Green Belt, as essential to ensure that the countryside is protected from urban sprawl, and that settlements retain their individual identity. Strategic Guidance for Merseyside restated the importance of Green Belt in Merseyside and concluded that there is no need for a general review but that the preparation of UDPs provides the opportunity to give precision to the detailed boundaries of the Green Belt where those have not yet been clearly defined
Policy GB2 – Guidelines for Development in the Green Belt	Within the Green Belt there is a general presumption against inappropriate development and such development will not be approved except in very special circumstances. Planning permission will not be granted for development in the Green Belt unless it is for the purposes of: i) Agriculture and forestry; ii) Essential facilities for outdoor sport and outdoor recreation, for cemeteries, and for other uses of land which preserve the openness of the Green Belt and do not conflict with the purposes of including land within it; iii) The limited extension, alteration or replacement of existing dwellings, subject to Policy GB4 and Policy GB5; iv) The limited infilling in existing villages, subject to Policy GB6, including limited affordable housing subject to local community needs;

	v) The limited infilling or redevelopment of major existing developed sites identified under Proposal GB9; Such appropriate development shall not damage the visual amenities of the Green Belt by virtue of its siting, materials or design.
Policy GRE1 – The Protection of Urban Greenspace	The Local Planning authority will regulate the supply and distribution of accessible public open space and other land with amenity value by protecting a network of open spaces which are close to where people live, locate within a comfortable walking distance from their homes, and which provide for a range of recreational opportunities within each area of the borough. Within the urban area the Local Planning Authority will in particular protect from inappropriate development: (i) Areas of mature parkland; (ii) Areas suitable to accommodate a range of formal or informal recreational pursuits, including pitch sports; (iii) Linear parks and walkways giving off-road access by foot through the urban area or linking urban open spaces; and (iv) Areas of visual importance to the locality or wider area (with or without direct public access).
Policy GR5 – Landscaping and New Development	In order to secure the protection and enhancement of visual amenity the Local Planning Authority will require applicants to submit full landscaping proposals before full planning permission is granted. Proposals should: I. Include a clear specification of landscaping proposals indicating the species mix, the location, height and density of new planting, as well as areas of new ground modelling or other land features proposed. II. Be appropriate in terms of the nature and location of the development proposed, the visual prominence of the site, the potential visual impact of the development and the character of the surrounding area. III. Provide for new planting and for the protection, replacement or enhancement of existing features such as ponds, trees, bushes, shrubs or hedges including, where relevant, appropriate boundary treatment and provision for the protection of wildlife; and Take full account of the effect of proposals on visibility at access points, the effect of local climatic influences and the potential for misuse or erosion which may affect the appropriateness of landscaping proposals.
Policy GR6 – Greenspace within New Family Housing Development	Proposals for new family housing development, defined as houses with two or more bedrooms, will be required to provide greenspace at an overall level of 60 square metres for every new dwelling constructed and will require within this overall requirement, to make specific provision for safe children's play.

	Greenspace provided under Policy GR6 should be accessible public open space, clearly set out for the purpose of visual amenity and local recreation and should: I. Relate well to the existing network of accessible public open space within the locality; II. Provide for the retention or creation of linear links throughout the area; III. Make provision for the planting of trees, and for the retention and enhancement of existing landscape features such as ponds, trees and woodlands; IV. Incorporate a larger area of open space suitable for active recreational use; and V. Be designed and located in order to minimise the potential disturbance to neighbouring property. The requirements of Policy GR6 will not be held to apply to proposals: a) Comprising 35 dwellings or less, unless the proposal forms part of a wider residential development area which would in total exceed 35 new dwellings; or Where the dwellings constructed would fall within 400 metres of an existing accessible public open space of 1.5 hectares of above.
Policy GR7 – Trees and New Development	In assessing the protection to be given to trees on development sites the Local Planning Authority will consider the general health, structure, size and life expectancy of trees, their visual value within the locality and their value for nature conservation and will require that buildings, structures and hard surface areas are sited in order to: I. Substantially preserve the wooded character of the site or of the surrounding area; II. Provide for the protection of trees of greatest visual or wildlife value and other vigorous healthy trees; III. Ensure that trees to be retained have adequate space in order to prevent damage to their canopy or root structures during construction and to allow for the future growth of canopy and roots to normal mature sizes; IV. Prevent the removal of trees by occupiers of the development to obtain reasonable sunlight to habitable rooms, secure an open unshaded garden area, or to remove perceived dangers to life and property; and V. Protect trees on adjacent land which may be affected by the development proposed; Applications should include detailed plans showing the location of individual trees to be affected by the development proposed, together with information related to trunk girth, species mix, height, canopy spread and general health and condition. Trees to be felled should be clearly indicated. Where development involving the loss of trees is to be permitted, the Local Planning Authority will, as a condition of planning

	consent, require replacement trees to be planted elsewhere on the site where this is required in order to protect or preserve local amenity. Planning conditions will include provision for the future maintenance of newly planted stock, including the replacement of failures, until the newly planted stock is established and capable of normal unaided growth; and during the construction period, measures related to the protection of trees to be retained. Work to trees, including felling, removal, thinning and crown lifting should be completed prior to construction commencing in accordance with scheme of work agreed in advance with the Local Planning Authority.
Policy LAN1 – Principles for Landscape	In considering proposals for development, the Local Planning Authority will have regard to the visual impact upon the local and wider landscape and will in particular: (i) Protect landscapes of special character, identified as areas of special landscape value; and (ii) Promote the improvement and enhancement of damaged landscapes, identified as areas requiring landscape renewal. Proposals will not be permitted where their visual impact would be inappropriate, in terms of the character, appearance and landscape setting of the surrounding area.
Policy LA1 – Protection for areas of Special Landscape Value	The Local Planning Authority will protect the character and appearance of areas designated as Areas of Special Landscape Value from the adverse effects of development and will not permit proposals which would: (i) Introduce new intrusive development within an otherwise open setting, especially along a prominent skyline or along the undeveloped coast: or (ii) Result in the loss or erosion of distinctive landscape features, such as woodlands, hedges or trees, without appropriate replacement provision; and (iii) Other proposals which, in terms of their siting, scale form and external appearance, would detract from the appearance of the Area or intrude within important views into or out of the Area. Proposals for public utilities, telecommunications apparatus, the working of minerals or landfilling of waste, may be permitted where they would not cause unacceptable impact.
Policy LA7 – Criteria for Development at the Urban Fringe	When considering new development at the edge of the urban area or in other locations which would be clearly visible for the open countryside, the Local Planning Authority will pay special regard to the visual impact of the proposals and will require that: (i) New buildings are sited, designed and landscaped, in order to minimise visual intrusion. (ii) Proposals for boundary treatment are appropriate, in terms of the character of the surrounding landscape; and

	Prominent features within the landscape framework of the area are retained and enhanced.
Policy NC01 – Principles for Nature Conservation	The Local Planning Authority will only permit proposals which will not adversely affect, directly or indirectly, the integrity of the Borough's international, national and locally designated sites for nature conservation and earth science. In considering the weight to be attached to nature conservation or earth science issues when assessing planning applications, the local planning authority will have regard to the relative significance within Wirral of international, national and local nature conservation designations. Wherever possible networks of linear natural habitat and other corridors of importance to wildlife will also be retained and protected.
Policy NC5 – The Protection of Sites of Local Importance for Nature Conservation	Outside areas protected under Policy NC1 and Policy NC3 the Local Planning Authority will protect habitats of special local importance for nature conservation where they represent scarce, rare or threatened habitat, good examples of habitats typical to Wirral, diverse or rich habitats which actively support a wide range of important species, or areas known to provide for the shelter, breeding or foraging of legally protected species. In evaluating proposals which may affect such habitats the Local Planning Authority will in particular consider: (i) The nature, layout and density of development proposed; (ii) The impact on the long-term ecological viability of the habitat affected; (iii) The appropriateness of measures taken to minimise damage to the habitat and disturbance to wildlife; and (iv) The appropriateness of provision for the future maintenance of the site. Development affecting such habitats will only be permitted where the Local Planning Authority is satisfied that the continued ecological viability of the habitat or wildlife interest of the site can be adequately safeguarded by means of appropriate conditions and/or legal agreements. Appropriate conditions will include, where necessary, the requirement to provide an adequate "buffer zone" of a scale and nature appropriate to the interest to be protected and the retention of linkages to other wildlife sites within the surrounding area.
Policy NC6 – Sites of Biological Importance	The following sites are areas of special local importance for nature conservation. Their boundaries are shown on the Proposals Map. Proposals which have potential to damage or disturb the habitat or wildlife, interest of these sites will be dealt in accordance with Policy NC5 *(the following sites have been compiled from the 70+ sites which are listed within the policy listing. Sites below are located on or within proximity to the application site)* 43. Raby Mere 44. The Marfords, Brookhurst 45. Bromborough Golf Course Pond 47. Plymyard Dale, Brookhurst

Supplementary Planning Documents

7.2.10 WBC has four adopted Supplementary Planning Documents: SPD1 for the design of mobile phone installations, SPD2 for the design of self-contained flats, SPD3 hot food takeaways and restaurants etc and SPD4 parking standards.

7.2.11 WBC are currently preparing four new Supplementary Planning Documents (SPDs), which will update and replace existing SPDs. These are being prepared in tandem with the preparation of the new Local Plan for the plan period of 2020 to 2035.

7.2.12 The SPD – Residential Development will provide detailed planning guidance to supplement adopted planning policies for all types of residential development. It is anticipated that the Residential Development SPD will deal with the following issues: Design Objectives, Suitable Locations, Site Appraisal, Layouts, Designing Buildings, Landscaping, Residential amenity and Planning Contributions.

7.3 Methodology and Assessment Criteria

Scope of the Assessment

7.3.1 This assessment has been undertaken with reference to, and using aspects of, the Guidelines for Landscape and Visual Impact Assessment -Third Edition 2013 (referred to as GLVIA3 hereafter), by the Landscape Institute and the Institute of Environmental Management and Assessment.

7.3.2 The full methodology used is set out within Appendix 7.1.

7.3.3 GLVIA3 recommends five stages to the method of assessment of landscape and visual effects as follows:

- Scope;
- Establishing the landscape and visual baseline;
- Predicting and describing landscape and visual effects;
- Assessing the significance of landscape and visual effects; and
- Judging the overall significance of landscape and visual effects.

7.3.4 In order to prepare this document, a desk top study and a subsequent site-based survey and assessment exercise were undertaken. This work informed the preparation of the Landscape and Visual Baseline which establishes the nature of the Site and the

surrounding landscape and townscape, confirms any relevant landscape character assessments and describes relevant planning policy and heritage assets before ascertaining who currently experiences a view of the Site. The assessment then goes on to describe the development proposals before ascertaining any potential landscape and visual effects which may result from the implementation of the proposals.

7.3.5 Landscape effects are the effects which may be generated by the Proposed Development on the landscape resource, which include its physical features, character, fabric and the quality of the landscape. These could include direct, physical effects upon landscape elements, such as the loss of a tree or tangible effects to an existing landscape character.

7.3.6 Visual effects are the predicted changes to a view and the associated effect of those changes on the relevant visual receptors. Typically, the various visual receptor groups comprise the residents of properties, the users of Public Rights of Way, the users of recreational facilities, pedestrians, and users of a variety of forms of transport such as road users.

7.3.7 The Location and context of the Site and the study area associated with this LVIA is described by Figure 1, Appendix 7.2.

Scoping

7.3.8 Initial scoping identified the Study Area for the assessment, which was established by undertaking a desk-based survey, the preparation of a Zone of Theoretical Visibility (ZTV – see Figure 7 - Appendix 7.2) and refined by subsequent site-based survey work.

7.3.9 The site-based work was undertaken by a chartered member of the Landscape Institute with experience of landscape and visual assessment.

7.3.10 The study area therefore includes the Site and the wider landscape which could be influenced by the development proposals and the extent of the area from which the development is potentially visible.

7.3.11 This desk and subsequent site-based work also established the representative viewpoints for the visual assessment. The representative viewpoints, scope and the methodology were presented within a Landscape and Visual Impact Scoping Report, which was submitted to Wirral Metropolitan Borough Council (WBC).

7.3.12 The assessment is based on the Illustrative Landscape Framework and Parameter Plan (Appendix 7.3). It is assumed that the plans submitted with this application would be conditioned as part of the outline planning approval.

7.3.13 The assessment considers daytime effects during construction, upon completion and upon maturity of structural woodland planting (15 years post planting). The Illustrative Landscape Framework Plan and Parameter Plan include primary mitigation measures which are embedded into the project design and have been developed through an iterative design process. The assessment at initial completion of the development takes account of the fact that the additional planting and enhancements to the boundary and woodlands shown on the Illustrative Landscape Framework Plan and Parameters Plan would not be fully established and would not have reached heights to provide effective visual screening.

7.3.14 For the purposes of this assessment the height of the additional tree planting 15 years post planting is assumed to be at least 8m. The 15 year post planting assessment represents the residual effects.

Significance Criteria

7.3.15 The effects of the Proposed Development on the landscape and visual receptors will be described as being of Major, Moderate, Minor, or Negligible significance, and the scale at which any effects may be considered to be significant will be identified. Effects may be either beneficial (positive) or adverse (negative).

7.3.16 Effects that are generally deemed to be significant for the purposes of this assessment, are those that are described as being of a Major or Moderate/Major or Moderate beneficial or adverse level. Minor/Moderate, Minor, Negligible/Minor or Negligible effects are not considered to be significant.

7.4 Existing Baseline Conditions

The Application Site

7.4.1 Figure 1 (Appendix 7.2) shows the Site locations and boundaries. Figure 5 (Appendix 7.2) includes site photographs A, B, C and D. These photographs describe the Site in its context and illustrate the relationship between the Site and the surrounding land uses and levels of enclosure provided by the boundary vegetation.

7.4.2 The Site comprises a rectilinear, arable field extending to approximately 3.30ha and lies to the west of the settlement edge of Raby Mere and Bromborough. It lies to the north of Raby Hall Road and the east of the M53.

7.4.3 The northern and eastern boundaries adjoin the Raby Hall School (Autism Together) complex whilst the southern boundary is directly defined by Raby Hall Road and to the west by a tract of trees and shrubs that widens towards the motorway (Group 4 see Tree Survey by Tyler Grange). Bromborough Golf Course is located directly to the south of the Site, on the south side of Raby Hall Road.

7.4.4 The Site is rectangular shaped agricultural field that gently falls from its highest point at its north-east corner (circa 36m AOD), to its lowest point on the eastern boundary at approximately 27m AOD.

7.4.5 The southern boundary of the field, alongside Raby Hall Road is primarily made up of sections of native species hedgerow at varying heights and densities with occasional trees along the south-eastern edge leading to a denser woodland copse area in the south-western corner. The trees located just behind the hedgerow on the Site's south-eastern boundary with Raby Hall Road are protected by TPO. There is small group of trees in the north-west corner of the Site (Group 2 and T15, T16, T17 & T18) and the eastern boundary with Raby Hall School is formed by a dense row of semi-mature trees (Group 1 and T1, T12 & T13). The northern boundary between the Site and Raby Hall School is demarcated by a 2.5 m high mesh fence.

7.4.6 The accompanying tree survey by Tyler Grange categorises the trees and tree groups on Site. In general, the tree groups are of moderate / low quality and value; individual trees T2, T14, T15, T18, T23, T24 and T26 are of a low quality and value, T1, T2, T4 to T10, T16, T21 & T22 are of a moderate quality and value and individual trees T17 and T25 are of a high quality and value.

7.4.7 There is small pond / flooded area located towards the south-western corner of the Site around the area of woodland and there is also a stockpile of manure within the central section of the Site's southern boundary.

7.4.8 Agricultural access to the field is currently provided by a field gate onto Raby Hall Road. There is no provision for public access on to the Site as there are no definitive public footpaths that travel through it or adjacent to its boundaries and there is no pedestrian access along Raby Hall Road.

7.4.9 There are no other landscape features within the field itself, and landuse is limited to arable usage.

The Wider Study Area

7.4.10 The study area comprises gently undulating farmland, woodland, Bromborough Golf Course, wooded watercourse corridors, Raby Hall School and areas of residential development in Raby Mere and Bromborough.

7.4.11 The M53 tracks north/south through the western half of the study area and forms a distinct physical feature that restricts east/west movement. Being predominantly positioned within cutting through the study area, the motorway exerts itself upon the landscape to a greater extent in audible terms than it does visually, although when it was constructed it has evidently subdivided a significant number of the arable and pastoral fields that are located to the west of the urban edges on the east side of Wirral.

7.4.12 Land to the west of the motorway comprises gently undulating, medium sized agricultural fields, which are enclosed by hedgerows and hedgerow trees and there are a number of field ponds and two distinct narrow tracts of woodland that follow the alignment of watercourses (one of which is Clatter Brook) that flow eastwards, under the motorway, converging just to the north of Raby Mere. Built form in this part of the study area is very limited, comprising just one farmstead (Raby Hall Farm) and two residential properties known as Three Stacks (located on Raby Mere Road, which is a no through road that was truncated by the construction of the M53) and Brook Farm, which is located on Thornton Common Road to the north.

7.4.13 The agricultural fields extend to the east, beyond the motorway, however their extent is moderated by other land uses in the form of Raby Mere and its adjacent woodland (which both form part of a Site of Local Biological Importance), wooded watercourses, Bromborough Golf Course, Raby Hall School and residential development.

7.4.14 Woodland located along Clatter Brook forms part of Dibbinsdale SSSI and provides a natural buffer to the north-eastern edge of the residential development at Raby Mere. This area of residential development extends to the south-west over a distance of circa 260m before culminating on Blakeley Road, which tracks along the eastern edge of the settlement area, circa 200m to the east of the Site. With the exception of a white rendered period property, possibly a former farmhouse, that has been subdivided into three properties, the residential properties on Blakeley Road include a range of 20th Century,

detached two storey or single storey properties with roof dormers and they are set back from the road with driveways and associated front garden areas. The properties to the north predominantly comprise bungalows, with dormer accommodation, whereas to the southern end of the road, the properties are more modern, brick built detached properties, again with their upper floor comprising dormer style accommodation. To the east, the bulk of the residential development comprises detached, two storey, brick built houses, with front and rear gardens and off road driveway parking. These houses were likely constructed during the latter decades of the 20th Century. This type of residential development extends across the eastern parts of the study area occupied by Raby Mere and Bromborough.

7.4.15 Land located between the residential development of Raby Mere and the motorway to the west, includes a small number of agricultural fields (including the Site), Raby Mere Wood and the linear waterbody also known as Raby Mere.

7.4.16 Raby Hall School is located to the north and east of the Site and is run by Autism Together, which provides specialist education and care facilities. The Site includes a number of single storey and larger two storey buildings, with the older hall building and its linked outbuildings being rendered white and forming the dominant structure on the Site. In addition to the extensive built form and associated areas of car parking, the grounds of the school, which are primarily located to the west of the buildings (and to the north of the Site), comprise allotment areas, poly tunnels and open field areas where a variety of animals are kept. These features provide the users with the opportunity to experience plant care and animal husbandry, along with landscape management techniques associated with farming practice.

7.4.17 The school Site is bordered by Raby Mere Woodland to the north and the Site to the south and west, which separates the school Site from Raby Hall Road. To the west the school Site is separated from the motorway corridor by a thin section of woodland that extends to the north and south along the east side of the road. The woodland block to the north of the grounds of Autism Together and the Site is a Site of Local Biological Importance and is also covered by a Tree Preservation Order.

7.4.18 Land to the south of the study area and to the east of the motorway is dominated by Bromborough Golf Course, which is relatively open, however it is significantly different to the agricultural land within the study area, in that its trees are positioned in linear tracts to help define long, narrow parcels of land associated with each hole on the course. Localised, small scale landforms and mowing regimes also combine to create a landscape

that is distinctly different in appearance and character to other rural areas within the study area.

7.4.19 The landform within the study area gently undulates between 30m and 35m AOD, with lower levels of below 10m AOD within the narrow corridors of the watercourses and a highpoint of circa 37m AOD at Raby Hall School, which is located upon a subtle rise in the topography and reflects the gentle fall in the levels across the Site from east to west.

Landscape Character Assessments

7.4.20 The diverse characteristics of our broader landscape have been ascertained through the process of landscape character assessment (LCA). LCA is a technique used to develop a consistent and comprehensive understanding of what gives England's landscape its character. Assessments for the landscape in the vicinity of the Site have been carried out at national and county scales as follows:

National

7.4.21 The character of the landscape of England has been assessed by Natural England and the resulting National Character Area Profiles were published in September 2014. The NCAs include settlements and rural villages as well as the surrounding countryside.

7.4.22 The Site and areas to the east of the M53 fall within NCA 58 'Merseyside Conurbation'. The Landscape Character Area description summarises as follows:

'The Merseyside Conurbation National Character Area (NCA), centred on Liverpool and Birkenhead, extends northwards towards the Sefton Coast NCA and southwards towards the Wirral NCA. The area is also abutted by the Lancashire and Amounderness Plain NCA to the north-east, the Lancashire Coal Measures NCA to the east and the Mersey Valley NCA to the east and south-east. Although the Merseyside Conurbation shares a peninsula with the Wirral NCA, it is physically separated from the pastoral landscape of the Wirral NCA by a dramatic sandstone ridge which extends from Bidston Hill in the north through to Storeton in the south. The escarpment provides a strongly contrasting setting for the two NCAs. The area's significant wildlife habitats span the coast and estuary, interlinking with the surrounding NCAs and the marine environment. The Mersey Estuary Special Protection Area (SPA) and Ramsar site crosses into the Mersey Valley NCA. The Mersey Narrows and North Wirral Foreshore SPA and Ramsar site and the Dee Estuary Special Area of Conservation (SAC) extend into the Wirral NCA; while the Ribble and Alt Estuaries SPA and Ramsar site and the Sefton Coast SAC are ecologically continuous with the

Sefton Coast NCA. The M53 motorway acts as a divide between the Wirral NCA and the Merseyside Conurbation NCA. The highly urban Merseyside Conurbation and Mersey Valley NCAs are adjacent to the Wirral NCA.'

7.4.23 The size and scale of the areas encompassed by the National Character Areas are in some cases vast and can often bear limited relevance to sites of the scale associated with this assessment. As a result, smaller scale, more detailed assessments carried out by County Councils or Local Planning Authorities will often identify landscape characteristics which offer a better representation of those found within the vicinity of a particular site or surrounding area. Nonetheless the following key characteristics from the NCA 58 document have been set out below as they are considered to be relevant to the Site and its surroundings:

- *Woodland cover is significant in such a heavily urban area, with new community woodland being created, while urban parks, cemeteries and suburban street plans provide trees and, in some cases, wooded habitats.*
- *Pockets of mainly versatile and good-quality farmland remain on the fringes of urban areas, often arable or horticultural.*
- *Field boundaries are generally hedgerows, sometimes marked by drainage ditches with grassy banks.*
- *Green infrastructure is interspersed through the urban fabric, while pockets of 'encapsulated countryside' provide important wildlife refuges and opportunities to link local people to the natural world.*
- *Renowned for its strong maritime heritage, there is much industrial archaeology, along with Victorian public parks and designed gardens.*
- *The built environment is characterised by a mix of red brick and sandstone within the city and a diverse range of modern materials in the outlying suburbs.*
- *Distinct urban centres have amalgamated to form the Merseyside conurbation, surrounding the larger dominant centre of the city of Liverpool, but split by the River Mersey.*
- *Dense settlement pattern with extensive areas of housing and industry.*

- *Extensive transport infrastructure of motorways and railway lines, while the ports provide for significant international trade and cruise liners, as well as international and local passenger ferries.*

7.4.24 The NCA profile includes the following Statements of Environmental Opportunity which are relevant to the study area:

- *'SEO 1: Conserve and enhance natural assets, including the River Mersey, managing the estuary and coast sustainably while celebrating the rich maritime heritage, improving the landscape, promoting sense of place, providing habitats for wildlife and bringing multiple benefits for people.*

- *SEO 2: Provide a network of green infrastructure to create a high-quality urban environment that underpins economic and social wellbeing, improves resilience to climate change, supports biodiversity, and provides recreational and educational opportunities.*

- *SEO 3: Plan to connect habitats across the urban fabric, creating corridors and stepping stones for wildlife, to enhance the landscape, create local routes for walking and cycling, and provide accessible natural green spaces for people close to where they live and work.*

- *SEO 4: Provide opportunities for people to understand the natural and historic character of the Merseyside Conurbation NCA, conserving heritage, reinforcing sense of place, providing opportunities for recreation and interpretation and enabling people to access and enjoy the distinctive environment.'*

7.4.25 The land to the west of the M53 falls within NCA 59 'Wirral'. The Landscape Character Area description summarises as follows:

'The Wirral National Character Area (NCA) is located on a peninsula formed by the Mersey and Dee estuaries. The landscape of the NCA is based on the formal landscapes of former large country estates, rural areas, natural coastal scenery and wooded sandstone ridges, which combine to give the NCA a unique character. The NCA is separated from the urban areas of east Wirral by a dramatic sandstone ridge, as well as by the M53 motorway. This is a rich pastoral landscape interspersed with settlements. Red sandstone is common; the pink hues of the local stone bring warmth to the landscape and provide a unifying theme in buildings, walls and bridges.'

7.4.26 The following key characteristics from the NCA 59 document have been set out below as they are considered to be relevant to the land within the study area:

- *'A low-lying but gently rolling platform punctuated by low sandstone outcrops, this western portion of the Wirral peninsula stretches from the mid-Wirral sandstone ridge to the Dee Estuary.*
- *Geology is dominated by glacial till overlying Triassic red mudstones and sandstones, with sandstone ridges and outcrops.*
- *Drainage is into the Dee Estuary in the west and the Mersey Estuary in the east, with a network of small streams and drainage ditches.*
- *Woodland is predominantly broadleaved, with woodland cover on sandstone ridges, country parks and country estates.*
- *The formal landscape has been created by former large country estates and the core of the area is mixed agricultural land, with areas of improved pasture, arable farming and market gardens and extensive areas given over to grazing horses.*
- *Fields are defined by intermittent clipped hedgerows, with copses, some red sandstone walls and field ponds ('marl pits'); coastal areas often feature a geometric field pattern bounded by ditches draining former marshlands.*
- *The rural landscape, with country estates, scattered farms and a mix of ancient and post-medieval fieldscapes, is interspersed with residential commuter belt development, with towns and villages coalescing due to suburban development, linked by an intricate network of lanes, bridleways and footpaths.*
- *Red sandstone is common throughout the area; the pink hues of the local red stone bring warmth to the landscape and provide a unifying theme in buildings, walls, bridges and churches.'*

7.4.27 The NCA profile includes the following Statements of Environmental Opportunity which are relevant to the study area:

- *'SEO 3: Work with landowners and land managers to support sustainable food production in the farmed environment while enhancing and strengthening the mosaic of farmland features including ponds, trees, hedgerows and red sandstone walls, to*

enhance biodiversity and improve soil and water quality, strengthen resilience of habitats to climate change and enhance landscape character.

- *SEO 4: Safeguard and interpret Wirral's heritage, history, archaeology and geology to enhance the character of the landscape and improve people's understanding and enjoyment of the historic environment.*
- *SEO 5: Enhance people's understanding and enjoyment of the natural environment, providing interpretation and educational facilities and opportunities for experiencing wildlife, with a strong network of green infrastructure, which will bring health and wellbeing benefits for both residents and visitors.'*

Local

7.4.28 In May 2019, LUC was commissioned to undertake a review of WBC's landscape evidence base. This involved updating the Wirral Landscape Character Assessment (2009) by TEP, in order to provide a comprehensive and up to date landscape character assessment. The Wirral Landscape Character Assessment (2019) characterises all land outside the defined settlements and therefore excludes urban areas.

7.4.29 The Wirral Landscape Character Assessment 2019 confirms six different Landscape Character Types (LCTs) within the borough, being:

- LCT 1: Coastal/Estuarine Edge;
- LCT 2: River Floodplains;
- LCT 3: Sandstone Hills;
- LCT 4: Lowland Farmland and Estates;
- LCT 5: Coastal Waters; and
- LCT 6: Estuaries.

7.4.30 The Site and the majority of the wider study area (all the land outside the settlement boundary to the east) fall within LCT 4 Lowland Farmland and Estates.

7.4.31 The assessment contains the following description of LCT 4 Lowland Farmland and Estates:

'The LCT is characterised by gently rolling farmland in mixed arable and pastoral use with a strong estate character around historic country houses. Frequent semi-natural woodland,

including small copses, prominent woodland blocks on high ground and lining brook valleys and field ponds contribute to a wooded character. Settlement is limited to small villages and scattered farmhouses, with a strong vernacular of red sandstone. Wooded ridgelines provide a sense of enclosure.'

7.4.32 The character assessment subdivides the above LCTs into a number of smaller Landscape Character Areas (LCAs) and places the Site and the bulk of the study area within LCA 4c Clatterbrook and Dibben Valley Lowland and the south-eastern section of the study area within LCA 4d Raby Lowland Farmland and Estates.

7.4.33 With regards to LCA 4c Clatterbrook and Dibben Valley Lowland, the assessment contains the following summary description:

'Clatterbrook and Dibbin Valley Lowland Farmland and Estates LCA lies in the south-east of the borough. It is a narrow agricultural area which follows river valleys and extends from the urban edge. It contains many important wetland habitats extending south from Levers Causeway along the well-wooded urban fringe. There are few urbanising features and built development is generally well screened which contributes to its largely rural character. The main urban influences are Clatterbridge Hospital, junctions on the M53 and industry along the Mersey.

The western boundary generally follows the M53 although it extends to the west around Clatterbridge Hospital to encompass the Clatter Brook and Raby Brook valleys. The northern boundary follows the Lever Causeway and Landican Lane. The southern boundary is formed by the borough boundary and the M53, and the eastern boundary is formed by the urban edge of Bebington, Poulton, Spital, Bromborough and Eastham, which is often enclosed by woodland. The southeast boundary is formed by industry along the Mersey Estuary at Eastham and Ellesmere Port.'

7.4.34 The following key characteristics of LCA 4c Clatterbrook and Dibben Valley Lowland are considered to be of relevance to the Site and or the parts of wider study area within the LCA:

- *'Narrow valley landform following the course of several small watercourses. The valleys become wider and shallower to the south around the wooded course of the Raby, Dibbinsdale and Clatter Brook.*
- *Elevation ranges from 40m to 10m AOD rising to a local high point at 68m AOD on Storeton Hill which forms part of Wirral's eastern sandstone ridgeline.*

- *Frequent field ponds are often set in small copses of priority habitat deciduous woodland and reedbed. The man-made lake at Raby Mere is the largest open water in Wirral.*
- *Ecologically important woodland and wetland habitats around the watercourses are recognised nationally and locally through nature conservation designations.*
- *A well wooded landscape with broadleaved woodland concentrated along watercourse, prominent wooded ridgelines, a distinctive roadside avenue at Lever Causeway, frequent copses and in-field trees.*
- *Farmland is mostly pasture in small to medium fields, with some larger arable fields near Poulton and in the south-east and pockets of parkland around halls and large farms on higher ground.*
- *Settlement is limited to the historic village of Eastham in the south-east and Storeton in the north. Urban fringes are mostly screened by woodland and topography, although Clatterbridge Hospital is a large low-level site west of the M53.*
- *Rural roads bordered by hedge banks with high hedgerows increase the sense of enclosure on country lanes.*
- *Brotherton Park and Dibbinsdale Local Nature Reserve, and fishing at Raby Mere offer recreational opportunities. Storeton Wood is open access, and other public rights of way link the rural roads to settlements and farms. Frequent wooded golf courses offer formal recreation.*
- *Long distance westerly views from high ground across to Welsh Hills, although much of west Wirral is obscured by intervening landform. The wooded ridgeline at Storeton Hill is prominent in views north and east.*
- *The M53 is an urbanising feature although it is in cutting through much of the area.'*

7.4.35 The LCA description notes '*Raby Mere is a local feature within low-lying woodland adjacent to Clatter Brook, and is part of a former watermill, although little evidence of this exists. The mere is the largest area of open water on Wirral and is surrounded by priority habitat deciduous woodland. It is designated as a Local Wildlife Site and Site of Biological Importance.'* It also notes that the *'Land use is a mix of pasture and some arable farmland, with a high proportion of horse grazing in the north. Fields are generally irregularly shaped and small to medium scale, although arable fields are larger reflecting 20th century field amalgamation. In the north hedgerows have been lost to sub-division and replacement by*

horse fencing or tape, increasing the perceived scale and the landscape feels more open. Former hedgerow trees remain within fields as small copses and groups of trees with any understorey planting now lost to grazing, often by horses.' And *'The M53 is in a cutting for much of its length along the western edge of the area and has heavily wooded banks. However, it remains a prominent feature within the landscape, particularly around the junctions where traffic movement, motorway signage and lighting are evident.'*

7.4.36 The description of the perceptual landscape states: '*The lack of hedgerow boundaries or hedgerow trees increases the perceived scale, despite the relatively small field pattern. The landscape feels open in character, particularly in the north and south-east. South of Poulton, Spital and around Raby Mere there is a more enclosed character due to increased woodland and tree-lined roads.'* And *'The lighting columns at junctions on the M53 have an urbanising effect on the area. The motorway also decreases tranquillity as the noise of traffic is heard through much of the area, despite the road not often being visible.'*

7.4.37 The Landscape Character Assessment also sets out a number of 'Valued Landscape Attributes' which are qualities that are valued for their contribution to landscape character rather than the landscape being 'valued' in the sense of NPPF paragraph 174a.

7.4.38 The valued landscape attributes of LCA 4c Clatterbrook and Dibben Valley Lowland are not all relevant to the Site, but the following attributes are pertinent to the study area:

- *'Prominent woodland on high ground on ridgelines provides a backdrop to the wider area.*
- *Wooded watercourses are ecologically valued habitats and provide a rural wooded character to the area.*
- *Pattern of farmland and areas of parkland character, including isolated trees, provides a sense of place and time-depth.*
- *Historic rural village of Eastham, recognised as a Conservation Area, and Storeton with red brick and sandstone vernacular provide sense of place and time-depth.*
- *Minor roads lined by avenues of trees provide an enclosed and rural character*.
- *Long views towards Wales from high points both into and out of the area.*

7.4.39 The LCA 4c Clatterbrook and Dibbin Valley Lowland profile includes the following landscape guidelines:

- *'Conserve and manage hedgerows as important wildlife habitats and landscape features.*
- *Conserve the rural character of the landscape with its well-defined distinction between the rural character of the area and the adjoining urban development enclosed by woodland.*
- *Maintain and enhance the character of rural roads with their tree-lined avenues. Resist unsympathetic highway improvements that would threaten their rural character.*
- *Enhance the sense of place through careful design (including siting, massing, scale and materials) to minimise the impacts of any new residential or industrial development.*
- *Conserve and enhance the integration of urban edges, though native wooded boundaries and mature trees to provide visual screening.'*

7.4.40 With regards to LCA 4d Raby Lowland Farmland and Estates, the assessment contains the following summary description:

'Raby Lowland Farmland and Estates LCA lies along the southern boundary of Wirral. A rural and tranquil farmland area with numerous field ponds, and settlement limited to the hamlet of Raby. There are few urbanising features, and woodland to the south, north and east provides an enclosed character.

The southern boundary is formed by the borough boundary, and the eastern boundary by the M53. The western and northern boundaries follow the road pattern and field boundaries along the Raby Brook.'

7.4.41 The following key characteristics of LCA 4d Raby Lowland Farmland and Estates are considered to be of relevance to the Site and or the parts of wider study area within the LCA:

- *Rural gently rolling farmland, between 30m and 55m AOD.*
- *Small watercourses in the north and east, running into adjacent Raby Mere. Numerous field ponds in groups of two or more, occasionally visible from roads, and frequently surrounded by priority habitat deciduous woodland and reedbeds;*
- *Infrequent copses of mixed coniferous and deciduous woodland, including areas of priority habitat lowland mixed deciduous and broadleaf woodland;*

- *Mixed pasture and arable farmland in medium to large regular fields. Fields mostly bound by low hedgerows, with some small groups of hedgerow trees or Cheshire rail fencing which provides an estate character;*
- *Sparse settlement pattern;*
- *Roads are bound by hedgerows and in some places by Cheshire rail fencing.*
- *Limited Public Rights of Way;*
- *Views to wooded ridgelines to the east create an enclosed character, with only the Liverpool cathedrals visible above the treeline. Many internal views across farmland are limited by woodland blocks, creating an enclosed character;*
- *A rural and remote character, despite proximity to the M53 and the adjacent settlements beyond it. Overhead powerlines in the west are one of the few urbanising features.*

7.4.42 The description of the Natural landscape states: *'There are numerous field ponds of various sizes through the character area. They often occur in groups of two or more within one field, and in the south these groups are often clustered…Glimpsed views of the ponds themselves are possible where they border roads. Elsewhere their location is only discernible as small copses within fields…'* and *'Woodland is fairly scarce within this character area, although a sense of a wooded landscape is created through the numerous wooded field ponds, small groups of hedgerow trees and small copses around private properties…'*

7.4.43 The description of the Cultural landscape states: *'Land cover is a mix of arable and pasture farmland. Fields are medium to large in size and regular in shape although closer to houses and small watercourses the field pattern tends to become irregular. The fields are mostly bounded by low hedgerows with some mature hedgerow trees and in some places by Cheshire rail fencing…'*

7.4.44 The description of the Perceptual landscape states: '*The area has a strong rural character and retains a clear sense of separation from the larger settlements of Heswall to the west and Eastham and Bromborough to the east. Wooded hills to the east limit views to Eastham and Bromborough, although some church spires can be seen…'*

7.4.45 The following valued landscape attributes of LCA 4d Raby Lowland Farmland and Estates, are considered to be pertinent to the study area:

- *Scattered clusters of field ponds, often surrounded by priority habitat deciduous woodland, provide important ecological habitats and variation in the landscape;*
- *Intact historic field pattern bounded by mature hedgerows or Cheshire rail fencing…;* and
- *Rural and remote character, enclosed by the wooded ridgelines to the east,'*

7.4.46 The LCA 4d Raby Lowland Farmland and Estates profile includes the following landscape guidelines:

- *Conserve, enhance and manage the wide distribution of field ponds, with their associated wetland habitats.*
- *Conserve and enhance deciduous woodland and small copses. Promote appropriate woodland management.*
- *Increase the extent of native deciduous woodland, particularly along the edges of single species plantations, to integrate these woodlands into the landscape.*

Landscape Character Overview

7.4.47 National Character Area 58 Mersey Conurbation extends across a relatively small geographical area in comparison to many other NCAs. Although the NCAs are broadscale, many of the key characteristics of NCA 58 Mersey Conurbation appertain to the study area. Some of the key characteristics also relate to the Site: *'Field boundaries are generally hedgerows, sometimes marked by drainage ditches with grassy banks'* and *'Green infrastructure is interspersed through the urban fabric, while pockets of 'encapsulated countryside' provide important wildlife refuges and opportunities to link local people to the natural world*' and *'Dense settlement pattern with extensive areas of housing and industry'* with *'Extensive transport infrastructure of motorways and railway lines.'*

7.4.48 The land to the west of the M53 falls within the National Character Area 59 Wirral. Some of its key characteristics relate to the study area. It is *'a low-lying but gently rolling'* landscape with a *'geometric field pattern'* which is '*defined by clipped hedgerows'*. The rural landscape includes numerous '*field ponds'* (marl pits) and a '*network of small streams and drainage ditches'*. It is *'mixed agricultural land, with areas of improved pasture, arable farming and market gardens and extensive areas given over to grazing horses'*.

7.4.49 At a finer grain the Wirral Landscape Character Type 4, Lowland Farmland and Estates, is representative of the landscape character of the study area. The study area exhibits the

characteristics of LCA 4c Clatterbrook and Dibben Valley Lowland, however the Site itself is located close to the eastern edge of the LCA, lies adjacent to the M53 and in close proximity to the settlement edge of Raby Mere and the extensive urban area that occupies up the eastern edge of Wirral peninsula.

7.4.50 The Site is a relatively narrow, rectangular shaped field on the urban edge of Raby Mere / Bromborough and does not include any landscape features of note and does not contribute significantly to the overriding character of the LCA.

7.4.51 The south-eastern parts of the study area located within LCA 4d Raby Lowland Farmland and Estates and comprises a series of gently undulating agricultural fields with hedgerow boundaries, hedgerow trees and a number of field ponds. To an extent it is therefore consistent with the acknowledged character of the wider LCA 4d, however the section of the LCA located within the study area is relatively small and there is to an extent, an absence of characteristic built form (farmsteads) and parkland features.

Cheshire Historic Landscape Character Assessment 2007

7.4.52 In 2007, the Cheshire County Council Historic Environment Team and English Heritage published the Cheshire Historic Landscape Character Assessment. Given the nature and scale of the mapping within the document it is difficult to ascertain the historic status of Site and wider study area, however the Site and parts of the study area outside the settlement area, appear to lie within the Post Medieval Fieldscapes HLC Group.

7.4.53 The Post Medieval Fieldscapes HLC Group is the dominant character in 27.8% of the project area, covering 73,049 hectares and comprises all field systems believed to originate after the beginning of the 16th Century.

Wirral Landscape/Environmental Sensitivity Assessment 2019/2021

7.4.54 In April 2019, WBC commissioned LUC to undertake a 'site specific' Landscape Sensitivity Assessment of 53 Green Belt sites identified for further investigation in the Council's review of development options published for comment in 2018. This study attributed a level of sensitivity to these sites of Low/Moderate, Moderate, Moderate/High or High.

7.4.55 Paragraph 1.15 states:

'This study provides an assessment of the relative landscape sensitivities of the different sites to notional residential and/or employment development, without knowing the exact location, layout, design or mitigation proposed. It therefore should not be interpreted as a

definitive statement on the suitability of a certain location for a particular development and it is not a replacement for detailed studies for specific siting and design, as any final developments will need to be assessed on their individual merits.'

7.4.56 In February 2021, WBC published a draft Environmental Sensitivity Report (by LUC) and invited consultation responses. This draft study provides evidence for the emerging Wirral Local Plan on the environmental assets of the Wirral and their sensitivity to development.

7.4.57 Chapter 9 of the draft Environmental Sensitivity Report uses Landscape Sensitivity Assessment findings to present a picture of the Borough's landscape sensitivity. This study supplements the findings of the abovementioned Wirral Site Specific Landscape Sensitivity Assessment, by assessing all the other land outside the settlement boundaries that had not been previously assessed in the 2019 study. Where appropriate, it amended the results of the 2019 assessment in order to capture variation in sensitivity and to ensure consistency with the method used within the 2021 draft Environmental Sensitivity Report.

7.4.58 As a result, the sensitivity attributed to land within the draft 2021 Environmental Sensitivity Report supersedes the sensitivities attributed within the 2019 Site Specific Landscape Sensitivity Assessment.

7.4.59 The landscape sensitivity was determined via a desktop exercise that included reviewing a number of key parameters including:

- Physical character (including topography and scale);
- Natural character;
- Historic landscape character;
- Character and setting of existing settlement;
- Views and visual character including skylines; and
- Perceptual and experiential qualities.

7.4.60 The Landscape Sensitivity Assessment aspect (Chapter 9) of the Environmental Sensitivity Assessment attributes the Site with a Landscape Sensitivity rating of Moderate, whereas the woodland area to the north is considered to be of a High sensitivity and the golf course land to the south is attributed with a sensitivity of Low to Moderate. In general, land within the study area that is located to the west of the M53 corridor is attributed with a sensitivity of Moderate.

Wirral Local Landscape Designations – Review and Recommendations

7.4.61 In February 2020, WBC commissioned LUC to undertake a review of the local landscape designations across the Borough to form part of the emerging Wirral Local Plan 2020-2035.

7.4.62 LUC undertook a full review of the landscape across the Borough to provide evidence to underpin a robust set of up-to-date Local Landscape Designation (LLD) areas, to inform landscape policies in the Wirral Local Plan.

7.4.63 The current UDP incorporates four existing Areas of Special Landscape Value (ASLV), being Bidston Hill, Dee Coast, including Heswall Dales, Thurstaston Common and Royden Park, Caldy Hill, including Stapledon Wood and Thornton Hough.

7.4.64 The Review concludes that the above existing ASLVs should be retained and in some cases extended and/or reduced and that the emerging Local Plan should include 3 main LLD areas, being Central Wirral Sandstone Hills, Dee Estuary and Thornton Hough Estates.

7.4.65 The Site is not located within existing ASLVs or within the proposed LLDs.

Heritage Assets

7.4.66 There are no heritage assets located within the Site. There is however one Listed Building, being The Mill House (Grade 2), which is located at the northern end of Blakeley Road (circa 500m to the north of the Site). This heritage asset does not lie within the immediate setting of the Site, or can be seen from the Site.

7.4.67 The lake at Raby Mere is a man-made feature and forms the largest body of open water on Wirral. Historically, it was apparently accompanied by a watermill, however there is no existing evidence of this feature.

Landscape Receptors

7.4.68 Given the content of the relevant published character assessments and the baseline landscape context as described above, the following landscape receptors are identified:

- NCA 58 Mersey Conurbation (within the study area);
- NCA 59 Wirral (within the study area);
- LCT 4 – Lowland Farmland and Estates, specifically LCA 4c Clatterbrook and Dibben Valley Lowland (within the study area);

- LCT 4 – Lowland Farmland and Estates, specifically LCA 4d Raby Lowland Farmland and Estates (within the study area);
- The landscape character of the Site and its immediate setting; and
- Landscape features within the Site.

7.4.69 Figure 3 (Appendix 7.2) shows the extents of the landscape receptors considered in the assessment.

7.4.70 NCA 58 Mersey Conurbation and NCA 59 Wirral include settlement areas and the baseline descriptions for the Site and wider study area include a description of the townscape. Effects on both the settlement areas and countryside are assessed as part of the consideration of effects upon NCA 58 and 59 and upon the Site and it's immediate setting.

Landscape Value

7.4.71 The Methodology sets out how various factors are considered to help determine and inform judgements associated with landscape value. These factors are consistent with GLVIA3 Box 5.1 and Landscape Institute Technical Guidance Note TGN-02-21 Assessing Landscape Value Outside National Designations.

7.4.72 NPPF, Paragraph 174a, sets out the requirements for '*protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).* For clarity this Site has no statutory status and is not considered to be valued in the context of NPPF.

7.4.73 Tables 7.2a-f below provide narrative information associated with each individual factor, which when combined, inform an overall judgement on the value of the landscape within the Site and the study area, being Exceptional, High, Medium, Low or Very Low.

Table 7.2a – Landscape Value

Considerations associated with the landscape value of NCA 58 within the study area	
Landscape Designations	The Site's landscape and the wider study area is not protected by national or local statutory landscape designations. Within the wider study area there are a number of environmental/ecological designations – see Natural Heritage below
Landscape condition	In general, the study area comprises extensive areas of urban, residential development, woodland block, agricultural land and Bromborough Golf Course. The presence of high quality woodland cover is significant in such a heavily urbanised area like NCA 58 and pockets of agricultural land remaining on the fringes of the settlement area are versatile and are generally of a good quality. Field boundaries that remain are generally intact and comprise managed hedgerows and associated trees, particularly those to the west of the M53. The introduction of the motorway, the golf course and the urban development of Bromborough to the east have severed and lost numerous fields and their boundaries and as a result, have to an extent degraded the landscape structure. The motorway forms a significant detracting feature within the study area.
Distinctiveness	Overall, the landscape within the study area contains characteristics that are common to the established urban edges within NCA 58. Some of the qualities which provide the NCA with its unique character, such as the River Mersey, estuary and waterfront and strong maritime heritage, are outside/absent from the study area.
Natural Heritage	The Site does not include any designated habitats but the woodland around Raby Mere to the north of the Site is protected by TPO and is designated as a Site of Local Biological Importance and is a Local Wildlife Site. In addition, the watercourses (e.g. Clatter Brook) located to the immediate north of Raby Mere are designated as Dibbinsdale SSSI, Plymyard Dale, Brookhurst SBI lies along the urban edge to the south-east,

	the Marfords, Brookhurst SBI to the east and there are a series of ponds within Bromborough Golf Course that form Bromborough Golf Course Ponds SBI. Trees located within the Site along the south-eastern boundary with Raby Hall Road are protected by TPO.
Cultural Heritage	Heritage assets within the study area are limited to one Listed Building, being The Mill House (Grade 2), which is located at the northern end of Blakeley Road (circa 500m to the north of the Site), however there is no association or physical/visual connection to the Site. Built form at the neighbouring Raby Hall appears to have been present since the mid-19th Century, however over the years the development of the school has seen significant extensions and additional built form. There are no Listed Buildings or structures at Raby Hall.
Recreational	Public Footpath FP36 is the only PRoW within the study area and connects Benty Heath Lane on the south side of the M53, with Raby Hall Road, via Bromborough Golf Course. The golf course and Raby Mere also form local recreational resources.
Perceptual (Scenic)	The scenic quality of the landscape is varied within the NCA. Views can be expansive from elevated land, with views of open coast, estuary and River Mersey and waterfronts through to dense settlement patterns and large-scale industry. The scenic qualities of the parts of the NCA which are located within the study area are associated with the agricultural landscape to the west of the M53 corridor, the more enclosed, wooded landscape in the vicinity of the Site, the wooded river valleys and the large areas of residential development to the east. Beyond the settlement area views of the Site and its immediate setting are often accompanied by the built form on the Raby Hall School Site. Views are generally of shorter distances and spaces are generally enclosed due to the containing nature of the woodland/trees. Beyond the motorway, the views open up primarily due to the reduced levels of tree cover associated with the agricultural landscape. The motorway corridor is a detracting factor, however visually, its prominence is moderated by it being in cutting.

Perceptual (Wilderness and Tranquillity)	The study area includes settlement, agricultural land, woodland and transport corridors, which are not considered to be wilderness. There are naturally higher levels of tranquillity away from the settlement edges. The Wirral Environmental Sensitivity Study (ESS) describes the main body of the study area to be subject to moderate levels of Night Blight, with areas to the east of the study area having higher levels of Night Blight and areas to the west, lower. With regards to tranquillity, the ESS attributes the urban areas with the lowest level of tranquillity and the rural areas to the west with moderate to moderate/low levels of tranquillity. Levels of tranquillity associated with the Site are therefore low to moderately low.
Associations	There is no evidence that the landscape in the study area is connected with notable people, events and the arts.
Functional	In general, the rural land within the study area functions effectively as agricultural land and the golf course functions as a recreational resource, however in both cases the land has limited ecological value/natural function. By contrast, the wooded watercourses and the woodland to the north of the Site offer a higher degree of ecological value and natural function, with a limited recreational function.
Overall Judgement of Landscape Value	The landscape is considered to be of Medium value.

Table 7.2b – Landscape Value

Considerations associated with the landscape value of NCA 59 within the study area	
Landscape Designations	The landscape within the study area is not protected by national or local statutory landscape designations.
Landscape condition	The overall condition of the landscape is considered to be ordinary to good. Low-lying, gently rolling, rural landscape with a geometric field pattern defined by trimmed hedgerows. The land use is mixed with areas of improved pasture, arable farming and market gardens and extensive areas given over to grazing horses. The landscape includes a network of small streams and

	drainage ditches which are generally well vegetated as well as numerous field ponds. Moderately well managed with a distinguishable landscape structure and characteristic field pattern. Evidence of loss of landscape features such as hedgerows/trees through the construction of the M53, field expansion and lack of management and reductions in woodland cover. There are some common features worthy of conservation and some detracting features such as the M53 corridor.
Distinctiveness	Overall, the landscape within the study area is predominantly agrarian with common characteristics. Some of the qualities which provide the NCA with its acknowledged character, such as the hedgerow field boundaries, trees and field ponds are present, but are not particularly rare. Some of the qualities which provide the NCA with its unique character, such as the former country estates and natural coastal scenery, are absent and the landscape character type is not rare.
Natural Heritage	The part of this NCA that lies within the study area does not include any designated habitats, although the hedgerow boundaries, vegetated watercourses and field ponds are likely to have ecological value.
Cultural Heritage	The part of the NCA that lies within the study area does not include heritage assets. There are some sections of estate railing present that provide a subtle nod towards the estate characteristics that are present within the LCA (to a greater extent in areas outside the study area to the west).
Recreational	Recreational opportunities within this part of the study area are somewhat limited by an absence of PRoWs and any other recreational resource/facility.
Perceptual (Scenic)	The scenic qualities of the parts of the LCA which are located within the study area are associated with the agricultural landscape to the west of the M53 corridor. Views are predominantly of an attractive agricultural landscape and are often curtailed by hedgerows and associated tree cover, with occasional medium distance views where there are breaks in the screening vegetation. The motorway corridor is a detracting

	factor, however visually, its prominence is moderated by it being in cutting.
Perceptual (Wilderness and Tranquillity)	Although there are naturally greater levels of tranquillity away from the settlement edges, levels of perceived wildness and tranquillity within the south-western section of the study area that lies within the NCA, are significantly affected by the presence and proximity of the M53 corridor. The Wirral Environmental Sensitivity Study (ESS) describes this area as having moderate levels of Night Blight, and with regards to Tranquillity, the ESS attributes the majority of the LCA with moderate to lower levels of tranquillity.
Associations	There is no evidence that the landscape is connected with notable people, events and the arts.
Functional	The road infrastructure cuts through the NCA and the rural land within the study area functions primarily as agricultural land and has ecological value/natural function associated with field ponds and hedgerow field boundaries, but is limited overall.
Overall Judgement of Landscape Value	The landscape is considered to be of Medium value.

Table 7.2c – Landscape Value

Considerations associated with the landscape value of LCT 4, specifically LCA 4c Clatterbrook and Dibben Valley Lowland within the study area	
Landscape Designations	The landscape in the Site and the wider character area is not protected by national or local statutory landscape designations, however the parts of this character area that lie within the study area incorporate a number of environmental/ecological designations – see Natural Heritage below
Landscape condition	There is a relatively coherent character within the study area created by landform and watercourses. The surrounding urban edges are largely screened by woodland, however the M53 forms a significant intrusion into the landscape. Evidence of Loss of landscape features such as hedgerows/trees through the construction of the M53, field expansion and lack of management and reductions in woodland cover, particularly along urban edges

	and the M53 and diversification/cessation of agricultural land uses (eg change to golf course). The urban fringes of Bromborough and Bebington adjoin the LCA and the Site lies close to the eastern boundary of the LCA (within circa 200m). There are some common features worthy of conservation and some detracting features such as the road infrastructure. The golf course is intensively managed and the remaining agricultural land is relatively intact; overall the landscape condition is considered to be ordinary.
Distinctiveness	Overall, the landscape within the study area that is outside the main settlement area to the east and located to the east of the motorway is well wooded with broadleaved woodland concentrated along narrow valleys with watercourses and a number of intervening agricultural fields. To the west of the motorway farmland is mostly pasture in medium sized fields, settlements are limited, rural roads are bordered by hedge banks with hedgerows and associated trees and trees located around field ponds increasing the sense of enclosure on country lanes, with the M53 cutting through the area giving it an urbanising effect. Some of the qualities which provide the LCA with its unique character, such as the wooded watercourses and hedgerow field boundaries are present within the study area. The Site is well enclosed in part by hedgerows, trees and woodland but also by the presence of Raby Hall to the west and to a lesser extent, the settlement edge of Raby Mere, circa 200m to the east.
Natural Heritage	The Site does not include any designated habitats but the woodland around Raby Mere to the north of the Site protected by TPO and is designated as a Site of Local Biological Importance and is a Local Wildlife Site. In addition, the watercourses (e.g. Clatter Brook) located to the immediate north of Raby Mere are designated as Dibbinsdale SSSI, Plymyard Dale, Brookhurst SBI lies along the urban edge to the south-east, the Marfords, Brookhurst SBI to the east and there are a series of ponds within Bromborough Golf Course that form Bromborough Golf Course Ponds SBI. Trees located within the Site, along its south-eastern boundary are protected by TPO.

Cultural Heritage	Heritage assets within the parts of the LCA located within the study area are limited to one Listed Building, being The Mill House (Grade 2), which is located at the northern end of Blakeley Road (circa 500m to the north of the Site, on the border between the LCA and the settlement edge), however there is no association or physical/visual connection to the Site. Built form at the neighbouring Raby Hall appears to have been present since the mid-19th Century, however over the years the development of the school has seen significant extensions and additional built form. There are no Listed Buildings or structures at Raby Hall.
Recreational	Public Footpath FP36 is the only PRoW within the parts of the LCA that lie within the study area and it connects Benty Heath Lane on the south side of the M53, with Raby Hall Road, via Bromborough Golf Course. The golf course and Raby Mere also form local recreational resources.
Perceptual (Scenic)	The scenic qualities of the parts of the LCA which are located within the study area are associated with the agricultural landscape to the west of the M53 corridor, the more enclosed, wooded landscape to the east of the motorway, in the vicinity of the Site and the wooded river valleys and woodland areas. Views of the Site and its immediate setting are often accompanied by the built form on the Raby Hall School Site and to a lesser extent, residential built form on the settlement edge to the east. To the east of the motorway, views are generally of a shorter distance and spaces are generally enclosed due to the containing nature of the woodland/trees/hedgerows. Beyond the motorway, the views open up primarily due to the reduced levels of tree cover associated with the agricultural landscape. The motorway corridor is a detracting factor, however visually, its prominence is moderated by it being in cutting.
Perceptual (Wilderness and Tranquillity)	The study area includes edge of settlement and transport corridors and is not considered to be wilderness. There are greater levels of tranquillity away from the settlement edges. The Wirral Environmental Sensitivity Study (ESS) describes parts of the LCA to the west as having moderate levels of Night Blight, with areas to the east having higher levels of Night Blight. With

	regards to Tranquillity, the ESS attributes the majority of the LCA with lower levels of tranquillity.
Associations	There is no evidence that the landscape is connected with notable people, events and the arts.
Functional	The road infrastructure cuts through the LCA and the rural land within the study area functions primarily as agricultural land and has limited ecological value/natural function. This is in contrast with the woodland and wooded watercourse corridors where designations acknowledge higher levels of ecological and natural function.
Overall Judgement of Landscape Value	The landscape is considered to be of Medium value.

Table 7.2d – Landscape Value

Considerations associated with the landscape value of LCT 4, specifically the section of LCA 4d Raby Lowland Farmland and Estates within the study area	
Landscape Designations	The landscape within the south-western part of the study area is not protected by national or local statutory landscape designations.
Landscape condition	There is a relatively coherent character within the study area created by landform, field enclosures (hedgerows and associated trees) and field ponds. The M53 forms a significant intrusion into the landscape and provides the physical boundary between the eastern edge of this LCA and the adjacent LCA 4c/Bromborough Golf Course to the east. Evidence of Loss of landscape features such as hedgerows/trees through the construction of the M53, field expansion and lack of management and reductions in woodland cover, particularly along urban edges and the M53 and diversification of agricultural land uses. There are some common features worthy of conservation and some detracting features such as the road infrastructure; overall the landscape condition is considered to be good.
Distinctiveness	Overall, the landscape within this part of the LCA that lies in the study area is agricultural. The farmland is mostly arable in small to medium fields and the presence of built form is limited. The

	rural roads are bordered by hedges and trees that increase the sense of enclosure and the M53 cuts through the area generating an urbanising effect. Some of the qualities which provide the LCA with its acknowledged character, such as the hedgerow field boundaries, trees and field ponds are present, but are not particularly rare.
Natural Heritage	The section of this LCA that lies within the study area does not include any designated habitats, although the hedgerow boundaries and field ponds are likely to have ecological value.
Cultural Heritage	There are no heritage assets within the section of this LCA that lies within the study area. There are some sections of estate railing present that provide a subtle nod towards the estate characteristics that are present within the LCA (to a greater extent in areas outside the study area to the west).
Recreational	Recreational opportunities within this part of the study area are somewhat limited by an absence of PRoWs and any other recreational resource/facility.
Perceptual (Scenic)	The scenic qualities of the parts of the LCA which are located within the study area are associated with the agricultural landscape to the west of the M53 corridor. Views are predominantly of an attractive agricultural landscape and are often curtailed by hedgerows and associated tree cover, with occasional medium distance views where there are breaks in the screening vegetation. The motorway corridor is a detracting factor, however visually, its prominence is moderated by it being in cutting.
Perceptual (Wilderness and Tranquillity)	Although there are naturally greater levels of tranquillity away from the settlement edges, levels of perceived wildness and tranquillity within the south-western section of the study area that lies within LCA 4d, are significantly affected by the presence and proximity of the M53 corridor. The Wirral Environmental Sensitivity Study (ESS) describes this area as having moderate levels of Night Blight, and with regards to Tranquillity, the ESS attributes the majority of the LCA with moderate to lower levels of tranquillity.

Associations	There is no evidence that the landscape is connected with notable people, events and the arts.
Functional	The road infrastructure cuts through the LCA and the rural land within the study area functions primarily as agricultural land and has ecological value/natural function associated with field ponds and hedgerow field boundaries, but is limited overall.
Overall Judgement of Landscape Value	The landscape is considered to be of Medium value.

Table 7.2e – Landscape Value

Value of the landscape character of the Site and its immediate setting	
Landscape Designations	The landscape within the Site and its immediate setting is not protected by national or local statutory landscape designations.
Landscape condition	The overall condition of the landscape is considered to be ordinary to good consisting of agricultural land, surrounding woodland/mature trees, buildings associated with the school, the golf course and the adjoining M53 corridor. The agricultural field and associated mature field boundary hedgerows and associated trees are typical of those found within the wider area. The motorway corridor is a detracting factor, however visually, its prominence is moderated by it being in cutting.
Distinctiveness	Overall, the landscape is predominantly agrarian and urban fringe with common characteristics. The Site is well enclosed in part by hedgerows, trees and woodland but also by the buildings at Raby Hall to the east. The presence of woodland is characteristic but not rare.
Natural Heritage	The Site does not include any designated habitats. The surrounding boundary trees and hedgerows in varying conditions have local value in terms of biodiversity. Trees located within the Site along the south-eastern boundary with Raby Hall Road are protected by TPO.
Cultural Heritage	There are no cultural heritage assets within the Site or within its immediate setting.

Recreational	There is no formal/permissive public access to the Site or recreational facilities therein. The golf course to the immediate south of the Site and the PRoW which crosses it provide recreational value to the wider area.
Perceptual (Scenic)	Views are well contained by existing woodland and trees. Raby Hall School is partially visible to the east. There are some long-distance views from the north-eastern corner of the Site. The motorway is in cutting so is not visible from the Site.
Perceptual (Wilderness and Tranquillity)	The close proximity of the motorway and the school buildings mean that the Site and its setting is not considered to be wilderness. There are greater levels of tranquillity away from the settlement edges. The Wirral Environmental Sensitivity Study (ESS) describes the area as having slightly above moderate levels of Night Blight. With regards to Tranquillity, the ESS attributes the majority of the area with lower levels of tranquillity.
Associations	There is no evidence that the Site and its immediate setting are connected with notable people, events and the arts.
Functional	The rural land functions effectively as agricultural land and plays an ordinary role in its part within the green infrastructure network surrounding the settlement edges. The rural land has limited ecological value/natural function, albeit localised parts of it function to a greater extent where trees are present.
Overall Judgement of Landscape Value	The landscape is considered to be of Low-Medium value.

Table 7.2f – Landscape Value

Considerations associated with the landscape value of landscape features within the Site	
Landscape Designations	The landscape within the Site is not protected by national or local statutory landscape designations.
Landscape condition	The agricultural field and mature field boundary vegetation are typical of those found within the wider area and these elements are in a varying degree of condition and are common landscape features. The trees within the Site are peripheral and are

	generally of moderate to low quality, with 2 high quality trees (T17 to the north-west corner and T25 located on the southern boundary, close to Raby Hall Road. There is a small copse in the south-west corner of the Site with the majority of the Site being arable land. The northern boundary of the Site abuts the horticultural area of the school to the west of the school buildings and is defined by a high steel fence.
Distinctiveness	The Site contains some characteristic features in terms of boundary vegetation but none of which are considered particularly important examples. The Site does not include uncommon characteristics or features considered to be rare.
Natural Heritage	There is a small copse and boundary trees and hedgerows in varying conditions. These features have local value in terms of biodiversity. With the exception of the trees located along the Site's south-eastern boundary with Raby Hall Road (which are protected by TPO), there are no associated designations in place.
Cultural Heritage	No heritage assets within the Site.
Recreational	No formal public access or recreational facilities within the Site and along the boundaries, however there is evidence that there is an informal track in the part of the Site located to the east of the main entrance driveway into Raby Hall School, which links Blakeley Lane with the driveway.
Perceptual (scenic)	The field within the Site provides a general sense of the rural countryside that is found beyond the settlement edge but it is visually well contained by the roadside vegetation, especially its boundary with M53. The buildings at Raby Hall School are viewed surrounding the Site and it is not considered to be wilderness. No long-distance views into or from the Site.
Perceptual (Wilderness and Tranquillity)	The Site is not considered to be wilderness due to the proximity of the motorway and urban edge. There are greater levels of tranquillity away from the settlement edges. The Wirral Environmental Sensitivity Study (ESS) describes the Site as having slightly above moderate levels of Night Blight. With

	regards to Tranquillity, the ESS attributes the majority of the area with lower levels of tranquillity.
Associations	There is no evidence that the landscape is connected with notable people, events and the arts.
Functional	The agricultural land within the Site has limited ecological value/natural function.
Overall Judgement of Landscape Value	The landscape features are considered to be of Low to Medium value.

7.4.74 In light of the above analysis regarding landscape value, it is clear that the Site and wider study area are not valued in terms of NPPF, paragraph 174a.

Landscape Sensitivity

7.4.75 As described within the Methodology (Appendix 7.1), the sensitivity of the landscape is ascertained via a combined judgement of value and susceptibility to change.

7.4.76 GLVIA3 defines susceptibility to change as *'the ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the baseline and/or landscape planning policy or strategy'*. With reference to Table 2 of the Methodology, susceptibility is graded on a scale of high, medium or low and will vary according to the nature of the development proposed, which in this instance, is new residential development and associated green infrastructure.

Table 7.3 – Landscape Sensitivity

Receptor	Value of the Landscape	Susceptibility to Change	Resulting Sensitivity
NCA 58 – Mersey Conurbation	Medium (Table 7.2a above)	Low to Medium - The parts of the NCA within the study area include rural areas, urban fringes and areas of built form, which predominantly comprises residential development. The relatively small scale and proximity of the Site to the urban fringe, its proximity to the M53, the	**Low - Medium**

		peripheral nature of its key landscape features and the nature of the Proposed Development combine to moderate the susceptibility of the NCA to the Proposed Development.	
NCA 59 - Wirral	Medium (Table 7.2b above)	Low - The part of the NCA that is located within the study area for this assessment is physically separated from the Site and the wider study area to the east by the M53 corridor. This area has a more open, agricultural character than the land located to the east of the motorway. Despite the relative proximity of the Site to this NCA, the NCA's tolerance to the proposed housing development is increased by the physical presence and location of the M53, the contained nature of the Site, the presence of robust semi-natural landcover and limited levels of intervisibility.	**Low - Medium**
LCT 4 – Lowland Farmland and Estates, specifically LCA 4c Clatterbrook and Dibben Valley Lowland	Medium (Table 7.2c above)	Medium – The landscape in the vicinity of the Site is located between the M53 corridor and the settlement edge. This area has a more enclosed, wooded character than parts of the LCA located to the west of the motorway. The LCA's tolerance to the proposed housing development is increased by the physical presence and location of the M53, its connectivity with the settlement edge to the east, the	**Medium**

		contained nature of the Site, the presence of robust semi-natural landcover and the peripheral nature of the landscape features on the Site, such as the pond, hedgerows and trees, provides the opportunity for their retention.	
LCT 4 – Lowland Farmland and Estates, specifically LCA 4d Raby Lowland Farmland and Estates	Medium (Table 7.2d above)	Low - The part of the LCA that is located within the study area for this assessment is physically separated from the Site and the wider study area to the east by the M53 corridor. This area has a more open, agricultural character than the land located to the east of the motorway. Despite the relative proximity of the Site to this LCA, the LCA's tolerance to the proposed housing development is increased by the physical presence and location of the M53, the contained nature of the Site, the presence of robust semi-natural landcover and limited levels of intervisibility.	**Low - Medium**
The landscape character of the Site and its immediate setting	Low-Medium (Table 7.2e above)	Low to Medium – Whilst there would be a direct change to the undeveloped field, the proximity of the Site to the urban fringe and the M53 as well as the peripheral nature of its key landscape features combine to moderate the susceptibility. The existence of visible buildings at settlement edges and the enclosure provided by the surrounding woodland	**Low-Medium**

		provides a context in which development can be sited and only influence a limited area. Appropriate mitigation can be provided to enhance assimilation of new housing into the existing context.	
Landscape features within the Site	Low/Medium (Table 7.2f above)	Medium – Aside from the agricultural field, the Site incorporates peripheral natural features which are common to the area; Trees located along the Sites south-eastern boundary are protected by TPO - in addition to the hedgerows, there are numerous individual trees and tree groups with a low to moderate quality/value and there are 2no high quality trees, all located along the boundaries; they contribute to the character of the Site and the wider area and with the exception of creating an access into the Site, have the potential to be retained. Detracting and urbanising features comprise the high steel mesh fence located along the northern boundary with Raby Hall School.	**Low - Medium**

Visual Context

7.4.77 Figure 1, Appendix 7.2 describes the Site in its context and includes the locations of site photographs A, B, C and D as set out within Figure 5, Appendix 7.2. They illustrate the relationship between the Site and the surrounding land uses, the presence and proximity of Raby Hall School and levels of enclosure provided by the boundary and adjacent vegetation.

7.4.78 The visual survey was conducted in late winter / early Spring when the trees were not in full leaf. As a result, the visual prominence of the Site was surveyed at a time when the surrounding deciduous vegetation was providing the lowest levels of screening due to the absence of any leaf cover. It is therefore assumed that when surrounding deciduous trees and vegetation are in full leaf, levels of visual prominence are likely to decrease.

Visual Receptors

7.4.79 Given the location of the Site, the topography of the Site and the wider study area, the presence of the Public Right of Way through the Golf Course, Raby Hall School and the road network, the following visual receptors and associated representative viewpoints were ascertained. PRoWs have been referred to by their number from Wirral Council's online map.

7.4.80 Figure 6 describes the location of the various visual receptors and associated representative viewpoints set out within Table 7.4 below. The subsequent narrative describes the nature of the views experienced. Figure 8 includes viewpoint photographs.

Table 7.4 - Visual Receptors and Representative Viewpoints

Visual Receptor Type	Visual Receptors (RG: Receptor Groups)	Representative Viewpoints
Public Views from the Road Network	RG1 – Motorists, cyclists and pedestrians using Raby Hall Road	VP1, 2, 3, 4, 5 & 6
Public Views from PRoWs	RG2 – People Using PRoW FP36	VP7, 8 and 9
Views from Bromborough Golf Couse	RG3 – Golfers on Bromborough Golf Course	VP7, 8 and 9
Views from Raby Hall School	RG4 – Pupils and staff attending Raby Hall School	-

Public Views

<u>RG1 – Motorists, Cyclists and Pedestrians Using Raby Hall Road</u>

7.4.81 Raby Hall Road tracks along the southern boundary of the Site separating it from Bromborough Golf Course to the south. It continues to the west and subsequent to passing over the M53, dips into a localised, narrow valley associated with a watercourse, before turning to the north and adjoining Raby Mere Road. To the east of the Site, Raby Hall Road passes the entrance to Raby Hall School and a further arable field to the north, before

intersecting with the southern end of Blakeley Road. To the west of this junction there are no highway footpaths alongside Raby Hall Road. As a result, the views considered are primarily those experienced by road users (people in vehicles and motorcyclists/cyclists.

7.4.82 The boundary of the Site is lined with mature hedgerow and in part by mature trees. The boundary vegetation (hedgerow and trees) between the Site and the road becomes deeper and denser towards the western end of the Site and when travelling in an easterly direction, views across the Site open up upon passing these trees (these views include the school buildings located at the eastern end of the Site). When travelling in a westerly direction, views of the Site are experienced after passing the south-eastern corner of the Site and these views are to an extent, limited by the boundary hedgerow and a line of mature trees located just behind it.

7.4.83 The hedgerow/tree lined boundaries to the Site, the woodland to the north and the golf course to the south contribute to the rural characteristics of the road corridor, whereas the road markings, signage, the school buildings and the security fence to the north of the Site imbue a sense of proximity to the urban edge. The hedge to the Site boundary is relatively low, with occasional gaps allowing clearer views into the Site in some locations.

VP1 – The photograph is taken from the Raby Hall Road close to the south-eastern corner of the Site. It describes the view looking westwards along the road and across the Site. The boundary hedgerow and matures trees along the boundary between the Site and the road is clearly visible and restricts views into the Site. Dense vegetation at the eastern end of the Site is visible to the right of the photograph and obscures views of eastern parts of the Site. The partial views across the Site include the steel mesh fence located along the Site's northern boundary and its visual permeability allows views of agricultural structures within the horticultural area at Raby School, that lie beyond. There are filtered, partial views through the trees of a large agricultural shed, which is located to the west beyond the motorway. The clarity of the partial views of the Site from this location would likely be reduced when the intervening hedgerow and trees are in leaf.

VP2 – This viewpoint photograph is taken from Raby Hall Road looking in a north-easterly direction towards the northern and eastern boundaries of the Site. The gappy, relatively low roadside hedgerow and an absence of trees in this location allow uninterrupted views across the Site, which include the various structures within the horticultural area of Raby Hall School to the north and its main buildings to the north-east. Beyond the Site to the north, the woodland contains the school grounds and the Site, whilst screening views into the wider landscape.

VP3 – Looking to the north-east from the section of Raby Hall Road which is located adjacent to the south-western corner of the Site, Viewpoint 3 incorporates a limited view of the south-eastern corner of the Site. The block of trees located between the Site and the road restrict views into the main body of the Site from this location. The clarity of the partial views of the Site from this location would likely be reduced when the intervening hedgerow and trees are in leaf.

VP4 – This viewpoint photograph is taken from the bridge over the motorway on Raby Hall Road and looks in a north-easterly direction, along the road towards the Site. The dense vegetation along the M53 embankment and along the Sites western and south-western boundaries screen the majority of the Site from view. Some of the structures within the horticultural area at Raby Hall School (to the north of the Site) are partially visible to the left of the view with the woodland at Raby Mere screening views into the wider landscape beyond. The slight rise in the landform towards the eastern end of the Site and gaps in the roadside vegetation allow a glimpsed view of eastern end of the agricultural field that forms the Site, with dense vegetation defining its eastern boundary.

VP5 – Located circa 150m to the west of the motorway this viewpoint photograph looks in an easterly direction along Raby Hall Road towards the Site. The road is contained by adjacent hedgerows and tree cover, which prevent ant clear views of the Site beyond. As a result, the only view of the Site is experienced along the alignment of the road and comprises the south-eastern parts of the Site, with a backdrop of trees located along the Site's eastern boundary with the grounds of Raby Hall School. The visible part of the Site forms a very small, distant (circa 500m+) element within the view and the clarity of this partial view, would likely be reduced when the intervening hedgerow and trees are in leaf.

VP6 – This viewpoint photograph is taken from Raby Hall Road, directly to the south-east of Raby Hall Farm, to the west of the motorway, circa 480m from the westernmost edge of the Site. Views over the roadside hedgerow include the agricultural buildings associated with Raby Hall Farm with a densely wooded landscape beyond. The white rendered elevations of the Raby Hall School buildings are just about discernible, as is the Site (partly due to its gently rising landform), both set amongst the dense tree cover. The clarity of this partial view of the Site, would likely be reduced when the intervening trees are in leaf.

<u>RG2 – People Using PRoW FP36</u>

7.4.84 This public footpath crosses Bromborough Golf Course to the south of the Site. It is accessed over a low style on Raby Hall Road and tracks across the golf course with a straight alignment on a north/south orientation. Views of the Site are experienced when walking in a northerly direction towards Raby Hall Road, however they are limited by

intervening trees located within the golf course itself and by the mature trees that line Raby Hall Road.

VP7 – Located within Bromborough Golf Course, circa 180m to the south-east of the Site, this viewpoint provides walkers on the footpath with uninterrupted views across the golf course towards Raby Hall Road and the Site beyond. Views of the Site are limited to its south-eastern corner primarily by a block of woodland within the golf course and the limited, partial nature of the view of the Site is due to the intervening mature trees and hedgerows located along both sides of Raby Hall Road. The clarity of this partial view of the Site, would likely be reduced or even completely screened when the intervening trees and hedgerows are in leaf.

VP8 - Positioned circa 190m to the south of Viewpoint 7, this viewpoint is located on the section of Public Footpath FP36, that crosses over the fairway associated with the 3rd Hole. With the exception of the intervening trees and hedgerows on Raby Hall Road, the uninterrupted view towards the Site looks along the alignment of the 3rd hole towards its green, which is located close to the boundary with Raby Hall Road. The view is contained to the east and west by adjacent blocks of woodland and the mature trees and hedgerows on Raby Hall Road allow a partial view of the Site beyond. At a distance of circa 300m, the Site forms a relatively small element within the wider view. The partial view of the Site is unlikely to be experienced when the intervening trees and hedgerows are in leaf.

VP9 – This viewpoint is located circa 80m to the south of Viewpoint 8 above and demonstrates that as the distance to the south increases, the likelihood of a view of the Site from this footpath is significantly reduced. This is due to the presence of intervening trees on the golf course and the absence of any fairways offering uninterrupted views towards the Site. As a result, the Site is not visible from this location or from any other location on the footpath to the south.

<u>RG3 – Golfers on Bromborough Golf Course</u>

7.4.85 Golfers playing holes 1, 2, 3, 4, 5, 16, and 17 may experience partial views of the Site from distances of between circa 30m and 350m (these views will be of a similar nature to those experienced from Public Footpath FP36 Viewpoints 7, 8 and 9). Golfers playing the 1st, 3rd, 4th and 16th greens and the tees for the 2nd and 5th holes, will experience the clearest, partial views of the Site due to the close proximity of these locations to Raby Hall Road and the Site beyond. In all instances, the clarity of the views of the Site, which are experienced from the golf course is likely to be significantly reduced when the intervening trees and vegetation is in leaf.

RG4 – Pupils and Staff Attending Raby Hall School

7.4.86 The eastern and northern boundaries of the Site adjoin the grounds of Raby Hall School. The eastern boundary to the school is defined by mature trees and other vegetation that creates a dense screen between the Site and the hall's grounds and driveway beyond. The northern boundary however, is defined by a steel mesh security fence and is devoid of any boundary vegetation. As a result, there are high levels of intervisibility between the Site and the main school buildings, and the open horticultural areas located to the immediate north. Some of the school buildings have ground floor and upper floor windows which face west and south over the Site. The absence of boundary vegetation allows people using these buildings, the grounds and the horticultural facilities to the north, to experience clear views across the Site.

Private Views

7.4.87 There are no residential properties within close proximity of the Site and no visual connection with properties within the wider study area due to intervening vegetation and the built form.

Sensitivity of Visual Receptors

7.4.88 As set out within the Methodology (Appendix 7.1) and in GLVIA3, the sensitivity of visual receptors is derived from judgements made regarding the value attached to the view as indicated by planning designations, relationships to heritage assets, associations with art, recognition in guide books/tourist maps or the provision of facilities for their enjoyment (such as parking, sign boards, interpretive material etc), and the susceptibility of the visual receptor to change, which is indicated by their occupation or activity and the extent to which their attention is focussed on the view.

7.4.89 The value of the views experienced by people using Raby Hall Road is considered to be low-medium. The road provides vehicular access through the area and the route is not recognised through planning designation or in relation to heritage assets and is not a scenic trail.

7.4.90 The value of the views experienced by people using Public Footpath FP36 and golfers using Bromborough Golf Course are considered to be medium. The views are attractive however, they primarily comprise the golf course with limited views of the landscape beyond. Views are not recognised through any planning designations or in relation to heritage assets and they do not appear to be acknowledged by any guides or mapping.

7.4.91 The value of the views experienced by people at Raby Hall School are considered to be medium. The views incorporate the Site, which forms an open area to the south and west of the school grounds and despite the proximity to the motorway and the golf course, the views are predominantly rural. Views are not recognised through any planning designations or in relation to heritage assets and they do not appear to be acknowledged by any guides or mapping.

7.4.92 Table 7.5 below, sets out the value of the views experienced and the visual receptor's susceptibility to change and combines the two to determine the sensitivity of the identified visual receptor types.

7.4.93 As stated within the Methodology (Appendix 7.1), this assessment acknowledges the presence of residents experiencing a view of the Site, however it does not specifically or fully assess any effects the Proposed Development may have on these private views. As a result, the value, susceptibility to change and the resulting sensitivity of these receptors is not considered hereafter.

Table 7.5 – Summary of Visual Receptor Sensitivity

Visual Receptor	Value of the Views	Susceptibility to Change	Resulting Sensitivity
RG1 - Road Users on Raby Hall Road	Low-Medium	Low-medium – Intermittent, clear and partial views of the Site can be experienced by road users, particularly where there are gaps in the tree cover along the boundary with the road and/ or where the hedgerow is lower, thus allowing clearer views into the Site. However, the road corridors are dominated by vehicles with people using the routes for access, rather than for their enjoyment of the views/landscape. The vegetation around the boundaries and the presence of the Raby Hall School buildings restricts views out into the wider landscape.	Low - Medium
RG2 - People Walking PRoW FP36	Medium	Medium – People using Public Footpath FP36 are engaged in outdoor recreation	Medium

		and although they are likely to have a focus upon their enjoyment of the landscape, there are limited views into the wider landscape, the route is through the golf course and there are views towards the Site and the settlement edge.	
RG3 – Golfers on Bromborough Golf Couse	Medium	Low - Medium – Golfers are engaged in outdoor recreation however they are likely to have a focus upon the golf course itself and their activity therein, rather than a specific enjoyment of the views/landscape. There are limited views into the wider landscape, the route is through the golf course and there are views towards the settlement edge.	Low - Medium
RG4 – Pupils and Staff at Raby Hall School	Medium	Low – Pupils and staff are not likely to have a focus on views when engaged in indoor activities, however when undertaking outdoor activities within the grounds of the school there is likely to be a higher level of appreciation of the surroundings /landscape setting/views. The outdoor facilities at the school are predominantly located adjacent to the Site, so there are clear views of the Site from the areas where the main outdoor activities take place.	Low-Medium

7.5 Assessment of Potential Effects

Scheme Proposals and Primary Mitigation

7.5.1 The scheme proposals are shown on the Illustrative Landscape Framework and Parameter Plan. Material presented within the Design and Access Statement provides contextual information.

7.5.2 The plans show the retention and enhancement of all the existing boundary vegetation which would be incorporated into a wide swathe of public open space running along the southern and western boundary. This would provide a substantial landscape buffer between the proposed developed and the road network along Raby Hall Road and the M53. The open space in the western portion of the Site would contain a drainage attenuation basin which would be part of the surface water drainage strategy, providing the opportunity to introduce wetland habitats.

7.5.3 The retained woodland and hedgerows provide the landscape structure for the Proposed Development. These would be enhanced and set within substantial landscape buffers, with additional planting within the Site and along the boundaries. The northern boundary is currently defined by a steel mesh fence. A new hedgerow with trees would improve this boundary. A section of the western boundary would be defined by an acoustic fence to help moderate noise levels from the motorway.

7.5.4 The proposals would include a Local Area for Play (LAP) as well as network of informal footpaths. The footpaths would link northwards and eastwards, through the southern buffer, providing safe pedestrian access though the Site to connect to Raby Hall School.

7.5.5 A tract of land at the eastern end of the Site would be safeguarded to provide Autism Together with the future opportunity to provide additional accommodation and/or car parking areas. This area would be connected to the main school site by an access road and/or footpath links.

7.5.6 The development would be set back into the Site behind enhanced boundary treatments, creating a landscape buffer between the road and the Proposed Development. The properties would be outwards facing, fronting the streets with soft boundary treatments and additional tree planting.

7.5.7 The retention of existing boundary hedgerows and trees and the provision of new boundary hedges and trees at locations where they are currently absent, would retain existing and create additional wildlife corridors, whilst enhancing biodiversity levels on Site.

7.5.8 The existing access point, which comprises double width timber field gates, would form the new site access minimising the loss of existing boundary hedgerow. The retained sections of hedgerow would be enhanced, and additional tree planting would be positioned within the buffer area and along the roadside where appropriate.

7.5.9 The residential streets would be planted with street trees and garden trees. There would an overall increase in the amount of tree planting with native and parkland trees

incorporated into the public open spaces as well as trees within gardens. The proposed planting of trees, native woodland, hedgerows and wildflower grasslands would compensate for any losses of vegetation, help assimilate the built form into the landscape and would enhance in the amenity and ecological value of the Site.

Construction Phase Impacts

7.5.10 It is assumed that the mitigation of likely construction effects on landscape and views would be achieved through the implementation of a Construction Environmental Management Plan (CEMP) which could be secured by planning condition, and which would include the following measures:

- Protection of hedgerow and trees to be retained to BS 5837 (2012), for the duration of clearance, grading and construction works;
- Protection of other landscape features such as waterbodies and soils through careful working methods and handling of materials to prevent pollution and ensure the integrity of resources;
- Visual screening of on-site activity where practical, and where this would not be a highly negative visual distraction in itself;
- Careful siting of construction compounds to minimise visual effects on receptors; and
- Management of working times to minimise visual effects of construction in evenings.

<u>Landscape Effects</u>

7.5.11 As set out within the Methodology (Appendix 7.1), the significance of effect is a combined judgement of the sensitivity and the magnitude of change.

7.5.12 The sensitivity of the landscape receptors is set out within Table 7.3.

7.5.13 The magnitude of effect is a combined judgement of the size/scale of effect, geographic extent and duration/reversibility of the effect. Table 7.6 sets out the significance of effect on the landscape during the construction phase.

Table 7.6: Construction Phase - Landscape Effects

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
NCA 58 Mersey Conurbation	Low to Medium	Construction would be to an extent, out of character with the established landscape, although not entirely contrary to the townscape of the NCA. There is some association with the existing settlement edge to the east of the Site, and the Site is connected to it, via a footpath within a corridor of green infrastructure. The additional movement and introduction of temporary site cabins, heavy plant, silos, stored materials etc generated by construction activity within the Site, as well as the unfinished nature of the built forms during construction would be in contrast to the more 'settled' appearance of the surrounding landscape and townscape. Given the nature of the Site, the scale of the works and the scale of the NCA, the construction effects would be contained and localised within a small area. Effects would be short term (0 to 5 years) and temporary.	Medium	**Moderate adverse**
NCA 59 Wirral	Low-Medium	The construction activity would not directly affect the NCA as the Site is physically and visually separated from it by the M53 motorway, intervening tree cover and a distance of circa 70m+. There would be no close-range or distant views of construction features, movement/activity. Effects would be experienced within an adjacent NCA	Negligible	**Negligible**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		with very limited levels of intervisibility. Effects would be short term (0-5 years) and temporary.		
LCT 4 – Lowland Farmland and Estates, specifically LCA 4c Clatterbrook and Dibbin Valley Lowland	Medium	Construction activity would directly affect a small proportion of this character area which is closely associated with the buildings at Raby Hall School and to a lesser extent, the nearby existing settlement edge of Raby Mere. The construction work would be somewhat out of character with this settled landscape and the movement/activity, the introduction of temporary site cabins, heavy plant, silos, stored materials etc and unfinished nature of the built forms would contrast with this semi-rural landscape. There would be a loss of farmland, some short sections of hedgerow and the semi-rural character of Raby Hall Road would be diminished but no other key characteristics or valued landscape attributes would be affected. Given the nature of the Site, the scale of the works and the scale of the LCA, the construction effects would be contained and localised within a relatively small area. Effects would be short term (0 to 5 years) and temporary.	Medium to High adverse	**Moderate to Major adverse**
LCT 4 – Lowland Farmland and Estates, specifically	Low-Medium	The construction activity would not directly affect the LCA as the Site is physically and visually separated from it by the M53 motorway, intervening tree cover and a distance of circa 70m+.	Negligible	**Negligible**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
LCA 4d Raby Lowland Farmland and Estates		There would be no close-range or distant views of construction features, movement/activity. Effects would be experienced within an adjacent LCA with very limited levels of intervisibility. Effects would be short term (0-5 years) and temporary.		
The landscape character of the Site and its immediate setting	Low-Medium	Construction activity would directly affect the land within the Site. The additional movement and introduction of temporary site cabins, heavy plant, silos, stored materials etc generated by construction activity within the Site, as well as the unfinished nature of the built forms during construction would be in contrast to the more 'settled' appearance of the surrounding landscape. The Site is influenced by existing urban development including the school and motorway. The enclosure provided by the surrounding trees would limit the visibility of the construction work to a localised area. Effects would be short term (0 to 5 years) and temporary.	Medium-High adverse	**Moderate adverse**
Landscape features within the Site	Low to Medium	The existing landscape features, being the boundary hedgerows and trees and the woodland copse to the south-western corner of the Site would be substantially retained. All TPO trees would be retained. The arable field would be lost and a section of the boundary hedgerow along Raby Hall Road would be removed to facilitate the	Low adverse	**Minor adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		construction of the new site access. The gently sloping topography of the Site would be maintained as construction would modify levels on a localised basis, at a relatively small scale to facilitate the construction of access routes and built form.		

Summary of Landscape Effects During Construction

7.5.14 National Character Area 58 Mersey Conurbation covers a large proportion of the central and eastern tracts of the peninsula and includes predominately settlement and industrial areas. The section of the NCA that is located within the study area incorporates predominantly residential areas, woodland and agricultural land on the urban fringe. The construction phase would generate a **Moderate Adverse** landscape effect. There would be **Negligible** effects upon NCA 59 Wirral.

7.5.15 The construction phase would generate some **Moderate to Major Adverse** landscape effects upon the LCT 4 – Lowland Farmland and Estates, specifically LCA 4c Clatterbrook and Dibbin Valley Lowland as the Site is located within this LCT/LCA.

7.5.16 LCT 4 – Lowland Farmland and Estates, specifically LCA 4d Raby Lowland Farmland and Estates is located to the western sections of the study area, beyond the M53 corridor. There is no physical or visual connectivity with the Site. As a result, this LCT/LCA is not expected to be affected by the construction phase to any great extent with **Negligible** effects.

7.5.17 During the construction phase the effects on the landscape character of the Site and it's immediate setting would be **Moderate Adverse** given that the works would contrast with the open character of the Site, the adjacent rural landscape and the settled character of the surrounding townscape but would be contained within a localised area and would be experienced in the context of the urban edge.

7.5.18 Construction activity would result in the loss of the agricultural land within the Site and a section of existing hedgerow in order to facilitate the implementation of the Proposed Development. All other existing features such as boundary trees (including TPO trees) and

hedgerows and the area of woodland to the south-west, would be retained. As a result, the landscape features of the Site are considered to be affected to a **Minor Adverse** level.

Visual Effects

7.5.19 Table 7.7 below sets out the anticipated visual effects upon the identified visual receptors during the construction phase of the development.

Table 7.7: Construction Phase - Visual Effects

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
RG1 – Motorists, cyclists and pedestrians using Raby Hall Road	Low - Medium	Motorists, cyclists and pedestrians using Raby Hall Road would experience a sequence of clear and partial views of the construction works and activity, being houses under construction, site plant and traffic movements, silos, site cabins, stored materials, stockpiles etc. Views of the Site generally extend over the low boundary hedge and in places, are filtered by the boundary trees that are located within or just behind the hedgerow. Views are oblique and intermittent. Views would be experienced only when approaching and passing the Site in both westerly and easterly directions along the route. Effects would be short term (0 to 5 years) and temporary. VP1 – Road users approaching the Site from the east are likely to experience filtered views of the construction works on the Site due to gaps between the retained roadside boundary trees. The level of change would be increased by the uncharacteristic nature of the	VP1 – Low-Medium adverse	**VP1 – Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		construction activity/works, the close proximity of the works, the rural aspects of the view, a reduction in openness, a diminished sense of being beyond the settlement edge and an appreciation of the extent of the construction activity. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the urbanising presence of the road and the existing structures/agricultural built form within the Raby Hall School site and at Raby Hall Farm to the west, and seasonal variations in the clarity of the views. VP2 – Clear views of the construction works/activities would be experienced from the section of road that is central to the Site. This central part of the Site's southern boundary is formed by a low hedgerow without any accompanying trees. The views would also incorporate the section of hedgerow removed in order to construct the new site access off Raby Hall Road. The level of change would be increased by the uncharacteristic nature of the construction activity/works, the close proximity of the works to this location, the rural aspects of the existing view, a reduction in openness, a diminished sense of being beyond the settlement edge, the proportion of the view affected and an appreciation of the fuller extent of the works. The level of	VP2 – Medium-High adverse	**VP2 – Moderate-Major adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		change would be moderated by the existing wooded backdrop to the views and the urbanising presence of the road and adjacent structures/built form within the grounds of Raby Hall School. VP3 – The construction activity would for the most part, be screened from the view by the boundary vegetation located within the south-western corner of the Site. The view to the east along Raby Hall Road extends beyond this block of vegetation and would incorporate the construction works/activities located within the southern, central and eastern sections of the Site. The level of change would be increased by the uncharacteristic nature of the construction activity/works and the absence of built form/rural aspect of the view. The level of change would be moderated by the partial nature of the view due to the intervening vegetation, the small proportion of the view that is affected, the lack of appreciation of the full extent of the works, the wooded backdrop, the urbanising presence of the road and seasonal variations in the clarity of the view. VP4 – On approaching the Site from the west, when crossing the bridge over the M53, road users would experience a limited view of the construction works/activity within a very small portion	VP3 – Low-Medium adverse VP4 – Negligible Low adverse	**VP3 – Minor-Moderate adverse** **VP4 – Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		of the eastern part of the Site. The gently rising nature of the eastern half of the Site increases its visual prominence within the view. The limited nature of the view is due to its distance and the presence of dense intervening vegetation. The level of change would be increased by the uncharacteristic nature of the construction activity/works, the absence of built form/rural aspects of the view and the rising ground within the eastern part of the Site. The level of change would be moderated by the partial nature of the view due to the intervening vegetation, the distance (circa 250m+), the urbanising presence of the motorway bridge and the road, the small proportion of the view affected, the absence of an appreciation of the full extent of the works and seasonal variations in the clarity of the views. VP5 – Located further to the west along Raby Hall Road, this viewpoint looks in an easterly direction along Raby Hall Road towards the Site. Intervening roadside vegetation and mature trees and woodland within the landscape obscure most of the Site. A gap in the roadside hedgerow and the rising nature of the eastern portion of the Site create the potential for views of the construction activity/works within the eastern section of the Site. These views would be fleeting and filtered through the vegetation. The	VP5 – Negligible-Low adverse	**VP5 – Negligible Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		level of change would be increased by the uncharacteristic nature of the construction activity/works and the absence of built form in the view/the rural aspect of the view. The level of change would be moderated by the small proportion of the view affected, the limited, partial nature of the view, the distance (circa 420m+), the absence of an appreciation of the fuller scale and extent of the construction activity and seasonal variations in the clarity of the views.		
		VP6 – Located on Raby Hall Road to the west of the Site, this viewpoint looks in an easterly direction towards the Site from a distance of circa 480m+ (distance to the eastern boundary is circa 790m. Intervening mature trees and areas of woodland within the landscape obscures the majority of the Site. A gap in the intervening tree cover and the rising nature of the eastern portion of the Site would allow road users a fleeting view of the construction works/activity. The level of change would be increased by the uncharacteristic nature of the construction activity/works, the rural aspect of the view and the distance. The level of change would be moderated by the small proportion of the view affected, the limited, partial nature of the view, the presence of built form in the view, the absence of an appreciation of the fuller	VP6 – Low adverse	**VP6 – Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		scale and extent of the construction activity and seasonal variations in the clarity of the views.		
RG2 – People walking PRoW FP36	Medium	People walking in a northerly direction on PRoW FP36 experience a sequence of views which are affected to a variable extent by tree planting within the golf course. In some instances, walkers experience open and expansive views across the golf course including views towards the tree lined roadside of Raby Hall Road with filtered views of the Site beyond. Any effects would be short term (0 to 5 years) and temporary. VP7 – Walkers would experience limited, partial views of the construction activity due to the presence of the intervening trees located along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the construction works/activities would be significantly reduced or possibly completely screened. The level of change would be increased by the uncharacteristic nature of the construction activity/works, a reduced sense of being located beyond the settlement edge and their relatively close proximity. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the golf course environs, the relatively small proportion of the view affected, the absence of an appreciation of the fuller extent of the	VP7 – Low adverse	**VP7 – Minor/ Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		construction activity and seasonal variations in the clarity of the views. VP8 – Walkers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the construction activity beyond the intervening mature trees along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the construction works/activities would be significantly reduced or possibly completely screened. The level of change would be increased by the uncharacteristic nature of the construction activity/works, a reduced sense of being beyond the settlement edge their relatively close proximity and the absence of built form in the view. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the relatively small proportion of the view affected, the golf course context of the view, the absence of an appreciation of the fuller extent of the construction activity and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and vegetation, walkers are unlikely to	VP8 – Negligible Low adverse VP9 – Negligible	**VP8 – Minor adverse** **VP9 – Negligible**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		experience a discernible change to their views.		
RG3 – Golfers on Bromborough Golf Course	Low-Medium	Golfers playing holes 1, 2, 3, 4, 5, 16, and 17 may experience partial views of the construction activity/works on the Site from distances of between circa 30m and 350m (these views would be of a similar nature to those experienced from Public Footpath FP36 Viewpoints 7, 8 and 9, however in some instances, golfers would experience views of the development from closer locations). Golfers playing the 1st, 3rd, 4th and 16th greens and the tees for the 2nd and 5th holes, would experience the clearest, partial views of the construction activity due to the close proximity of these locations to Raby Hall Road and the Site beyond. In all instances, the clarity of the views experienced from the golf course is likely to be significantly reduced or completely screened when the intervening tree cover and vegetation is in leaf. Any effects would be short term (0 to 5 years) and temporary. VP7 – Golfers would experience limited, partial views of the construction activity due to the presence of the intervening trees located along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the construction works/activities would be significantly reduced or possibly completely	VP7 – Low adverse	**VP7 – Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		screened. The level of change would be increased by the uncharacteristic nature of the construction activity/works, the reduced sense of being beyond the settlement edge and their relatively close proximity. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the relatively small proportion of the view affected, the golf course context, the absence of an appreciation of the fuller extent of the construction activity and seasonal variations in the clarity of the views. VP8 – Golfers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the construction activity beyond the intervening mature trees along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the construction works/activities would be significantly reduced or possibly completely screened. The level of change would be increased by the uncharacteristic nature of the construction activity/works, a reduced sense of being beyond the settlement edge, their relatively close proximity and the absence of built form in the view. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the relatively small proportion of the view affected, the	VP8 – Negligible Low adverse	**VP8 – Negligible Minor adverse-**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		golf course context of the view, the absence of an appreciation of the fuller extent of the construction activity and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and vegetation, golfers are unlikely to experience a discernible change to their views from this location or other locations on the golf course to the south.	VP9 – Negligible	**VP9 – Negligible**
RG4 – Pupils and Staff at Raby Hall School	Low-Medium	People using the school site would experience clear views of the construction activity from windows facing west and from the outdoor horticultural/agricultural activity areas to the west of the school buildings and to the immediate north of the Site. Any effects would be short term (0 to 5 years) and temporary. People would experience views of the new houses from west facing windows. Ground level views would be limited by new boundary fencing/acoustic fencing between the Site and the main outdoor activity areas. The level of change would be increased by the uncharacteristic nature of the construction activity/works, a loss of openness, the close proximity of the works, the clear nature of the views due to an absence of intervening vegetation, the relatively high proportion	Medium-High adverse	**Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		of the view affected and an appreciation of the extent of the construction activity. The level of change would be moderated by the urbanising presence of the school buildings, the boundary fence and Raby Hall Road.		

Summary of Visual Effects During Construction

7.5.20 The construction works would affect views from locations on Raby Hall Road, Public Footpath FP36, Bromborough Golf Course and the Raby Hall School site (Autism Together). It is expected that views from locations within close proximity of the Site would be subject to higher levels of adverse effect.

7.5.21 During the construction phase, there would be some **Minor Adverse-Negligible** to **Moderate-Major Adverse** visual effects for those travelling past the Site on Raby Hall Road.

7.5.22 The construction works would be visible from locations on PRoW FP36 and there would be **Minor-Moderate Adverse** to **Negligible** visual effects upon the views experienced by people using this public footpath.

7.5.23 Golfers on Bromborough Golf Course would experience **Negligible-Minor Adverse** to **Minor Adverse** visual effects during the construction phase.

7.5.24 The views experienced by people on the Raby Hall School Site would be subject to **Moderate Adverse** visual effects as a result of the construction works/activities.

Operational Phase Impacts

Landscape Effects Upon Completion

7.5.25 Table 7.8 sets out the significance of effect on the landscape upon completion.

Table 7.8: Operational Phase - Landscape Effects Upon Completion (Year 1)

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
NCA 58 Mersey Conurbation	Low - Medium	The proposed residential development would result in the loss of a single field but would be in keeping with the dense settlement areas of the NCA. There is some association with the existing settlement edge to the east of the Site as it would be connected to it via a footpath within a corridor of green infrastructure. The development would be located to the east of the M53 within the wooded, urban fringe section of this large NCA. There would be some reduction in openness due to the loss of the field and the development would introduce elements which are broadly consistent with the area and locally appropriate. The proposals allow for the retention of the majority of the boundary trees and hedgerows, which would help assimilate the built form into its surroundings. The proposals would introduce the acoustic fence, which could be considered to be inconsistent and somewhat incongruous, particularly at Year 1. The enhancements to the existing features would include the introduction of natural elements such as trees, hedgerows and wildflower grassland which are broadly consistent with the area, however proposed landscape works would not be established at Year 1. The effects would be localised within a small area,	Negligible-Low adverse	**Minor adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		given the size of the NCA. Effects would be medium term (6 to 15 years) and temporary until the landscape matures.		
NCA 59 Wirral	Low-Medium	The introduction of the development would not directly affect the NCA as the Site is physically and visually separated from it by the M53 motorway, intervening tree cover and a distance of circa 70m+. As a result, the development would not be expected to discernibly exert itself upon this adjacent NCA. Effects would be medium term (6 to 15 years) and temporary until the landscape matures.	Negligible	**Negligible**
LCT 4 – Lowland Farmland and Estates, specifically LCA 4c Clatterbrook and Dibbin Valley Lowland	Medium	The development would result in the loss of a single field that is not immediately adjacent or connected to the main settlement edge and through the introduction of new residential properties, would result in some loss of openness. The development would directly affect a small proportion of this character area which is closely associated with the buildings at Raby Hall School and to a lesser extent, the nearby existing settlement edge of Raby Mere. The introduction of the proposed houses, highway network and associated green infrastructure would constitute a change in character upon the Site itself, however its location within the more enclosed, wooded parts of the LCA to the east of the M53 corridor, the contained nature of the	Medium adverse	**Moderate adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		Site and the retention of most of the boundary landscape features is considered to help the development's assimilation into this part of the wider LCA 4c, moderating levels of adverse landscape effect. There would be a loss of farmland, some short sections of hedgerow and the semi-rural character of Raby Hall Road would be diminished but no other key characteristics or valued landscape attributes would be affected. There would be the introduction of an unnatural element in the form of the acoustic fence and natural elements such as trees, hedgerows, and wildflower grassland which are broadly consistent with the area, however proposed landscape works would not be established at Year 1. The proposals accord with the landscape guidelines set out for LCA 4c including the conservation of existing landscape features and increases in native planting. Given the nature of the Site, the scale of the works and the scale of the LCA, the landscape effects generated by the development would be contained and localised within a relatively small area. Effects would be medium term (6 to 15 years) and temporary until the landscape matures.		
LCT 4 – Lowland Farmland	Low-Medium	The introduction of the development would not directly affect the LCA as the Site is physically and visually separated	Negligible	**Negligible**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
and Estates, specifically LCA 4d Raby Lowland Farmland and Estates		from it by the M53 motorway, intervening tree cover and a distance of circa 70m+. As a result, the development would not be expected to discernibly exert itself upon this adjacent LCA. Effects would be medium term (6 to 15 years) and temporary until the landscape matures.		
The landscape character of the Site and its immediate setting	Low-Medium	The completed development would result in the loss of agricultural land resulting in some localised loss of openness and changes to the visual qualities of the immediate area. The proposals would be closely associated with the buildings at Raby Hall School and to a lesser extent, the nearby existing settlement edge of Raby Mere. The enclosure provided by the surrounding trees and woodland along the M53 corridor and the retention of most of the boundary landscape features is considered to help the development's assimilation into its context. There would be the introduction of natural elements such as trees, hedgerows, and wildflower grassland which are broadly consistent with the area, and which would enhance biodiversity. Effects would be medium term (6 to 15 years) and temporary until the landscape matures.	Medium-adverse	**Moderate adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
Landscape features within the Site	Low-Medium	The existing boundary hedgerows and trees would be substantially retained and enhanced. There would be new tree planting within the public open spaces and street trees along the access roads. There would be the introduction of a new pond with wetland areas and wildflower grassland. The landscape proposals would help to soften the appearance of the proposed built form and would enhance biodiversity, however proposed landscape planting works would not be established at Year 1.	Negligible–Low beneficial	**Negligible-Minor beneficial**

Summary of Landscape Effects Upon Completion (Year 1)

7.5.26 The Proposed Development would result in a **Minor Adverse** landscape effect at Year 1, upon NCA 58 Mersey Conurbation. There would be **Negligible** effects upon NCA 59 Wirral.

7.5.27 The residential development of the Site would directly affect a small proportion of the eastern part of LCA 4c Clatterbrook and Dibbin Valley Lowland, resulting in a **Moderate Adverse** landscape effect at Year 1.

7.5.28 The residential development of the Site would not directly affect LCA 4d Lowland Farmland and Estates, resulting in a **Negligible** landscape effect at Year 1.

7.5.29 Upon completion there would be **Moderate Adverse** effects upon the landscape character of the Site and its immediate setting given that the proposed residential development would result in the loss of agricultural land but would be well contained by existing trees, the M53 and the buildings at Raby Hall School.

7.5.30 The proposals include the introduction of new trees, hedgerows, a pond with wetland, wildflower and amenity grassland, however the effect of these new landscape features would be limited due to their juvenile nature. As a result, the Year 1 landscape effect upon the landscape features of the Site is expected to be **Negligible-Minor Beneficial**.

Visual Effects

7.5.31 Table 7.9 below sets out the anticipated significance of visual effect upon completion of the development.

Table 7.9: Operational Phase - Visual Effects Upon Completion (Year 1)

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
RG1 – Motorists, cyclists and pedestrians using Raby Hall Road	Low - Medium	Motorists, cyclists and pedestrians using Raby Hall Road would experience a sequence of clear and partial views of the development, primarily being the new houses set back into the Site behind a landscape buffer and the new vehicular entrance on Raby Hall Road. Views of the Site generally extend over the low boundary hedge and in places, are filtered by the boundary trees that are located within or just behind the hedgerow. Views are oblique and intermittent. Views would be experienced only when approaching and passing the Site in both westerly and easterly directions along the route. Effects would be medium term (6 to 15 years) and temporary until the landscape matures. VP1 – Road users approaching the Site from the east are likely to experience filtered views of the development due to gaps between the retained roadside boundary trees. The level of change would be increased by the close proximity of the works, the rural aspects of the existing view, a diminished sense of being beyond the settlement edge, a sense of disconnect with the main settlement area, a reduction in openness,	VP1 – Low-Medium adverse	**VP1 – Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		the juvenile nature of the implemented tree and hedgerow planting and an appreciation of the extent of the development. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the urbanising presence of the road and the existing structures/agricultural built form within the Raby Hall School Site and at Raby Hall Farm to the west, and seasonal variations in the clarity of the views. VP2 – Clear views of the new houses and clear views of the junction/entrance would be experienced from the section of Raby Hall Road that is central to the Site. This central part of the Site's southern boundary is formed by a low hedgerow without any accompanying trees. The views would also incorporate the new site access off Raby Hall Road. The level of change would be increased by the close proximity of the development to Raby Hall Road, the rural aspects of the existing view, a reduction in openness, a sense of disconnect with the main settlement area, a diminished sense of being beyond the settlement edge, the proportion of the view affected, the juvenile nature of the implemented tree and hedgerow planting and an appreciation of the fuller extent of the works. The level of change would be moderated by the existing wooded	VP2 – Medium adverse	**VP2 – Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		backdrop to the views, the residential nature of the development, the urbanising presence of the road and adjacent structures/built form within the grounds of Raby Hall School. VP3 – The development would for the most part, be screened from the view by the boundary vegetation located within the south-western corner of the Site. The view to the east along Raby Hall Road extends beyond this block of vegetation and would incorporate the landscape buffer along Raby Hall Road and the new houses located within the southern, central and eastern sections of the Site. The level of change would be increased by the absence of built form/rural aspect of the view, a diminished sense of being beyond the settlement edge, the juvenile nature of the implemented tree and hedgerow planting and a sense of disconnect with the main settlement area. The level of change would be moderated by the partial nature of the view due to the intervening vegetation, the small proportion of the view that is affected, the residential nature of the development, the absence of an appreciation of the full extent of the development, the wooded backdrop, the urbanising presence of the road and seasonal variations in the clarity of the view.	VP3 – Low adverse	**VP3 – Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		VP4 – On approaching the Site from the west, when crossing the bridge over the M53, road users would experience a limited view of the new houses within a very small portion of the eastern part of the Site. The gently rising nature of the eastern half of the Site increases its visual prominence within the view. The limited nature of the view is due to its distance and the presence of dense intervening vegetation. The level of change would be increased by the absence of built form/rural aspects of the view, the juvenile nature of the implemented tree and hedgerow planting, a diminished sense of being beyond the settlement edge, a sense of disconnect with the main settlement area and the rising ground within the eastern part of the Site. The level of change would be moderated by the partial nature of the view due to the intervening vegetation, the distance (circa 250m+), the urbanising presence of the motorway bridge and the road, the small proportion of the view affected, the residential nature of the development, the absence of an appreciation of the full extent of the development and seasonal variations in the clarity of the views.	VP4 – Negligible Low adverse	**VP4 – Negligible Minor adverse**
		VP5 – Located further to the west along Raby Hall Road, this viewpoint looks in an easterly direction along Raby Hall Road towards the Site. Intervening	VP5 – Negligible-Low adverse	**VP5 – Negligible Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		roadside vegetation and mature trees and woodland within the landscape would obscure most of the development. A gap in the roadside hedgerow and the elevated nature of the eastern portion of the Site create the potential for partial, distant views of the new houses. These views would be fleeting and filtered through the vegetation. The level of change would be increased by the absence of built form in the view/the rural aspect of the view, the juvenile nature of the implemented tree and hedgerow planting, a diminished sense of being beyond the settlement edge and a sense of disconnect with the main settlement area. The level of change would be moderated by the small proportion of the view affected, the limited, partial nature of the view, the distance (circa 420m+), the residential nature of the development, the absence of an appreciation of the fuller scale and extent of the development and seasonal variations in the clarity of the views. VP6 – Located on Raby Hall Road to the west of the Site, this viewpoint looks in an easterly direction towards the Site from a distance of circa 480m+ (distance to the eastern boundary is circa 790m. Intervening mature trees and areas of woodland within the landscape obscures the majority of the Site. A gap in the intervening tree cover and the rising	VP6 – Negligible-Low adverse	**VP6 – Negligible Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		nature of the eastern portion of the Site would allow road users a fleeting view of the new houses. The level of change would be increased by the rural aspect of the view, the juvenile nature of the implemented tree and hedgerow planting, a sense of disconnect with the main settlement area and the distance. The level of change would be moderated by the small proportion of the view affected, the limited, partial and glimpsed nature of the view, the residential nature of the development, the presence of built form in the existing view, the absence of an appreciation of the fuller scale and extent of the development and seasonal variations in the clarity of the views.		
RG2 – People walking PRoW FP36	Medium	People walking in a northerly direction on PRoW FP36 experience a sequence of views which are affected to a variable extent by tree planting within the golf course. In some instances, walkers experience open and expansive views across the golf course including views towards the tree lined roadside of Raby Hall Road with filtered views of the Site beyond. Effects would be medium term (6 to 15 years) and temporary until the landscape matures. VP7 – Walkers would experience limited, partial views of the new houses positioned at the south-eastern corner of	VP7 – Low adverse	**VP7 – Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		the Site due to the presence of containing vegetation within the golf course and intervening trees located along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being located beyond the settlement edge, the juvenile nature of the implemented tree and hedgerow planting, a sense of disconnect with the main settlement area and their relatively close proximity. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the presence of residential built form to the east on Blakeley Road, the relatively small proportion of the view affected, the golf course context, the residential nature of the development, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP8 – Walkers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the new houses beyond the intervening mature trees along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level	VP8 – Negligible-Low adverse	**VP8 – Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		of change would be increased by a reduced sense of being beyond the settlement edge, the juvenile nature of the implemented tree and hedgerow planting, a sense of disconnect with the main settlement area and the absence of built form in the view. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the relatively small proportion of the view affected, the golf course context of the view, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and vegetation, walkers are unlikely to experience a discernible change to their views.	VP9 – Negligible	**VP9 – Negligible**
RG3 – Golfers on Bromborough Golf Course	Low-Medium	Golfers playing holes 1, 2, 3, 4, 5, 16, and 17 may experience partial views of the new houses on the Site from distances of between circa 30m and 350m (these views would be of a similar nature to those experienced from Public Footpath FP36 Viewpoints 7, 8 and 9 however in some instances, golfers would experience views of the development from closer locations). Golfers playing the 1st, 3rd, 4th and 16th greens and the tees for the 2nd and 5th holes, would		

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		experience the clearest, partial views of the new houses due to the close proximity of these locations to Raby Hall Road and the Site beyond. In all instances, the clarity of the views experienced from the golf course is likely to be significantly reduced or completely screened when the intervening tree cover and vegetation is in leaf. Effects would be medium term (6 to 15 years) and temporary until the landscape matures. VP7 – Golfers would experience limited, partial views of the new houses due to the presence of the intervening trees located along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being located beyond the settlement edge, the juvenile nature of the implemented tree and hedgerow planting, a sense of disconnect with the main settlement area and the relatively close proximity of the houses within the view. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the relatively small proportion of the view affected, the residential nature of the development, the golf course context, the presence of residential built form to the east on	VP7 – Negligible - Low adverse	**VP7 – Negligible-Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		Blakeley Road, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP8 – Golfers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the new houses beyond the intervening mature trees along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the development would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being beyond the settlement edge, their relatively close proximity, the juvenile nature of the implemented tree and hedgerow planting and the absence of built form in the view. The level of change would be moderated by the partial nature of the view due to the intervening hedgerow/trees, the relatively small proportion of the view affected, the residential nature of the development, the golf course context of the view, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and	VP8 – Negligible-Low adverse VP9 – Negligible	**VP8 – Negligible-Minor adverse** **VP9 – Negligible**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		vegetation, golfers are unlikely to experience a discernible change to their views from this location or other locations on the golf course to the south.		
RG4 – Pupils and Staff at Raby Hall School	Low-Medium	People using the school site would experience clear views of the development from windows facing west. Views from the outdoor horticultural/agricultural activity areas to the west of the school buildings and to the immediate north of the Site would be limited by new boundary fencing located along the north boundary of the Site. Effects would be medium term (6 to 15 years) and temporary until the landscape matures. People would experience clear views of the development from west facing windows. Views from the main outdoor activity areas would include the boundary fencing/acoustic fencing, with the new houses projecting above. The level of change would be increased by the close proximity of the development, the clear nature of the views due to an absence of intervening vegetation, a loss of openness, the relatively high proportion of the view affected and an appreciation of the extent of the development. The level of change would be moderated by the urbanising presence of the school buildings, the residential nature of the development and the presence of Raby Hall Road.	Medium-High adverse	**Moderate adverse**

Summary of Visual Effects Upon Completion (Year 1)

7.5.32 At Year 1, the development would affect views from locations on Raby Hall Road, Public Footpath FP36, Bromborough Golf Course and from the Raby Hall School Site (Autism Together). It is expected that views from locations within close proximity of the Site would be subject to higher levels of adverse effect.

7.5.33 At Year 1, there would be some **Negligible-Minor Adverse** to **Moderate Adverse** visual effects upon the views experienced by those travelling past the Site on Raby Hall Road.

7.5.34 The development would be visible from locations on PRoW FP36 and the visual effects experienced by people using this public footpath would range between **Negligible** and **Minor Adverse**.

7.5.35 Golfers on Bromborough Golf Course would experience **Negligible-Minor Adverse** to **Negligible** visual effects at Year 1.

7.5.36 The views experienced by people on the Raby Hall School Site would be subject to **Moderate Adverse** visual effects as a result of the development.

7.6 Residual and Cumulative Effects

Residual Effects

7.6.1 The Illustrative Landscape Framework and Parameter Plan indicate landscape buffers and structural planting, and this embedded or primary mitigation has been taken account of when considering the operational effects upon completion. Additional planting and enhancement of the proposed open spaces, green corridors and landscape buffers would be a condition of any planning consent.

7.6.2 Secondary mitigation (further mitigation) measures are those designed to address any adverse effects remaining after primary measures and standard construction practices have been incorporated. No secondary mitigation is proposed, and the assessment therefore does not assess the effects of any further mitigation measures (secondary mitigation) above and beyond those in the design of the development.

7.6.3 The operational phase, residual effects assessment takes account of the planting and enhancement of the open spaces, green corridors, and buffers 15 years after planting when the vegetation has matured. This represents the residual landscape and visual effects.

Landscape Effects (Year 15)

7.6.4 Table 7.10 sets out the significance of effect on the landscape upon maturity of the proposals.

Table 7.10: Operational Phase - Residual Landscape Effects (Year 15)

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
NCA 58 Mersey Conurbation	Low - Medium	The proposed residential development would result in the loss of a single field but would be in keeping with the dense settlement areas of the NCA. There is some association with the existing settlement edge to the east of the Site as it would be connected to it via a footpath within a corridor of green infrastructure. The development would be located to the east of the M53 within the wooded, urban fringe section of this large NCA. There would be some reduction in openness due to the loss of the field and the development would introduce elements which are broadly consistent with the area and locally appropriate. The proposals allow for the retention of the majority of the boundary trees and hedgerows, which would help assimilate the built form into its surroundings. The proposals would introduce the acoustic fence, which could be considered to be inconsistent and somewhat incongruous, however this would be screened by established trees and hedgerows. The enhancements to the existing features would include the introduction of natural	Negligible-Low adverse	**Minor adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		elements such as trees, hedgerows and wildflower grassland which are broadly consistent with the area and these proposals would have become established and effective by Year 15, thus helping ameliorate Year 1 adverse effects. The effects would be localised within a small area, given the size of the NCA. Effects would be long term (over 15 years) and permanent.		
NCA 59 Wirral	Low-Medium	The introduction of the development would not directly affect the NCA as the Site is physically and visually separated from it by the M53 motorway, intervening tree cover and a distance of circa 70m+. As a result, the development would not be expected to discernibly exert itself upon this adjacent NCA. Effects would be long term (over 15 years) and permanent.	Negligible	**Negligible**
LCT 4 – Lowland Farmland and Estates, specifically LCA 4c Clatterbrook and Dibbin Valley Lowland	Medium	The development would result in the loss of a single field and through the introduction of new residential properties, would result in some loss of openness. Also, the location of the development would form an area of residential built form in relative isolation from the main settlement area to the east, however it would be located adjacent to the built form of the school and the proposals include a direct pedestrian link to the settlement edge on Blakeley Road. The development would directly affect a small proportion	Medium adverse	**Moderate adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		of this character area which is closely associated with the buildings at Raby Hall School and to a lesser extent, the nearby existing settlement edge of Raby Mere. The introduction of the proposed houses, highway network and associated green infrastructure would constitute a change in character upon the Site itself, however its location within the more enclosed, wooded parts of the LCA to the east of the M53 corridor, the contained nature of the Site and the retention of most of the boundary landscape features is considered to help the development's assimilation into this part of the wider LCA 4c, moderating levels of adverse landscape effect. There would be a loss of farmland, some short sections of hedgerow and the semi-rural character of Raby Hall Road would be diminished but no other key characteristics or valued landscape attributes would be affected. There would be the introduction of an unnatural element in the form of the acoustic fence, however natural elements such as trees, hedgerows, and wildflower grassland which are broadly consistent with the area, would have become established. The proposals accord with the landscape guidelines set out for LCA 4c including the conservation of existing landscape features and increases in		

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		native planting. Given the nature of the Site, the scale of the works and the scale of the LCA, the landscape effects generated by the development would be contained and localised within a relatively small area. Effects would be long term (over 15 years) and permanent.		
LCT 4 – Lowland Farmland and Estates, specifically LCA 4d Raby Lowland Farmland and Estates	Low-Medium	The introduction of the development would not directly affect the LCA as the Site is physically and visually separated from it by the M53 motorway, intervening tree cover and a distance of circa 70m+. As a result, the development would not be expected to discernibly exert itself upon this adjacent LCA. Effects would be long term (over 15 years) and permanent.	Negligible	**Negligible**
The landscape character of the Site and its immediate setting	Low-Medium	Upon maturity of the proposals, the development would sit comfortably in its setting although the location of the development would form an area of residential built form in relative isolation from the main settlement area to the east. The housing would be located adjacent to the built form of the school and the proposals include a direct pedestrian link to the settlement edge on Blakeley Road. The enclosure provided by the mature surrounding trees and woodland along the M53 corridor and the retention of most of the boundary landscape features would restrict the visibility of the proposals.	Medium adverse	**Minor-Moderate adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		Retained and proposed trees and hedgerows would have matured to help assimilate the built form into its surroundings. Effects would be long term (over 15 years) and permanent.		
Landscape features within the Site	Low-Medium	The existing boundary hedgerows and trees would be substantially retained and enhancements would have become established. The new tree planting within the public open spaces and street trees along the access roads would have become established as would the new pond with wetland areas and wildflower grassland. The landscape proposals would help to soften the appearance of the proposed built form and would improve its assimilation into the landscape alongside tangible enhancements to the biodiversity of the Site.	Low beneficial	**Minor beneficial**

Summary of Residual Landscape Effects (Year 15)

7.6.5 The Proposed Development would result in a **Minor Adverse** landscape effect at Year 15, upon NCA 58 Mersey Conurbation. There would be **Negligible** effects upon NCA 59 Wirral.

7.6.6 The residential development of the Site would directly affect a small proportion of the eastern part of LCA 4c Clatterbrook and Dibbin Valley Lowland, resulting in a **Moderate Adverse** landscape effect at Year 15.

7.6.7 The residential development of the Site would not directly affect LCA 4d Lowland Farmland and Estates, resulting in a **Negligible** landscape effect at Year 15.

7.6.8 The effects on the landscape character of the Site and its immediate setting upon maturity of the landscape would be **Minor-Moderate Adverse** given that the Proposed

Development would be well enclosed by mature surrounding trees and woodland along the M53 corridor and existing built form associated with Raby Hall School.

7.6.9 The proposals include the introduction of new trees, hedgerows, a pond with wetland, wildflower and amenity grassland and these proposals would have become established. As a result, the Year 15 landscape effect upon the landscape features of the Site is expected to be **Minor Beneficial**.

Visual Effects (Year 15)

7.6.10 Table 7.11 below sets out the anticipated significance of visual effects upon maturity of the proposals.

Table 7.11: Operational Phase - Residual Visual Effects (Year 15)

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
RG1 – Motorists, cyclists and pedestrians using Raby Hall Road	Low - Medium	Motorists, cyclists and pedestrians using Raby Hall Road would experience a sequence of clear and partial views of the development, primarily being the new houses set back into the Site behind a landscape buffer and the new vehicular entrance on Raby Hall Road. Views of the Site generally extend over the low boundary hedge and in places, are filtered by the boundary trees that are located within or just behind the hedgerow. Views are oblique and intermittent. Views would be experienced only when approaching and passing the Site in both westerly and easterly directions along the route. Effects would be long term (over 15 years) and permanent. VP1 – Road users approaching the Site from the east are likely to experience filtered views of the development due to	VP1 – Low adverse	**VP1 – Minor-**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		gaps between the retained roadside boundary trees and proposed established trees within the landscape buffer adjacent to the road. The level of change would be increased by the close proximity of the works, the rural aspects of the existing view, a reduction in openness, a diminished sense of being beyond the settlement edge and a sense of disconnect with the main settlement area. The level of change would be moderated by the partial nature of the view due to the development of existing intervening hedgerow/trees and the establishment of proposed trees, particularly those located within the landscape buffer behind the Site's boundary with Raby Hall Road, the urbanising presence of the road and the existing structures/agricultural built form within the Raby Hall School Site and at Raby Hall Farm to the west, and seasonal variations in the clarity of the views.		**Moderate adverse**
		VP2 – Partial views of the new houses and clear views of the junction/entrance would be experienced from the section of Raby Hall Road that is central to the Site. The level of change would be increased by the close proximity of the development to Raby Hall Road, the rural aspects of the existing view, a reduction in openness, a sense of disconnect with the main settlement area, a diminished	VP2 – Medium adverse	**VP2 – Minor-Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		sense of being beyond the settlement edge, the high proportion of the view affected and an appreciation of the fuller extent of the works. The level of change would be moderated by the existing wooded backdrop to the views, the residential nature of the development, the establishment of the proposed landscape works which include tree and hedgerow planting within a deep landscape buffer along the boundary with Raby Hall Road, the urbanising presence of the road and adjacent structures/built form within the grounds of Raby Hall School. VP3 – The development would for the most part, be screened from the view by the boundary vegetation located within the south-western corner of the Site. The view to the east along Raby Hall Road extends beyond this block of vegetation and would incorporate the established landscape buffer along Raby Hall Road with potential glimpses of the new houses located within the southern, central and eastern sections of the Site. The level of change would be increased by the absence of built form/rural aspect of the view, a diminished sense of being beyond the settlement edge and a sense of disconnect with the main settlement area. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the	VP3 – Negligible-Low adverse	**VP3 – Negligible-Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		establishment of the proposed landscape works which include hedgerows and trees, the small proportion of the view that is affected, the residential nature of the development, the absence of an appreciation of the full extent of the development, the wooded backdrop, the urbanising presence of the road and seasonal variations in the clarity of the view. VP4 – On approaching the Site from the west, when crossing the bridge over the M53, road users would experience glimpses of the new houses within a very small portion of the eastern part of the Site, set amongst established tree cover. The level of change would be increased by the absence of built form/rural aspects of the view, a diminished sense of being beyond the settlement edge, a sense of disconnect with the main settlement area and the rising ground within the eastern part of the Site. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the distance (circa 250m+), the urbanising presence of the motorway bridge and the road, the small proportion of the view affected, the residential nature of the development, the absence of an appreciation of the full extent of the	VP4 – Negligible	**VP4 – Negligible**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		development and seasonal variations in the clarity of the views.		
		VP5 – Located further to the west along Raby Hall Road, this viewpoint looks in an easterly direction along Raby Hall Road towards the Site. Road users would experience distant glimpses of the new houses within a very small portion of the eastern part of the Site, set amongst established tree cover. These views would be fleeting and filtered through the vegetation. The level of change would be increased by the absence of built form in the view/the rural aspect of the view, a diminished sense of being beyond the settlement edge and a sense of disconnect with the main settlement area. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the small proportion of the view affected, the limited, partial nature of the view, the distance (circa 420m+), the residential nature of the development, the absence of an appreciation of the fuller scale and extent of the development and seasonal variations in the clarity of the views.	VP5 – Negligible	**VP5 – Negligible**
		VP6 – Located on Raby Hall Road to the west of the Site, this viewpoint looks in an	VP6 – Negligible	**VP6 – Negligible**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		easterly direction towards the Site from a distance of circa 480m+ (distance to the eastern boundary is circa 790m). Intervening mature trees and areas of woodland within the landscape along with established tree planting within the Site would screen views of the development.		
RG2 – People walking PRoW FP36	Medium	People walking in a northerly direction on PRoW FP36 experience a sequence of views which are affected to a variable extent by tree planting within the golf course. In some instances, walkers experience open and expansive views across the golf course including views towards the tree lined roadside of Raby Hall Road with filtered views of the Site beyond. Effects would be long term (over 15 years) and permanent. VP7 – Walkers would experience limited, partial views of the new houses positioned at the south-eastern corner of the Site due to the presence of containing vegetation within the golf course, intervening trees located along Raby Hall Road and the establishment of new trees located within the proposed landscape buffer along the Site's boundary with Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being located beyond the settlement edge, a	VP7 – Negligible-Low adverse	**VP7 – Negligible-Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		sense of disconnect with the main settlement area and the relatively close proximity of the development. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the golf course context, the presence of residential built form to the east on Blakeley Road, the relatively small proportion of the view affected, the residential nature of the development, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP8 – Walkers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the new houses beyond the intervening mature trees along Raby Hall Road and the establishment of new trees located within the proposed landscape buffer along the Site's boundary with Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being beyond the settlement edge, a sense of disconnect with the main settlement area and the absence of built form in the view.	VP8 – Negligible Low adverse	**VP8 – Negligible Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the relatively small proportion of the view affected, the golf course context of the view, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and vegetation, walkers are unlikely to experience a discernible change to their views.	VP9 – Negligible	**VP9 – Negligible**
RG3 – Golfers on Bromborough Golf Course	Low-Medium	Golfers playing holes 1, 2, 3, 4, 5, 16, and 17 may experience partial views of the new houses on the Site from distances of between circa 30m and 350m (these views would be of a similar nature to those experienced from Public Footpath FP36 Viewpoints 7, 8 and 9 however in some instances, golfers would experience views of the development from closer locations). Golfers playing the 1st, 3rd, 4th and 16th greens and the tees for the 2nd and 5th holes, would experience the clearest, partial views of the new houses due to the close proximity of these locations to Raby Hall Road and the Site beyond. In all		

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		instances, the clarity of the views experienced from the golf course is likely to be significantly reduced or completely screened when the intervening tree cover and vegetation is in leaf. Effects would be long term (over 15 years) and permanent. VP7 – Golfers would experience limited, partial views of the new houses due to the presence of the intervening trees located along Raby Hall Road and the establishment of new trees located within the proposed landscape buffer along the Site's boundary with Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being located beyond the settlement edge, a sense of disconnect with the main settlement area and the relatively close proximity of the houses within the view. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the relatively small proportion of the view affected, the residential nature of the development, the presence of residential built form to the east on Blakeley Road, the absence of an appreciation of the fuller extent of the	VP7 – Negligible-Low adverse	**VP7 – Negligible Minor adverse-**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		development and seasonal variations in the clarity of the views. VP8 – Golfers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the new houses beyond the intervening mature trees along Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the development would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being beyond the settlement edge, their relatively close proximity and the absence of built form in the view. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the residential nature of the development, the golf course context of the view, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and vegetation and the establishment of the proposed landscape works which include	VP8 – Negligible Low adverse VP9 – Negligible	**VP8 – Negligible Minor adverse** **VP9 – Negligible**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		hedgerows and trees, golfers are unlikely to experience a discernible change to their views from this location or other locations on the golf course to the south.		
RG4 – Pupils and Staff at Raby Hall School	Low-Medium	People using the school site would experience clear views of the development from windows facing west, however the establishment of tree planting within the Site would have integrated the new built form into the views. Views from the outdoor horticultural/agricultural activity areas to the west of the school buildings and to the immediate north of the Site would be limited by new boundary fencing located along the north boundary of the Site. Effects would be long term (over 15 years) and permanent. People would experience clear views of the development from west facing windows. Views from the main outdoor activity areas would include the boundary fencing/acoustic fencing, with the new houses projecting above. The level of change would be increased by the close proximity of the development, the clear nature of the views due to an absence of intervening vegetation, a reduction in openness, the relatively high proportion of the view affected and an appreciation of the extent of the development. The level of change would be moderated by the development of existing vegetation and the establishment of the proposed	Medium adverse	**Minor-Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		landscape works which include hedgerows and trees, by the urbanising presence of the school buildings, the residential nature of the development and the presence of Raby Hall Road.		

Summary of Residual Visual Effects (Year 15)

7.6.11 It is expected that views from locations within close proximity of the Site would be subject to higher levels of adverse effect.

7.6.12 At Year 15, there would be visual effects ranging between **Negligible** and **Minor-Moderate Adverse** upon the views experienced by those travelling past the Site on Raby Hall Road.

7.6.13 The development would be visible from locations on PRoW FP36 and there would be **Negligible** to **Negligible-Minor Adverse** to visual effects upon the views experienced by people using this public footpath.

7.6.14 Golfers on Bromborough Golf Course would experience **Negligible** to **Negligible-Minor Adverse** visual effects at Year 1.

7.6.15 The views experienced by people on the Raby Hall School (Autism Together) Site would be subject to **Minor-Moderate adverse** visual effects as a result of the development.

Cumulative Effects

Inter-project Effects

7.6.16 In accordance with the methodology the focus of the cumulative assessment relates to the effects of the development in question in conjunction with other developments of the same type. Housing developments proposed by Leverhulme which lie within reasonably close proximity of the Site and within overlapping ZTVs have been considered as well as of a number of other major development sites recently consented in the borough which could potentially cumulatively result in significant environmental effects.

7.6.17 The following Table 7.12 lists the cumulative development sites and provides justification as to whether they have been considered within this assessment.

Table 7.12: Cumulative Development Sites

Scheme	Description of Development/Status	Distance from Site	Scoped in/out Justification
Land East of Raby Hall, Raby Hall Road, Raby Mere	Up to 80 dwellings Draft planning application	c.70m	**Scoped in** Located close to the Site within the same Wirral LCA. Sequential views from Raby Hall Road and potential intervisibility between the Sites and viewpoints from FP36
Land West of Barnston Road, North of Gills Lane, Barnston	Up to 153 dwellings Draft planning application	c.6km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible.
Land East of Thorncroft Drive, North of Gills Lane, Pensby	Up to 15 dwellings Draft planning application	c. 6km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible
Land at Milner Road and Barnston Road, Heswall	Up to 120 dwellings Draft planning application	c. 5km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible
Fishers Lane, Pensby	35 dwellings Full planning permission granted March 2019 (LPA ref: APP/18/01266)	c. 7km	**Scoped out** Distant from the Site and surrounded by urban development of Pensby. No intervisibility between the Sites or viewpoints from which both Sites would be visible.
Land East of Glenwood Drive, Irby	Up to 290 dwellings Draft planning application	c. 7.6km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible.
Land East of Rigby Drive, Greasby	Up to 250 dwellings Draft planning application	c. 9km	**Scoped out** Distant from the Site. Lies outside the study area and

			within a different Wirral LCA. No intervisibility between the Sites or viewpoints from which both Sites would be visible.
Wirral Business Park, Arrowe Brook Road, Upton	127 dwellings Full planning permission granted March 2020 (LPA ref: APP/19/00315)	c. 9km	**Scoped out** Distant from the Site. Lies outside the study area and within a different Wirral LCA. No intervisibility between the Sites or viewpoints from which both Sites would be visible.
Girtrell Court, Woodpecker Close, Upton	78 extra care (C3) dwellings Full planning permission granted October 2018 (LPA ref: APP/18/01002)	c. 10km	**Scoped out** Distant from the Site. Lies outside the study area and within a different Wirral LCA. No intervisibility between the Sites or viewpoints from which both Sites would be visible.
Land at Acre Lane and Meadowside Road, Bromborough	217 dwellings Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295)	c. 1km	**Scoped out** Sites physically and visually separated by intervening built development. No intervisibility between the Sites or viewpoints from which both Sites would be visible.

Assessment of Cumulative Landscape Effects

7.6.18 Should both Sites along Raby Hall Road be developed at the same time, there would be a slight increase in the effects on the landscape during the construction phase. These effects would be temporary and would affect a minor proportion of a wider national and local character area. The cumulative effects would not be significantly higher than those assessed for the Proposed Development and are not considered to elevate the levels of landscape effect above those ascertained for the individual sites. As a result, the cumulative landscape effects during the construction phase are considered to be **Moderate Adverse** (NCA58), **Negligible** (NCA59), **Moderate-Major Adverse** (LCA 4C Clatterbrook and Dibbin Valley Lowland), **Negligible** (LCA4d Raby Lowland Farmland and Estates), **Moderate Adverse** (Site and immediate setting) and **Minor Adverse** (landscape features).

7.6.19 The operational effects on the landscape as a result of the development of both of the Sites located on Raby Hall Road, would similarly affect a minor proportion of the wider national and local character areas. The proposed housing developments relate well to the existing settlement pattern in that they would be located to the east of the M53 corridor within the wooded, urban fringe landscape and would sit comfortably in their setting. The Raby West Site is considered to generate slightly higher levels of adverse landscape effect at Year 1 upon LCA4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse** for Raby West

and **Minor-Moderate Adverse** for Raby East) in part due to its relative disconnect with the main settlement edge to the east. Cumulatively there would be a slight increase in adverse landscape effects at Year 1, over and above the levels of landscape effect ascertained for the individual sites, however the level of increased adverse effect would not elevate the ascertained levels of Year 1 landscape effect to the next level in the range. As a result, the cumulative landscape effects at Year 1 are considered to be **Minor Adverse** (NCA58), **Negligible** (NCA 59), **Moderate Adverse** (LCA 4C Clatterbrook and Dibbin Valley Lowland), **Negligible** (LCA4d Raby Lowland Farmland and Estates), **Moderate Adverse** (Site and immediate setting) and **Negligible-Minor Beneficial** (landscape features).

7.6.20 The Year 15 (residual) effects on the landscape resulting from the development of both of the Sites located on Raby Hall Road would similarly affect a minor proportion of the wider national and local character areas. The proposed housing developments relate well to the existing settlement pattern in that they would be located to the east of the M53 corridor within the wooded, urban fringe landscape and would sit comfortably in their setting, particularly upon maturity of the landscape proposals. The Raby West Site is considered to generate slightly higher levels of adverse landscape effect at Year 15 upon NC58 (**Minor Adverse** for Raby West and **Negligible-Minor Adverse** for Raby East), LCA4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse** for Raby West and **Minor Adverse** for Raby East) and the Site and immediate setting (**Minor-Moderate Adverse** for Raby West and **Minor Adverse** for Raby East). This is in part due to the Raby West Site's relative disconnect with the main settlement edge to the east. Cumulatively there would be a slight increase in adverse landscape effects at Year 15, over and above the levels of landscape effect ascertained for the individual sites. That said, the cumulative residual landscape effects are not considered to be of a higher adverse level than those ascertained individually for the Raby West Site. As a result, the cumulative landscape effects at Year 15 are considered to be **Minor Adverse** (NCA58), **Negligible** (NCA 59), **Moderate Adverse** (LCA 4C Clatterbrook and Dibbin Valley Lowland), **Negligible** (LCA4d Raby Lowland Farmland and Estates), **Minor-Moderate Adverse** for the Site and immediate setting and **Minor Beneficial** (landscape features).

7.6.21 Perceptual changes to the overall landscape character would be limited minimal as there are a limited number of public locations from which both Proposed Developments would be visible at the same time (from Public Footpath FP36), or visible as a series of sequential views (from Raby Hall Road). Development of both of the Sites would mean that there would be a greater amount of development within the relevant national character area (NCA 58) and the local character area (LCA 4c Clatterbrook and Dibbin Valley Lowland),

however the increase in residential development relative to the size of these character areas and their existing settlement area/edge of settlement context, would be insignificant.

7.6.22 In addition, the green infrastructure associated with these new housing developments would have beneficial effects in terms of biodiversity, visual amenity and recreational value.

7.6.23 As a result, with the exception of LCA 4c Clatterbrook and Dibbin Valley Lowland, it is not anticipated that the cumulative residual landscape effects of the Proposed Development of the Site and land to the west of Raby Hall, would be significant.

Assessment of Cumulative Visual Effects

7.6.24 The Sites located to the east and west of Raby Hall School are both well contained both visually and physically, by woodland to the north, the motorway corridor to the west and trees and hedgerows located along their boundaries and along adjacent road corridors.

7.6.25 Cumulative visual effects would only be experienced from Public Footpath FP36, which crosses the golf course to the south side of Raby Hall Road, from Bromborough Golf Course itself and from Raby Hall Road.

7.6.26 Views from the most northerly section of Public Footpath FP36 (Receptor Group 2 or RG2 - Viewpoint 7) and northern sections of the golf course (RG3 - Viewpoint 7), may include partial views of the construction activity and subsequently, the new houses on both of the Sites located to the east and west of Raby Hall School. The additional construction activity and new houses associated with the Site located to the east of Raby Hall School are expected to add to that which would be visible within the Site to the west of the school, as the views of the Site to the west are somewhat limited from this footpath and the adjacent sections of the golf course, whereas views of the Site to the east of the school are slightly clearer and more extensive. Cumulatively there would be a slight increase in adverse visual effects at the Construction Phase, Year 1 and Year 15, which would result in cumulative visual effects akin to those ascertained for the Land East of Raby Hall Site.

7.6.27 As a result, the anticipated cumulative visual effects for people walking FP36 (RG2 and golfers (RG3) are of a slightly higher level of adverse (being the next level in the range and not significant), than those ascertained within this assessment for Land West of Raby Hall.

7.6.28 People travelling along Raby Hall Road (RG1) are unlikely to see the construction activity/new houses on both Sites at the same time, within the same view. They would however, experience changes to a sequence of views as they move eastwards towards Bromborough, or westwards, away from the settlement area. Currently people travelling east on Raby Hall Road experience a gradual sense of arrival over a distance of circa

680m, beginning with the bridge over the motorway. Circa 330m beyond the motorway, traffic calming road markings and speed reduction signage (reducing the speed limit from 60mph to 30mph) are located adjacent to eastern corner of the Site located to the west of Raby Hall School. Thereafter, road users pass Raby Hall School, then the other Site to its east before arriving at the settlement edge at the junction between Raby Hall Road and Blakeley Road.

7.6.29 The development of both Sites would generate changes to a longer sequence of views experienced by road users on Raby Hall Lane, that cumulatively, would increase anticipated levels of visual effect ascertained for the individual developments. The changes to the sequence of views is considered to affect the perceived arrival at the settlement edge and the perceived departure experience, whilst diminishing the rural aspect of the current views. That said, the developments would be located to the east side of the motorway, within spaces that are well contained by woodland and boundary hedgerows and trees.

7.6.30 Given the nature of the visual effects ascertained within the individual assessments for Land to the East of Raby Hall and Land to the West of Raby Hall, the overall cumulative visual effect of both schemes for people using Raby Hall Road, is considered to be **Moderate-Major Adverse** during the construction phase, **Moderate Adverse** at Year 1 and **Minor-Moderate Adverse** at Year 15.

7.6.31 People working at and attending Raby Hall School are expected to experience changes to the views they experience from the individual sites located to the east and west of the school. Although the school is located between the two Sites, the position and nature of the Site's buildings and its screening tree cover and vegetation, is likely to ensure that in general, the construction activities and the subsequent development upon both Sites would not be seen within the same view from the grounds of the school. Cumulatively there would be a slight increase in adverse visual effects at the Construction Phase, Year 1 and Year 15, over and above the levels of visual effect ascertained for the individual sites, however the level of additional adverse effect generated by the Site to the east of Raby Hall is not considered to elevate the ascertained levels of the Construction Phase, Year 1 and Year 15 visual effects to the next level in the range.

Intra-project Effects

7.6.32 This LVIA provides an understanding of the landscape character and visual environment associated with the Site and the wider study area. With reference to the layout, materiality and the landscape strategy for the site, this understanding has played an important role in the design of the Proposed Development. Working in conjunction with the Project

Ecologist, the assessment has informed the preparation of an Illustrative Landscape Framework Plan in order to provide a coordinated landscape and ecological approach to achieving appropriate levels of assimilation into the landscape, whilst enhancing biodiversity and opportunities to provide new habitats. In addition, the transport assessment considers the impact upon pedestrian movement, whilst the LVIA considers the effect upon publicly accessible views, which include both PRoW and the road network.

7.7 Conclusion

7.7.1 Tables 7.13 and 7.14 included within Appendix 7.4 provide a summary of the landscape and visual effects within the different timeframes.

Construction Landscape and Visual Effects

7.7.2 During the construction phase there would be **Moderate Adverse** effects on the landscape character of the Site and its immediate area and the landscape within the study area which lies within NCA 58 Mersey Conurbation. There would be **Negligible** effects upon NCA59 Wirral. There would be **Moderate-Major Adverse** effects upon LCA 4c Clatterbrook and Dibbin Valley Lowland, which are in part due to the uncharacteristic nature of the construction activity/works and the Site's relative disconnect with the main settlement area. Construction activity would result in the loss of the agricultural land within the Site, a section of existing hedgerow with all other existing features retained. As a result, the landscape features of the Site are considered to be affected to a **Minor Adverse** level.

7.7.3 The Site is visually well contained, however generally partially filtered views of the construction activity would be experienced from Raby Hall Road, the Public Footpath on the golf course (FP36), the golf course itself and from Raby Hall School, resulting in visual effects ranging between **Negligible** and **Moderate-Major Adverse**.

7.7.4 The construction phase is expected to generate some significant adverse landscape and visual effects however, the effects would be confined to the immediate local area and would be temporary and short term.

Year 1 Operational Landscape and Visual Effects

7.7.5 Upon completion (at Year 1) there would be **Minor Adverse** effects on the landscape within the study area which lies within NCA 58 Mersey Conurbation and **Negligible** effects upon NC 59 Wirral. There would be **Moderate Adverse** effects upon LCA 4c Clatterbrook and Dibbin Valley Lowland and on the landscape character of the Site and its immediate setting. Given the proposed retention and management of the majority of the existing trees and

hedgerows, and the pond, as well as the proposed planting, the development of the Site would have **Negligible-Minor Beneficial** effect upon the Site's landscape features.

7.7.6 The only clear views of the proposals would be experienced from locations close/ adjacent to the Site from Raby Hall Road. Other views would be experienced from the Public Footpath on the golf course (FP36), the golf course itself and from Raby Hall School. The retention of the bulk of the existing boundary hedgerows and trees and new tree planting within the landscape buffers along the boundary with the road would filter views of the development resulting in Year 1, Operational visual effects of between **Negligible** and **Moderate Adverse**.

7.7.7 The Year 1 Operational landscape and visual effects include some significant adverse levels of effect however all effects would be localised and would be temporary until the landscape matures.

Year 15 Operational (Residual) Landscape and Visual Effects

7.7.8 Residual landscape effects upon NCA 58 Mersey Conurbation would be **Minor Adverse** and there would be **Negligible** effects upon NCA 59 Wirral. The residual landscape effect upon LCA 4c Clatterbrook and Dibbin Valley Lowland would be **Moderate Adverse**. There would be **Minor-Moderate Adverse** effects on the landscape character of the Site and its immediate setting. The incorporation of areas of open space, green corridors, new footpaths, sustainable drainage solutions, established tree and hedgerow planting, new grasslands and wetland would enhance the landscape features within the Site whilst improving its biodiversity and recreational value, thus resulting in a residual landscape effect of **Minor Beneficial** upon the landscape features of the Site.

7.7.9 The residual landscape effect of **Moderate Adverse** (significant) upon LCA4c Clatterbrook and Dibbin Valley Lowland is in part due to the Site's relative disconnect with the nearby urban edge, however the Site is located to the east of the M53 corridor within the wooded fringes that occur between the motorway and the built-up area and effects would be localised.

7.7.10 In visual terms, at Year 15 users of the local highway network would experience levels of residual visual effect of between **Negligible** and **Minor-Moderate Adverse**, people walking public footpath FP36 would experience residual visual effects of between **Negligible** and **Negligible-Minor Adverse,** golfers on Bromborough Golf Course would experience residual visual effects of between **Negligible** and **Negligible-Minor Adverse**, whereas people using the Raby Hall School Site would experience a residual visual effect **Minor-Moderate Adverse**.

Cumulative Landscape and Visual Effects

7.7.11 With the exception of the assessed Year 15 landscape effect upon LCA 4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse**), it is not anticipated that the residual landscape and visual effects of the Proposed Development of the Site to the west of Raby Hall, would be significant.

7.7.12 When considered cumulatively with the Site to the east of Raby Hall, a cumulative landscape effect of **Moderate Adverse** upon LCA4a Clatterbrook and Dibbin Valley Lowland is considered to prevail, however the concurrent development of the two Sites would to some extent ameliorate levels of isolation associated with the Site to the west of Raby Hall, by creating improved levels of connectivity with the settlement edge to the east.

7.7.13 With the exception of LCA 4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse**), it is not anticipated that the cumulative residual landscape and visual effects of the Proposed Development of the Site and land to the west of Raby Hall, would be significant.

7.8 List of Abbreviations

Abbreviations	
CEMP	Construction Environmental Management Plan
EIA	Environmental Impact Assessment
ES	Environmental Statement
GLVIA	Guidance for Landscape and Visual Impact Assessment
LCA	Landscape Character Area
LCT	Landscape Character Type
LVIA	Landscape and Visual Impact Assessment
NCA	National Character Area
NPPF	National Planning Policy
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
PRoW	Public Right of Way
RG	Receptor Group
SPD	Supplementary Planning Document
TGN	Technical Guidance Note
TPO	Tree Preservation Order
UDP	Unitary Development Plan
VP	Viewpoint
WBC	Wirral Metropolitan Borough Council
ZTV	Zone of Theoretical Visibility

7.9 List of References

National Planning Policy Framework (NPPF), Ministry of Housing, Communities and Local Government (2021)

Planning Policy Guidance (PPG), Ministry of Housing Communities and Local Government (2021)

Unitary Development Plan, Wirral Metropolitan District Council (2000)

Guidelines for Landscape and Visual Impact Assessment' (GLVIA3), Landscape Institute and the Institute of Environmental Management and Assessment, Third Edition (2013)

National Character Area NCA 59 Wirral, Natural England (2014)

Wirral Landscape Character Assessment, LUC (2019)

Cheshire Historic Landscape Character Assessment, Cheshire County Council and English Heritage (2007)

Wirral Landscape Sensitivity Assessment, Wirral Metropolitan Borough Council / LUC (2019)

Wirral Environmental Sensitivity Study (Draft), Wirral Metropolitan Borough Council / LUC (2021)

Wirral Local landscape Designations Review and Recommendations, Wirral Metropolitan Borough Council / LUC (2020)

Environmental Statement
Chapter 8: Ecology

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

April 2022

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Statement of Competency

The ecology chapter has been prepared by Environment Bank Limited.

Hannah Tracey MSc MCIEEM

The ecology chapter has been prepared by Hannah, a senior ecologist at Environment Bank with over 10 years' experience in ecological consultancy. Hannah has led on a wide variety of ecological projects including nationally significant infrastructure projects. She holds Natural England (NE) and Natural Resources Wales (NRW) Great Crested Newt (GCN) Survey Licences and NE Dormouse Licence and is a Field Identification Skills Certificate (FISC) level 3 accredited botanical surveyor.

Sue Charlton BSc (Hons.) MCIEEM

The ecology chapter has been reviewed by Sue Charlton, an associate ecologist with Environment Bank with over 20 years' experience in ecological consultancy and nature conservation. Sue has extensive experience in designing delivering, and providing technical review for ecological impact assessment, protected species surveys (including breeding and wintering bird, bats, great crested newt and invertebrates) and Habitat Regulations Assessments for residential and industrial projects (including for warehousing, aggregates, energy from waste and transportation hubs).

8 Ecology

8.1 Introduction

8.1.1 The Environment Bank has been commissioned by the Leverhulme Estate Limited (‘Leverhulme’) to prepare this Ecology Chapter of the Environmental Statement for Site F Land West of Raby Hall, Raby Hall Road, Raby Mere (hereafter referred to as the “Site”) to inform an outline planning application (all matters reserved except for access) for a residential development for up to 38 dwellings (Use Class C3), including 30% affordable housing; safeguarded land for the expansion of Autism Together facilities; delivery of green infrastructure including a new pocket park and play area, wildlife habitats and green corridors; and off-site environmental, biodiversity and accessibility enhancements, including an off-road pedestrian and cycle connection between the site and Blakeley Road.('the Proposed Development’).

8.1.2 The purpose of this assessment is to:

a. Establish baseline ecological condition at the Site;

b. Provide details of ecological mitigation measures incorporated through design evolution as an intrinsic part of the project design;

c. Detail any ecological mitigation measures to be implemented during Site clearance and construction;

d. Identify any residual ecological effects after avoidance and mitigation measures have been considered;

e. Identify any potential for cumulative effects

f. Identify any compensation measures required to offset residual effects;

g. Provide recommendations for how mitigation and compensation may be secured and monitored;

h. Set out details of ecological enhancement measures to be included within the Proposed Development; and,

i. Provide sufficient information to determine whether the project accords with relevant nature conservation policies and legislation and, where appropriate, to allow conditions or obligations to be proposed by the relevant authority.

8.1.3 The Site location and the Site red line / survey area are shown in Figure 8.1.

Figure 8.1 – Site Location Map



8.2 Policy and Legislative Context

8.2.1 Planning guidelines, international commitments, legislation and planning policies relevant to the protection, conservation and enhancement of nature conservation interests are detailed below.

National Policy and Guidance

8.2.2 Specific habitats and species of relevance to the Site receive legal protection in the United Kingdom under various national policy and legislation, as follows:

a. The Environment Act 2021[1] mandates that all planning applications will be required to demonstrate how a development will enhance biodiversity and protect habitats from November 2023. This is to be achieved through a measurable 10% Biodiversity Net Gain (BNG), in association with development through the use of the most up to date Defra Metric (currently Defra 3.0 Metric). Given the timescales of this application this mandated requirement will not apply for this scheme;

b. National Planning Policy Framework ('NPPF', as revised 2021)[2] sets out how planning policies and decisions should contribute to and enhance the natural and local environment through amongst other things, ensuring BNG through development and protect ecological important sites and networks;

c. The Conservation of Habitats and Species Regulations 2017 (as amended)[3] details the regulations for the protection of European Protected Habitat and Species. Such European Protected Species (EPS) include all species of bats, great crested newt *Triturus cristatus*, dormouse *Muscardinus avellanarius*, and European otter *Lutra lutra*, amongst others;

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[1] The Environment Act 2021, HMSO, 2021

[2] National Planning Policy Framework, Ministry of Housing, Communities & Local Government, 2021

[3] The Conservation of Habitats and Species Regulations 2017 (as amended), HMSO, 2017

d. The Wildlife and Countryside Act ('WCA') 1981 (as amended)[4] covers the legislation for endangered species in England and the framework for the designation of Sites of Special Scientific Interest (SSSI);

e. The Countryside and Rights of Way ('CRoW') Act 2000[5] reinforces the wildlife legislation listed in the WCA and places a duty of government departments to consider biodiversity, and provides governmental department powers for the protection and maintenance of SSSIs;

f. The Natural Environment and Rural Communities Act ('NERC') 2006[6] places a duty upon local authorities to promote and enhance biodiversity in all their functions. Specifically, habitats and species of principal importance to the conservation of biodiversity in regards to the planning process;

g. The Hedgerow Regulations 1997[7] provides protection by prohibiting the destruction or damage to important countryside hedges; and

h. The Protection of Badgers Act 1992[8] includes the protected of badgers under the act and that it is unlawful to willfully kill, injure, take, possess or cruelly ill-treat badgers or attempt to do so.

8.2.3 Where relevant, this appraisal takes account of the legislative protection afforded to specific habitats and species. The legislation surrounding each faunal or floral species or group is provided in detail in Appendix 8.1.

Regional Policy and Guidance

Wirral Biodiversity Action Plan

8.2.4 The Wirral Biodiversity Action Plan[9] ('BAP') concentrates on species and habitats that had national action plans produced or are of local conservation concern. These include

[4] Wildlife and Countryside Act 1981 (as amended), HMSO, 1981

[5] The Countryside and Rights of Way Act 2000, HMSO, 2000

[6] The Natural Environment and Rural Communities Act 2006, HSMO, 2006

[7] The Hedgerow Regulations 1997, HMSO, 1997

[8] The Protection of Badgers Act 1992, HMSO, 1992

[9] Wirral Biodiversity Action Plan, Wirral Borough Council, 2003

field boundaries, lowland mixed broadleaved woodland, bats and Great Crested Newts (GCN) *Triturus cristatus* (Appendix 8.2).

Local Policy and Guidance

Wirral Borough Council ('WBC') Unitary Development Plan

8.2.5 The Wirral Unitary Development Plan ('UDP')[10] was adopted in 2000 and sets out the council's policies and proposals for land use within the Borough to 2021. The plan was reviewed in 2007 and is currently being updated by the emerging Wirral Core Strategy Local Plan, although the draft (Regulation 19) plan has not yet been published. The following policies of the UDP are therefore relevant in the determination of the outline planning application:

a. Policy NC01 - the local planning authority will only permit proposals which will not adversely affect, directly or indirectly the integrity of the Borough's international, national and locally designated sites for nature conservation (as well as networks of linear features or ecological corridors of importance to wildlife)

b. Policy NC1 - development affecting sites of international importance will be subject to the most rigorous examination. Proposals which will have adverse effects on these sites will not be permitted unless it can meet the statutory tests of no alternative solutions and there are imperative reasons of overriding public interest which are sufficient to override the ecological importance of the site.

c. Policy NC3 - development affecting sites of national importance for nature conservation will be subject to special scrutiny. Development affecting these sites will not be permitted unless it can be clearly demonstrated that the reasons for the development outweigh the nature conservation value of the site.

d. Policy NC5 - development affecting sites of local importance for nature conservation will only be permitted where the Local Planning Authority is satisfied that the 'continued ecological viability of the habitat or wildlife interest of the site can be adequately safeguarded by appropriate conditions and/or legal agreements.

[10] Unitary Development Plan, Section 13 - Nature Conservation, Wirral Borough Council. 2000

e. Policy NC7 - development affecting wildlife species protected by law will not be permitted unless the Local Authority is satisfied that 'the protection of the species can be secured through the use of planning conditions and/or obligations.

f. Policy NC2, NC4 and NC6 - Lists the sites of international, national and local importance relevant to Policies NC1, NC3 and NC5 above (in Section 8.4 below, we identify which of these are relevant to our assessment of the Proposed Development).

8.3 Methodology and Assessment Criteria

Scope of the Assessment

8.3.1 The baseline conditions for the assessment has been established through a combination of desk study and field surveys.

8.3.2 The features considered for this assessment were designated sites, habitats and species of principle importance for conservation and species protected by wildlife legislation.

8.3.3 Given the size and location of the Site, the zone of influence was taken to be the Site boundary and its immediate environs only. The exceptions for this were for GCN (details of the zone of influence considered for GCN is provided at paragraph 8.3.12), and for designated sites (details of the zone of influence considered for designated sites is provided at Paragraph 8.3.4) below.

Method of Baseline Data Collection

Desk Study

8.3.4 In March 2021, the Biological information Centre for Cheshire, Halton, Warrington and Wirral ('RECORD') was reviewed for records of protected and notable species within 1 km of the Site centre. A search for international and European statutory designated sites for nature conservation within 5 km of the Site was undertaken, together with a search for national statutory designated sites for nature conservation within 2 km of the Site, using the Multi-Agency Geographic Information for the Countryside ('MAGIC') website[11].

8.3.5 In addition, free and publicly accessible Ordnance Survey ('OS') maps and aerial photographs were searched for waterbodies on, or within, 500 m of the Site boundary.

[11] www.magic.gov.uk, MAGIC

Field Survey

Preliminary Ecological Appraisal ('PEA')[12]

UK Habitats Classification

8.3.6 The habitats on the Site, were surveyed by Richard Wheat (Environment Bank Biodiversity Project Officer) on 5th March 2021.

8.3.7 The following was undertaken during the surveys:

8.3.8 Habitats were classified and mapped utilising the UK Habitat Classification ('UKHab') methodology[13]. The survey utilises the UK Hab Professional edition, mapping primary habitats to Level 4 (where possible) to identify the 47 UK Biodiversity Action Plan Habitats and using a limited subset of secondary codes for 'mosaic' and 'origin' features to differentiate habitat attributes. The plant species nomenclature followed that of Stace[14].

8.3.9 For each habitat, a condition assessment was carried out using criteria detailed in the Biodiversity Metric 3.0 Technical Guidance[15]. The criteria is based on characteristic attributes for each habitat and assigns a value of 'good', 'moderate' or 'poor' depending on the number of criteria met.

8.3.10 During the survey, the presence of, and/or the opportunities for, protected, notable or invasive species within the Site was noted.

8.3.11 Terrestrial habitats on-Site were surveyed for the presence of, or potential for the following protected or notable species:

a. Birds: All species with special reference to key species (such as those on Schedule 1 of the WCA, 1981 (as amended), England Biodiversity Priority Species ('EBP')

[12] Guidelines for Preliminary Ecological Appraisal, CIEEM, 2017

[13] The UK Habitat Classification User Manual Version 1.1, Butcher et al, 2020

[14] New Flora of the British Isles 4rd edition, Stace, 2019

[15] The Biodiversity Metric 3.0: Auditing and accounting for biodiversity – User Guide, Panks et al, 2021

(previously UK Biodiversity Action Plan ('UKBAP') species) and Birds of Conservation Concern ('BoCC')[16];

b. Amphibians: GCN;

c. Reptiles: common lizard *Zootoca vivipara*, adder *Vipera berus*, slow worm *Anguis fragilis* and barred grass snake *Natrix helvetica*; and

d. Mammals: bat (all species) and badger *Meles meles*.

e. Aquatic habitats were assessed for their potential to support, and any signs of otter *Lutra lutra*, water vole *Arvicola amphibius,* white clawed crayfish *Austropotamobius pallipes*, GCN, and barred grass snake; and

f. Widespread terrestrial and aquatic invasive species listed on Schedule 9 of the WCA 1981 (as amended) were recorded. These are Japanese knotweed *Reynoutria japonica*, giant knotweed *Fallopia sachalinensis*, hybrid knotweed *Fallopia baldschuanica*, giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera*, floating pennywort *Hydrocotyle ranunculoides* and New Zealand pygmyweed *Crassula helmsii*.

Identification of Sensitive Receptors

Amphibians

8.3.12 The terrestrial habitats at the Site were assessed for their potential to support amphibian species and a desk search was undertaken (see Section 8.3.3). Where access allowed, a GCN Habitat Suitability Index ('HSI') assessment was carried out to evaluate the suitability of waterbodies on-Site and within 500 m of the Site, and their adjoining habitats for GCN[17]. The calculated HSI score for pond scores between 0 and 1 and is derived from an assessment of ten habitat variables known to influence the presence of newts. The HSI is categorised such that the closer to a score of 1 it is then the more suitable a pond is to support GCNs. The HSI is calculated on an individual pond basis but takes into

[16] Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man, Eaton et al, 2015

[17] Evaluating the suitability of habitat for the great crested newt (Triturus cristatus), Oldham et al, 2000

account surrounding terrestrial habitat and local pond density. Table 8.1 – Categorisation of HSI Scoresillustrates the categorisation of HSI scores.

Table 8.1 – Categorisation of HSI Scores

HSI Score	Pond Suitability for GCN
< 0.5	Poor
0.5 - 0.59	Below average
0.6 - 0.69	Average
0.7 - 0.79	Good
>0.8	Excellent

8.3.13 Ponds within 500 m of the Site were tested for GCN eDNA on 21st and 24th June 2021 (where accessible) by Mark Blacker MSc, ACIEEM and Celise Neale BSc (Hons) whom both hold great crested newt Level 1 Class licences (2017-29435-CLS-CLS and 2018-36844-CLS-CLS respectively). Water samples were collected and sent to SureScreen Scientific Ltd for independent analysis. The sampling followed the Natural England accepted protocol for testing pond occupancy by GCNs through traces of DNA shed into the pond (eDNA). The method followed is detailed in Biggs et al. (2014)[18].

Badger

8.3.14 A survey of the Site and surrounding suitable habitat up to 30 m from the Site was conducted on 8th July 2021 by Katie Bird, MEnvSci, ACIEEM. The Site was inspected for signs of badger activity, including sett entrances, latrines, footprints, runs through vegetation, guard hairs caught on fences and snuffle holes, and its suitability to support this species assessed.

Bats

8.3.15 The Site was assessed for its suitability to support roosting and foraging bats (see Appendix 8.3).

[18] Using eDNA to develop a national citizen science-based monitoring programme for the great crested newt (*Triturus cristatus*). Biggs et al. 2014.

Preliminary Roost Assessment

8.3.16 An assessment of Bat Roost Potential ('BRP') of all semi-mature to mature trees within, or immediately adjacent to the Site was completed on 16th June 2021 by Maisie McKenzie MSc, ACIEEM. The survey methodology enabled the categorisation of each tree in relation to its value for bats.

8.3.17 All of the trees on, or within close proximity (approximately 10 m) to, the development footprint at the Site were assessed for their potential to support a bat roost, where access allowed. Binoculars were used to check the trees for suitable features to support bats such as cracks, crevices and hollows in the trunks or branches as a result of decay, weathering or pruning. These are all features more commonly associated with mature or semi-mature trees. Furthermore, these features can be concealed by ivy Hedera helix, or dense woody ivy can itself provide the necessary features to support an occasional bat roost.

8.3.18 Any trees that had features suitable to support a bat roost were also checked for signs of bats, such as droppings, scratch marks and staining around possible entrance holes. All tree inspections were undertaken by visual observation, aided by binoculars, from ground level.

Bat Activity Survey – Transect Surveys

8.3.19 Dusk and pre-dawn activity surveys were carried out to determine the level of bat activity across the Site.

8.3.20 The dusk surveys commenced at sunset and ceased 2 hours following sunset. The pre-dawn survey commenced 2 hours prior to sunrise and finished at sunrise. The surveyors were equipped with a range of bat detectors including Wildlife Acoustic – Echo Meter Touch 2, Batbox Duet, Peersonic RPA3 and Magenta bat detectors. Surveyors followed set transect routes, walking at a steady pace and pausing for approximately 5 minutes at set locations for spot counts. Recordings were made of any bats seen and/or heard and the species, the timing, activity, location and direction of flight. Table 8.2 provides details of the surveys.

Table 8.2 - Timings, Weather Conditions and Type of Bat Activity Survey

Survey Visit	Date	Type of survey	Sunset/Sunrise Time	Timing	Weather
1	25/05/2021	Dusk	21:21	21:21 - 23:04	12°C, 4/8 Oktas – cloud cover, 3/12 Beaufort scale – wind, dry
2	21/06/2021	Dusk	21:44	21:44-22:36	13°C, 7/8 Oktas – cloud cover, 2/12 Beaufort scale – wind, dry
3	20/07/2021	Dusk	21:26	21:26-23:00	22°C, 0/8 Oktas – cloud cover, 0/12 Beaufort scale – wind, dry
4	25/08/2021	Dusk	20:18	20:18-22:27	19°C, 1/8 Oktas – cloud cover, 2/12 Beaufort scale – wind, dry
5	08/09/2021	Dusk	19:40	19:40-21:57	23°C, 4/8 Oktas – cloud cover, 1/12 Beaufort scale – wind, dry
6	23/09/2021	Dawn	06:59	04:59-06:59	16°C, 5/8 Oktas – cloud cover, 3/12 Beaufort scale – wind, dry

8.3.21 With reference to the Bat Mitigation Guidelines[19], Good practice Guidelines[20] and professional judgement, the weather conditions during both the dusk and pre-dawn surveys were considered suitable for bat activity.

Bat Activity Surveys - Automated Surveys

8.3.22 One static bat detectors were deployed along the route of the transect for at least five consecutive nights once per month from June – September. These detectors recorded continuously, and the data collected was then analysed using Anabat Insight to identify bat species and relative abundance.

[19] Bat Mitigation Guidelines, Mitchell-Jones, 2004

[20] Bat surveys for Professional Ecologists: Good practice Guidelines, Collins, 2016

Birds

8.3.23 Visual and/or audible identification was made of any birds on the Site or flying over the Site during the survey period. Suitable habitat was, where possible, inspected and any evidence of old nesting activity was recorded.

Wintering Bird Surveys

8.3.24 Although the Proposed Development comprises agricultural land and woodland of limited potential for wintering birds, the proximity of the Site to nationally and internationally protected sites resulted in MEAS advising that wintering bird surveys were required.

8.3.25 Although the Site is generally considered to be unsuitable for significant wintering bird populations, it was considered that undertaking a suite of wintering bird surveys will allow for a robust assessment to be made of the potential value of the Site given its proximity to the Dee Estuary SAC, SPA and Ramsar Site, the Mersey Narrows and North Wirral Foreshore SPA and Ramsar, and the Mersey Estuary SPA and Ramsar.

Site Survey

8.3.26 The wintering bird surveys were undertaken between September 2021 and March 2022. The survey focused on recording species of conservation interest associated within farmland, woodland, hedgerow and open water habitats in the survey area plus adjacent habitats where access and/or visibility allowed. Pre-planned transect routes through the survey area were walked and all bird observations were recorded. Data collected included weather conditions, species present and numbers of individuals.

8.3.27 Surveys were undertaken monthly between September 2021 and March 2022. Surveys were timed as to maintain at least two weeks between each survey visit. On each visit, the ornithologist walked the transects and undertook a 0.5 hour vantage point survey at each of the two vantage point locations (for locations of vantage points see Figures 9.6 to 9.12). During the surveys, all birds within the survey area were recorded, including birds in flight. All wintering bird surveys were undertaken by an experienced ornithologist who was able to identify birds by sight and calls/song.

8.3.28 The surveys were undertaken during suitable weather conditions and followed standard methods for bird monitoring including the use of the British Trust for Ornithology (BTO) species codes and symbols for bird activity (Bibby et al., 2000). Current best practice as described in Bird Census Techniques (Bibby et al., 2000) and Bird Monitoring Methods (Gilbert et al, 1998) were adopted.

8.3.29 The aim of the surveys was to determine which species are using the survey area during the winter and to assess the importance of notable populations including qualifying species of the adjacent national and internationally protected sites.

8.3.30 Notable bird species are those which are listed on:

a. Annex 1 of the Birds Directive ;

b. Schedule 1 of the Wildlife and Countryside Act 1981 ;

c. Section 41 of the Natural Environment and Rural Communities Act 2006 ;

d. Birds of Conservation Concern (BoCC).

8.3.31 Wintering birds of county importance in Wirral were determined in accordance with the Local Wildlife Sites Selection Criteria for the Cheshire region. (CWT, 2012) and Geological Sites, July 2013. For wintering birds, the selection criteria are:

8.3.32 “S2 Birds

Sites should be selected that support either:

a. Any regular or probable breeding or overwintering bird species listed (relevant species identified below from table 7 of CWT, 2012);

b. Any regular overwintering bird species listed (relevant species identified below from table 8 of CWT, 2012).”

Other Protected or Notable Species

8.3.33 Where applicable, during the survey, evidence was recorded of any other protected or notable species, including England Biodiversity Priority (EBP) species. Habitats with the potential to support additional protected or notable species were also recorded, if present, during the survey.

Invasive Non-native Species (INNS)

8.3.34 The occurrence of any invasive plant species on the Site was identified in terms of species and stand size.

<u>Biodiversity Net Gain Assessment and Application of the Biodiversity Metric</u>

8.3.35 In order to meet the requirements of the NPPF and in order to demonstrate as a minimum, no net loss to biodiversity value across the site, a Biodiversity Accounting Assessment

has been carried out. The assessment, which uses the Biodiversity Metric 3.0 - calculation tool, requires the determination of extent, distinctiveness and condition of each habitat type currently present within the Site. The UKHabs survey and assessment detailed within this chapter will provide this baseline information. The assessment has been applied to the iterative design of the Development Proposals in order to identify opportunities to minimise losses in habitat value and ensure at least no net loss can be achieved. The detailed methodology and results of the baseline BNG assessment is within Appendix 8.4 but the findings of this assessment will be summarised in the relevant sections below.

Site Specific Limitations

8.3.36 There were no limitations to the survey in terms of access and weather conditions.

8.3.37 The PEA field survey did not attempt to determine the status of protected, notable or invasive species on-Site, rather just note their presence from incidental sightings or identify the potential opportunities for these species based on habitat characteristics and features and connectivity within the surrounding landscape. Where opportunities for these species were recorded on-Site, or for which significant data records within the zone of influence existed, further species-specific survey work was undertaken.

8.3.38 The habitat survey was carried out in early March 2021, which is within the recommended March – October window for carrying out habitat surveys. Whilst botanical data was collected to help inform habitat classification, many species may not have been evident at the time of survey and so may be omitted from the habitat descriptions in this report. However, given the current intensive land management of the Site, this is not considered to have been a constraint to adequate habitat classification in this instance.

8.3.39 Of the 24 ponds were identified within 500 m of the site, only 18 were accessible for GCN HSI assessment and only 13 ponds were accessible, or suitable, for GCN eDNA sampling. This was due to the following reasons:

a. P1, P9, P14-P16, Pond E and Pond H were either dry at the time of the survey or did not contain enough water to collect eDNA surveys;

b. P13 and the on-Site pond contained dense vegetation around the perimeter, preventing safe access to the ponds; and

c. Ponds B, C and D were inaccessible as a result of security fencing from local angling associations.

8.3.40 This limitation has been considered within the assessment provided within this report and is not considered to provide a significant limitation to the findings of this assessment.

8.3.41 The baseline conditions described in this report were accurate at the time at which the survey was undertaken. Should at least two years pass by, and/or conditions on-Site change prior to the commencement of works, an update survey should be undertaken.

Assessment Criteria

8.3.42 Whilst the overall EIA methodology, as set out at Chapter 2 has been applied, the methodology for the Environmental Statement follows the principles set out within the Guidelines for Ecological Impact Assessment in the UK and Ireland; Terrestrial, Freshwater, Coastal and Marine[21] updated by the Chartered Institute of Ecology and Environmental Management (CIEEM) in 2019 and comprises a staged approach to assessing the potential impacts resulting from the Proposed Development on the ecological features within the zone of influence.

8.3.43 The assessment has entailed the following stages:

a. Definition of baseline conditions and identification of 'important' ecological features;

b. Prediction of potential impacts;

c. Definition of applicable avoidance, mitigation, compensation and enhancement measures;

d. Assessment of residual effects;

e. Cumulative impact assessment; and

f. Statement of significance.

8.3.44 'Important ecological features' have been determined based on existing statutory, policy and conservation objectives on an international, national, county and local level.

8.3.45 The integrity of a site is defined in Government Guidance as, "the coherence of its ecological structure and function, across its whole area, that enables it to sustain the

[21] Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, CIEEM, 2019

habitat, complex of habitats and/or levels of populations of the species for which it was classified". This accepted definition applies easily to designated sites, but for sites which have not been designated, background information is required to provide the context to make an ecological judgment. The assessment of the significance of the impact requires consideration of the ecological value/ significance and the magnitude of impact. If significant impacts are identified, then appropriate mitigation should be proposed.

Assessment of Effects

8.3.46 The CIEEM Guidelines encourage an approach to evaluation that involves taking apart the different values that can be attached to ecological features, whilst acknowledging that their attempt to produce guidance on defining how habitats and species could be assigned to different levels of value was unworkable. Therefore, instead, but still in accordance with the CIEEM Guidelines the value or potential value of an ecological resource will be determined within a defined geographical context and assigned a value as set out below:

a. International and European;

b. National;

c. Regional;

d. Metropolitan, County, vice-county or other local authority-wide area;

e. River basin district;

f. Estuarine system/coastal cell; and

g. Local.

8.3.47 Legislative protection does not form part of the evaluation of habitats or species. For example, the presence of a small population of GCN (a European Protected Species) on a site would not by default afford the site international importance (and thus analogous with a Special Area of Conservation ('SAC')). However, reflecting the conservation status of GCNs, it is reasonable to value the local population as important at, perhaps, the County level.

8.3.48 In addition to outlining the importance of the ecological features identified, the magnitude of predicted potential ecological impacts prior to any mitigation are evaluated. This is done by assessing the potential impacts on each of the identified ecological features

based on available information including the background survey / reporting prepared by The Environment Bank, and available information on existing conservation status.

8.3.49 The likely effects of potential impacts on ecological receptors largely depend upon their sensitivity, whilst the level of certainty that an impact will occur as predicted is based on professional judgment. The following parameters may affect ecological features:

a. Magnitude – i.e. the size of an impact in quantitative terms where possible;

b. Extent – i.e. the area over which an impact occurs;

c. Duration – i.e. the time for which an impact is expected to last;

d. Reversibility – i.e. is the impact permanent or temporary; and

e. Timing and frequency – e.g. related to breeding seasons.

8.3.50 In accordance with the CIEEM guidelines, an ecologically significant effect is “an effect that either supports or undermines the biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general”.

8.3.51 The value of any feature that will be significantly affected is then used to determine the geographical scale at which the impact is significant.

8.3.52 As stated in the CIEEM guidelines “a significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project”. As such, using an approach to valuing impacts that involves professional judgement and reference to available conservation objectives, neutral and minor effects are considered to be not significant, while moderate and major effects are assessed to be significant. Table 8.3 provides a comparison of the terms used.

Table 8.3 - Significance Effect Criteria

Effect Significance	Level of Impact	Equivalent CIEEM Assessment
Significant	Major Beneficial	Significant Positive Impact on biodiversity conservation objectives at given geographical context
	Moderate Beneficial	Positive Impact on biodiversity conservation objectives at given geographical context
Non-significant	Minor Beneficial	Limited Positive Impact on biodiversity conservation objectives at given geographical context

Effect Significance	Level of Impact	Equivalent CIEEM Assessment
Neutral	Negligible	No Significant Impact on biodiversity conservation objectives at given geographical context
Non-significant	Minor Adverse	Limited Adverse Impact on biodiversity conservation objectives at given geographical context
Significant	Moderate Adverse	Adverse Impact on biodiversity conservation objectives at given geographical context
	Major Adverse	Significant Adverse Impact on biodiversity conservation objectives at given geographical context

8.4 Existing Baseline Conditions

Sources of Baseline Information

8.4.1 The following section describes the baseline ecological conditions at the Site, outlining the results of the desk study and field survey findings. Current management is anticipated to remain unchanged up until development and, therefore, baseline conditions at the time of writing are anticipated to reflect those at the commencement of the Proposed Development. The conservation importance of the features identified are then evaluated using the geographical scale outlined in the previous section.

8.4.2 The pertinent information from the desk search is set out below for designated sites, whilst species are discussed in the relevant species sections.

Baseline Assessment

Designated Sites

8.4.3 The results of the MAGIC data search indicate that there are two internationally designated Sites within 5 km of the Site and one national statutory designated site within 2 km of the Proposed Development. These are summarised in Table 8.4 and Table 8.5, below. The Site falls within the Impact Risk Zone (IRZ) for Dibbinsdale Site of Special Scientific Interest (SSSI) (and Local Nature Reserve (LNR)) for which the Local Planning Authority (LPA) must consult Natural England for certain types of development.

8.4.4 Two international statutory protected sites, the Mersey Estuary SPA and Ramsar were identified within 5 km of the Site. These sites are designated for the presence of internationally important populations of regularly occurring Annex 1 species, migratory bird species.

8.4.5 The geographic level of value of these sites is considered to be of International and National level respectively.

Table 8.4 - International Statutory Designated Sites within 5 km of the Site

Site Name/Site Reference	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
Mersey Estuary	SPA	3.6 km east	Article 4.1 - supports This site supports 1% or more of the GB population of golden plover *Pluvialis apricaria*, which is an annex 1 species, in any given season. Article 4.2 - supports an internationally important population of regularly occurring migratory species, including: • Redshank *Tringa totanus* • Shelduck *Tadorna tadorna* • Teal *Anas crecca*, • Pintail *Anas acuta*, • Dunlin *Calidris alpina*, • black-tailed godwit *Limosa limosa islandica*. This site also supports an internationally important assemblage of over 20,000 waterbirds in any given season.
Mersey Estuary	Ramsar	3.6 km east	Criterion 5: Assemblages of international importance: Peak winter count of 120,726. Criterion 6: Regularly supports 1% or more of the individuals in a population of one species or subspecies of waterbirds. Spring/autumn count of redshank, shelduck, black-tailed godwit and winter counts of teal, northern pintail and dunlin.
Key SPA – Special Protection Area			

Site Name/Site Reference	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
RAMSAR – Wetland site of international importance designated in accordance with the Convention on Wetlands (Ramsar Convention)			

Table 8.5 – National Statutory Designated sites within 2 km of the Site

Site Name/Site Reference	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
Dibbinsdale (Brotherton Park and Dibbinsdale)	SSSI (LNR)	520 m northeast	Fen pasture, reed swamp & Semi – natural broad-leaved woodland. Assemblages of breeding birds (61 species regularly breeding) and rich invertebrate fauna.
Key SSSI – Sites of Special Scientific Interest LNR – Local Nature Reserve			

Non-Statutory Designated Sites

8.4.6 The RECORD desk search also identified six non-statutory designated Sites within 1 km of the Site centre. These are summarised in Table 8.6, below These are considered to be of County level value.

Table 8.6 - Non-statutory Designated sites within 1 km of the Site

Site Name/Site Code	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
Raby Mere (A) 43	LWS	108 m	Raby Mere is one of the few large water bodies in Wirral and whilst there is little marginal or emergent vegetation, it is of value for aquatic species of plants and animals, particularly ducks. To the south-east the woodlands have an acidic flora, whilst those immediately around the lake and those to the south-west have plants of heavier clays. The presence of primrose *Primula vulgaris* and wood-sorrel *Oxalis acetosella* indicate the probable semi-natural nature of these woodlands.
Raby Mere (B) 43	LWS	255 m	

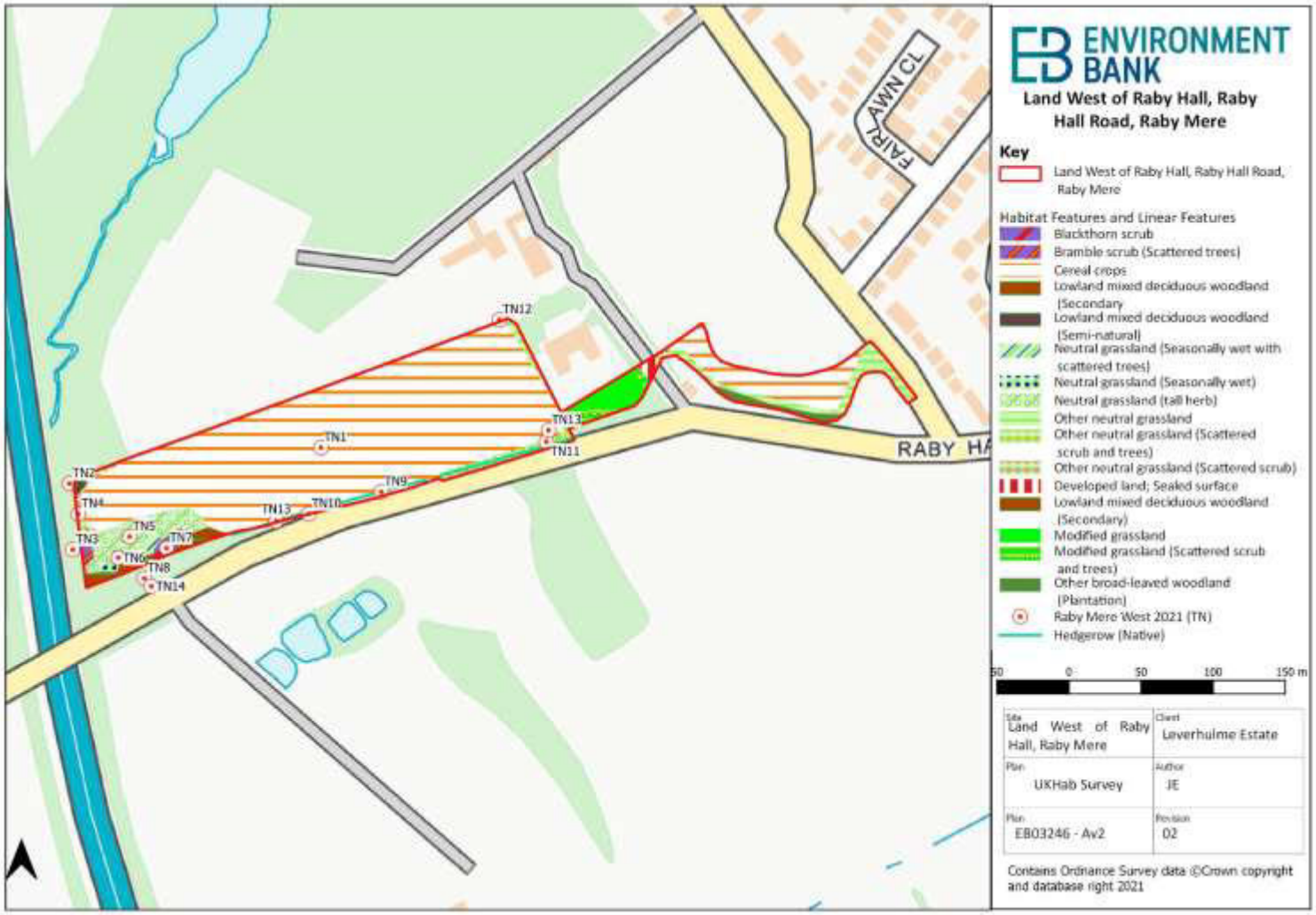
Site Name/Site Code	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
			The woods support a reasonable range of breeding and wintering bird species and legally protected species, including bats.
Bromborough Golf Course Pond (A) 45	LWS	570 m	There are several ponds on the Bromborough Golf Course, many of considerable biological interest. The four ponds chosen are large, open and unshaded with clear water and support a range of aquatic plants and animals including nodding bur-marigold *Bidens cernua*, cyperus sedge *Carex pseudocyperus*, water soldier *Stratiotes aloides*, blunt-leaved pondweed *Potamogeton obtusifolius*, rigid hornwort *Ceratophyllum demersum* and unbranched bur-reed *Sparganium emersum*. There are several dragonfly and damselfly species present.
Bromborough Golf Course Pond (B) 45	LWS	650 m	
Bromborough Golf Course Pond (C) 45	LWS	88 m	
Tom's Paddock, Clatterbridge 74	LWS	750 m	No information provided.
The Marfords, Brookhurst 44	LWS	770 m	No information provided.
Hargrave House Farm Ponds 46	LWS	1 km	No information provided.
Plymyard Dale, Brookhurst 47	LWS	1 km	Valley woodland within the Dibbinsdale complex with a diverse, mixed-age range of trees, dominated by oak *Quercus* spp., ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*, showing much regeneration. The drier valley slopes grade down to the flatter, wetter valley floor where alder *Alnus glutinosa* forms the canopy and grey willow *Salix cinerea* forms the understorey. There is a rich, continuous and diverse ground flora with several ancient woodland indicator species such as opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium*, sanicle *Sanicula europaea* and wood anemone *Anemone nemorosa*. There is a good range of breeding bird species. Some plots have been converted to formal gardens.
Key LWS – Local Wildlife Site			

Habitats

8.4.7 Figure 8.2 shows the extent of habitat types and boundary features. Descriptions of the habitat types and dominant plant species found at the Site are provided below. Habitat descriptions are to Level 4 (where possible) and use a limited subset of secondary codes for 'mosaic' and 'origin' features to differentiate habitat attributes, this in accordance with the UK Habitat Classification methodology[22].

[22] The UK Habitat Classification User Manual Version 1.1, Butcher, 2020

Figure 8.2 – UKHAB Survey



8.4.8 Habitats recorded on Site are:

a. Cereal crops (c1c)

b. Bracken (g1c)

c. Neutral grassland (Seasonally wet with scrub) (g3 119 11)

d. Neutral grassland (Tall herb) (g3 16)

e. Other neutral grassland (g3c)

f. Other neutral grassland (Scattered scrub) (g3c 10)

g. Other neutral grassland (Scattered scrub and trees) (g3c 10 11)

h. Hedgerow (native) (h2 47)

i. Blackthorn scrub (h3a)

j. Bramble scrub (Scattered trees) (h3d 11)

k. Lowland mixed deciduous woodland (Semi-natural) (w1f 37)

l. Lowland mixed deciduous woodland (Secondary) (w1f 38)

Cereal crops (c1c) – TN1

8.4.9 Cultivated ground currently comprising maize stubble. The ground was heavily disturbed in places with localised pooling of surface water in wheel ruts.

8.4.10 This habitat is considered to be of Negligible importance.

Bracken (g1c)

8.4.11 A narrow margin of bracken *Pteridium aquilinum* lining either side of the central southern hedgerow (TN9) with occasional cock's-foot, common couch and creeping buttercup.

8.4.12 This habitat is considered to be of Negligible importance.

Neutral grassland (Seasonally wet with scrub) (g3 119 11) – TN6

8.4.13 A small area of seasonally inundated ground situated within an area of tall herb vegetation (TN5) within the southwest of the Site, comprising shallow water over mostly bare earth with scattered patches of creeping bent *Agrostis stolonifera*, Timothy *Phelum pratense*,

creeping buttercup *Ranunculus repens* and occasional willow *Salix cinerea* scrub. The water levels and lack of aquatic vegetation observed suggested the ground was only seasonally inundated and is likely to dry out in spring/summer.

8.4.14 This habitat is considered to be of Negligible importance.

Neutral grassland (Tall herb) (g3 16) - TN5

8.4.15 A stand of unmanaged grassland dominated by a dense stand of great willowherb *Epilobium hirsutum* on saturated ground. Thistle *Cirsium* sp. and common nettle *Urtica dioica* were occasional throughout.

8.4.16 This habitat is considered to be of Negligible importance.

Other neutral grassland (Scattered scrub) (g3c 10) – TN4

8.4.17 A margin of coarse, unmanaged grassland forming an ecotone between the scrub, woodland and the open area of cropland. The grassland was loosely vegetated with coarse grasses such as cock's-foot *Dactylis glomerata* and common couch *Elytrigia repens* with frequent tall herbs including common nettle, cleavers *Galium aparine*, broad-leaved dock *Rumex obtusifolius* and occasional ivy *Hedera helix*.

8.4.18 This habitat is considered to be of Negligible importance.

Other neutral grassland (g3c)

8.4.19 A linear field margin within the northeast of the Site. Grasses and herb composition of the grassland is similar to that of TN4 and underlies the canopy of a large sycamore which is situated immediately off-Site to the northeast.

8.4.20 This habitat is considered to be of Negligible importance.

Other neutral grassland (Scattered scrub and trees) (g3c 10 11)

8.4.21 A 3 m wide margin of grassland on shaded ground adjacent to the southern boundary. The grassland was over topped by a line of nine mature sycamore and a single oak evenly spaced across the stand. The grassland sward was variable with areas locally dominated by ivy, low growing bramble *Rubus Fruticosus* agg. or a mix of Yorkshire fog *Holcus lanatus*, cock's-foot, common couch, lesser celandine *Ficaria verna*, cleavers, common nettle, cow parsley *Anthriscus sylvestris*, dandelion *Taraxacum* agg. and snowdrop *Galanthus* sp.

8.4.22 This habitat is considered to be of Negligible importance.

Hedgerow (native) (h2 47) – TN9

8.4.23 A defunct hedgerow was present along the southern boundary of the Site adjacent to Raby Hall Road. The hedge was approximately 1.5 m high x 1.2 m wide, had been recently flailed and was dominated by blackthorn Prunus spinosa with frequent hawthorn *Crataegus monogyna* and rare holly *Ilex aquifolium*. The canopy was gappy and infilled by bracken with the exception of a gated access in the centre of the hedgerow. Several mature English oak *Quercus robur* standards were present at the junction between the hedge and the adjacent area of woodland.

8.4.24 This habitat is considered to be of Local importance.

Blackthorn scrub (h3a) – TN7

8.4.25 A small stand of dense scrub dominated by blackthorn located along, and overlapping, the southern boundary. The stand was approximately 2.5 m high overlying saturated and partially inundated ground with no evident structure or associated field layer.

8.4.26 This habitat is considered to be of Negligible importance.

Bramble scrub (Scattered trees) (h3d 11) – TN3

8.4.27 A dense stand of bramble lining the adjacent west facing bank of the M53 and extending into the Site over the boundary fence. The scrub was to 1.5 m high with several scattered mature ash and English oak overhanging the Site from outside of the Site boundary.

8.4.28 This habitat is considered to be of Negligible importance.

Lowland mixed deciduous woodland (Semi-natural) (w1f 37) – TN2

8.4.29 A small area of deciduous woodland within the north-west corner of the Site but forming part of a continuous area of mature woodland associated with Raby Mere LWS. The section of the woodland within the Site displayed woodland edge characteristics with frequent bramble and ash *Fraxinus excelsior* saplings underlying a single over mature oak.

8.4.30 This habitat is considered to be of Local importance.

Lowland mixed deciduous woodland (Secondary) (w1f 38) – TN8

8.4.31 Secondary woodland adjacent to and marginally overlapping the southern Site boundary. The woodland occupies an area of made ground with several artificial ditch features and a road embankment which sloped sharply to the north and increased in height towards the west. The woodland had a mostly even-aged canopy with early-mature oak, ash, sycamore *Acer pseudoplatanus* and silver birch *Betula pendula* over a variable shrub understorey with occasional blackthorn, hawthorn, elder *Sambucus nigra* and rare holly. The field layer was predominantly composed of ivy and bramble with rare male fern *Dryopteris filix-mas*, broad buckler fern *Dryopteris dilitata*, hart's-tongue fern *Asplenium scolopendrium*, snowdrop, hybrid bluebell *Hyacinthoides* x *massartiana*, daffodil *Narcissus* sp. and a localised patch of variegated yellow-archangel *Lamium galeobdolon* subsp *argentatum*.

8.4.32 This habitat is considered to be of Local importance.

Notable and Protected Species Relevant to the Site

Amphibians

8.4.33 The desk study returned four records of common toad *Bufo bufo* in 2012. Common toad are listed on Section 41 of the NERC Act 2006.

8.4.34 No ponds were identified on-Site and a total of 24 ponds were located within 500 m of the Site boundary via OS Maps prior to field surveys of the Site being undertaken and were subject to an HSI assessment and environmental DNA (eDNA) survey. However, of these ponds:

a. P1, P9, P14-P16, Pond E and Pond H were either dry at the time of the survey or did not contain enough water to collect eDNA surveys;

b. P13 and the on-Site pond contained dense vegetation around the perimeter, preventing safe access to the ponds; and

c. Ponds B, C and D were inaccessible as a result of security fencing from local angling associations.

8.4.35 The results of the HSI assessment are presented in Table 8.7. The results of the eDNA survey summarised in Table 8.8 and detailed in Appendix 8.5. A location map of all ponds identified within 500 m of the Site is provided within Figure 8.3.

Table 8.7– Results of HSI Assessment

Pond No.	Variables of Habitat Suitability Index Assessment											
	SI1 Pond location	**SI2 Pond area**	**SI3 Pond drying**	**SI4 Water quality**	**SI5 Shade**	**SI6 Waterfowl**	**SI7 Fish**	**SI8 Ponds**	**SI9 Terrestrial habitat**	**SI10 Macrophytes**	**Habitat Suitability Index**	**Habitat assessment - suitability for GCN**
Pond 1	Zone A	<50m2	Dries Annually	Poor	96-100%	Absent	Absent	>12	Good	1-5%	0.36	Poor
Pond 2	Zone A	150m^2	Rarely Dries	Poor	96-100%	Absent	Absent	>12	Good	1-5%	0.6	Average
Pond 3	Zone A	250m^2	Never Dries	Moderate	0-60%	Minor	Possible	>12	Moderate	6-10%	0.71	Good
Pond 4	Zone A	225m^2	Never Dries	Moderate	0-60%	Absent	Possible	>12	Moderate	6-10%	0.73	Good
Pond 5	Zone A	100m^2	Never Dries	Moderate	0-60%	Absent	Absent	>12	Moderate	36-40%	0.75	Good
Pond 6	Zone A	100m^2	Rarely Dries	Poor	96-100%	Minor	Absent	>12	Moderate	1-5%	0.53	Below Average
Pond 7	Zone A	50-100m^2	Rarely Dries	Moderate	0-60%	Absent	Absent	>12	Moderate	1-5%	0.66	Average
Pond 8	Zone A	500-700m^2	Never Dries	Poor	96-100%	Minor	Minor	>12	Moderate	1-5%	0.6	Average
Pond 9	Zone A	150m^2	Rarely Dries	Poor	96-100%	Absent	Absent	>12	Good	1-5%	0.6	Average
Pond 10	Zone A	150m^2	Never Dries	Poor	0-60%	Absent	Absent	>12	Moderate	16-20%	0.7	Good
Pond 11	Zone A	400m^2	Never Dries	Moderate	0-60%	Minor	Major	>12	Moderate	16-20%	0.5	Below Average

Pond No.	Variables of Habitat Suitability Index Assessment											
	SI1 Pond location	**SI2 Pond area**	**SI3 Pond drying**	**SI4 Water quality**	**SI5 Shade**	**SI6 Waterfowl**	**SI7 Fish**	**SI8 Ponds**	**SI9 Terrestrial habitat**	**SI10 Macrophytes**	**Habitat Suitability Index**	**Habitat assessment - suitability for GCN**
Pond 12	Zone A	200m^2	Never Dries	Moderate	0-60%	Absent	Minor	>12	Moderate	21-25%	0.7	Good
Pond 13	Zone A	400m^2	Never Dries	Good	0-60%	Minor	Minor	>12	Moderate	21-25%	0.75	Good
Pond A	Zone A	2000m^2	Never Dries	Moderate	0-60%	Minor	Possible	2	Good	6-10%	0.36	Poor
Pond B	Zone A	500-700m^2	Never Dries	Moderate	0-60%	Minor	Minor	2	Good	11-15%	0.74	Good
Pond C	Zone A	2000m^2	Never Dries	Moderate	0-60%	Minor	Minor	2	Good	11-15%	0.72	Good
Pond F	Zone A	2000m^2	Never Dries	Moderate	0-60%	Minor	Minor	2	Good	26-30%	0.70	Good
Pond G	Zone A	500-700m^2	Never Dries	Moderate	0-60%	Minor	Minor	2	Good	1-5%	0.72	Good

Table 8.8 - eDNA results of surveyable ponds within 500 m of the Site.

Pond Name	eDNA result
P2	Negative
P3	Positive (12/12)
P4	Negative
P5	Negative
P6	Negative
P7	Positive (1/12)
P8	Negative
P10	Negative
P11	Negative
P12	Negative
Pond A	Negative
Pond F	Negative
Pond G	Negative

Please note: eDNA surveys do not provide information on population levels, only the presence of great crested newt DNA within ponds at the time of the sampling.

Figure 8.3 – Great Crested Newt eDNA Results



8.4.36 The hedgerow, scrub and woodland edges are likely to provide suitable habitat for amphibian species such as GCN and common toad which are listed on Section 41 of the NERC Act 2006. GCN are also listed as a European protected species and are listed on the Wirral LBAP.

8.4.37 The amphibian assemblage likely present on Site is of Local importance.

Badger

8.4.38 Two records of badger within 1 km of the Site were returned during the desk study, however no information was supplied regarding the type of record.

8.4.39 No evidence of badger signs or setts were observed on or within 30 m of the Site during the field survey completed on 8th July 2021. The woodland within the west of the Site was assessed as providing potential sett building habitat, as well as providing connectivity with the woodland to the north. However, badgers are a widespread species and may utilise the habitats for foraging and commuting purposes.

8.4.40 Badgers are currently absent from Site but may utilise the habitats for foraging and commuting and may occupy the Site in the future.

8.4.41 The geographic level of value of this species group is considered to be Local importance.

Bats

8.4.42 The desk study returned 14 records of bats, brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, Daubenton's bat *Myotis daubentonii*, Noctule *Nyctalus noctula*, soprano pipistrelle *Pipistellus pygmaeus*, an unidentified Myotis species *Myotis* spp. and Whiskered bat *Myotis mystacinus*, with the most recent record returned in 2018. All bat species are European protected species, are listed on Section 41 of the NERC Act 2006 and on the Wirral LBAP.

Preliminary Habitat Assessment

8.4.43 The Site supports several mature trees with features suitable for roosting bats including rot holes, flaking bark and broken limbs. The hedgerow boundaries, woodland, mature trees and dense scrub also provide foraging, commuting and dispersal opportunities for bat species.

Preliminary Roost Assessment

8.4.44 A Preliminary Roost Assessment (PRA) was conducted on all trees located within the Site and adjacent on 16th June 2021 by Ecologist Maisie McKenzie, ACIEEM. Most trees were assessed as having negligible BRP except for the following:

d. T1 was assessed as having high BRP.

e. T5, T6, T9, T10, T12, T13 were assessed as having moderate BRP.

f. T2-T4, T7, T8, T11, T14 and T15 were assessed as having low BRP.

8.4.45 Locations of BRP trees can be found in Figure 8.4, with descriptions and photographs of features provided within Appendix 8.6.

Figure 8.4 - Results of Preliminary Roost Assessment Survey



Bat Activity Surveys

The routes of the bat transects and locations of spot count points are given in Figure 8.5, details of bat activity survey results are provided at Appendix 8.7. Bat Activity Survey 1 (dusk) 25th May 2021

8.4.46 Bat activity at the Site was low with only five bat passes recorded during the survey of common pipistrelle (3 passes), soprano pipistrelle (1 pass) and a Myotid (1 pass). The first bat, a common pipistrelle, was recorded at 21:40, 27 minutes after sunset.

Bat Activity Survey 2 (dusk) 21st June 2021

8.4.47 Bat activity was low with 18 passes recorded during the survey. Most passes were of common pipistrelle (17), with a single soprano pipistrelle pass. The first bat recorded was a common pipistrelle at 23:00, 75 minutes after sunset.

Bat Activity Survey 3 (dusk) 20th July2021

8.4.48 Bat activity was low across most of the Site apart from at listening point WC where constant social calls were heard from an unseen common pipistrelle at 2144. The first bat recorded was a noctule at sunset (2126), with the first common pipistrelle bat recorded at 21:44.

Bat Activity Survey 4 (dusk) 25th August 2021

8.4.49 Bat activity was very low with four bat passes recorded comprising two species, common pipistrelle (three passes), and an unidentified bat (one pass) recorded during the survey. The first bat recorded was a common pipistrelle at 2134, 76 minutes after sunset.

Bat Activity Survey 5 (dusk) 8th September 2021

8.4.50 Bat activity was again very low with only five bat passes of two species, common pipistrelle (four bat passes) and an unidentified bat (one pass) recorded during the survey. The first bat recorded a common pipistrelle was recorded at 20:15, 35 minutes after sunset.

Bat Activity Survey 1 (dawn) 23rd September 2021

8.4.51 Bat activity was low across most of the Site with 11 bat passes recorded during the survey, apart from at listening point WF where constant foraging was recorded by a common pipistrelle bat. Two species, were recorded during the survey with soprano

pipistrelle the most abundant bat (seven passes). The last bats recorded were common and soprano pipistrelle bats at 06:27, 32 minutes before sunrise.

8.4.52 The level and timing of bat activity on-Site did not indicate the presence of a nearby roost, however the presence of a roost within the mature trees on the Site boundaries and within the woodland in the southeast of the Site cannot be completely discounted.

Figure 8.5 - Bat Activity Transect and Static Detector Locations



Automated surveys

8.4.53 The location of the static detector is given in Figure 5 with the details of the static detector results provided at Appendix 8.7.

June: 24th- 29th June

8.4.54 Four species of bat were recorded during this period: noctule, a Myotid, and common and soprano pipistrelle. Common pipistrelle was the most recorded bat with 302 calls recorded over the period of the survey, with 60 soprano pipistrelle, 17 noctule and 11 Myotis sp. calls. In addition, four unidentified pipistrelle social calls were also recorded.

July: 23rd - 30th July

8.4.55 Two species of bat were recorded during this period. Soprano pipistrelle was the most active bat with 24 calls recorded, with six common pipistrelle calls recorded. In addition there were two unidentified pipistrelle social calls recorded.

August: 24th- 31st August

8.4.56 Three species of bat were recorded during this period with common pipistrelle the most active with 488 calls recorded. Low numbers of calls were recorded from the remaining species with one (noctule) and two (soprano pipistrelle) calls noted. In addition, one pipistrelle social call was also recorded.

September: 8th – 15th September

8.4.57 Three species of bat were recorded over the survey period, with common pipistrelle (105 passes) the most active. Of the remaining species there were 12 soprano pipistrelle calls, and 25 noctule calls also recorded. In, addition, there were five unidentified pipistrelle social calls recorded.

8.4.58 Five species of bat were recorded using the Site, of these, three are considered common, common pipistrelle, soprano pipistrelle, and brown long-eared bat, with noctule and Myotis bats considered rarer[23]. However, all five species are considered to be widespread in their distribution. The number of bats using the Site was low with only single brown long-eared bats and mainly single noctule, common pipistrelle, soprano pipistrelle and Myotis species recorded with a maximum count of three, fifteen and two individuals

[23] Valuing Bats in Ecological Impact Assessment, Wray et al, 2010

respectively at any one time (activity survey results). The level of activity from all five bat species varied a lot over the course of the season, with hundreds of calls recorded during the June and August surveys, with much lower activity during the July and September survey periods (automated static detector survey results). The hedgerows and treelines in the north of the Site were most used by foraging and commuting bats, linking to the woodland to the north.

8.4.59 Using the assessment criteria for valuing foraging and commuting routes[24], and based on the species recorded and level of activity, the geographical value of this species group is considered to be Local level.

Birds

8.4.60 The data search identified a range of protected or notable bird species within a 1 km radius of the Site. Of those identified, suitable nesting habitat for house sparrow *Passer domesticus*, bullfinch *Pyrrhula pyrrhula* and dunnock *Prunella modularis* was found at the Site in the form of woodland, scattered trees and hedgerow. Bullfinch, dunnock and house sparrow, are listed on Section 41 of the NERC Act and the Wirral BAP. A summary of the bird data is provided in Table 8.9.

8.4.61 The habitats present on-Site were, however, deemed unlikely to provide roosting potential for large numbers of species designated as part of the Mersey Estuary SPA or Ramsar. Given the size of the Site, the presence of mature trees around the boundaries, providing cover and perches for predators, and it's regular use by dog walkers (noted during the 2020 and 2021 surveys) it is unlikely to support ground nesting birds such as skylark.

Table 8.9 – Bird desk study records present within 1 km of the Site.

Species	Date of most recent record	Records within 1 km	Designation / Conservation Status
Dunnock (*Prunella modularis*)	2013	2	BoCC, NERC S41
Herring gull (*Larus argentatus*)	2018	1	BoCC

[24] Valuing Bats in Ecological Impact Assessment, Wray et al, 2010

Species	Date of most recent record	Records within 1 km	Designation / Conservation Status
Hobby (*Falco subbuteo*)	2020	1	Sch1 WCA
House sparrow (*Passer domesticus*)	2018	1	LBAP, BoCC, NERC S41
Mallard (*Anas platyrhynchos*)	2013	1	BoCC
Osprey (*Pandion haliaetus*)	2013	1	Sch1 WCA, BoCC
Pink-footed goose (*Anser brachyrhynchus*)	2020	3	BoCC
Redstart (*Phoenicurus phoenicurus*)	2011	1	BoCC
Starling (*Sturnus vulgaris*)	2018	1	LBAP, BoCC, NERC S41
Key BoCC – Species listed under Birds of Conservation Concern (RSPB) – Red, Amber LBAP – Local Biodiversity Action Plan species NERC S41 – Species listed under Section 41 of the Natural Environment and Rural Communities Act 2006 Sch1 WCA -Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)			

8.4.62 It should be noted that this is not a comprehensive inventory of the bird species which may be present at the Site.

8.4.63 The geographic level of value of this species group is considered to be Local value.

Birds (Wintering)

8.4.64 The bird species recorded at the site are typical for the habitats present, which mainly comprises arable crops, hedgerows, small woodlands and open water habitats within fields and woodlands.

8.4.65 There were no wintering bird species recorded on-site that are listed on Tables 7 or 8 that require consideration as wintering birds in the Local Wildlife Sites Selection Criteria for the Cheshire region.

8.4.66 There were no “Red-list” species recorded during surveys at this site. “Amber-list” species comprised Sparrowhawk and Wood Pigeon. All other species recorded were “Green-list” species.

8.4.67 Details of species recorded during the surveys are presented in Appendix 8.8 and summarised in the Table 8.10 and Figures 8.9 to 8.15 below:

Table 8.10 Summary of Wintering Bird Species and Status

Species	Global Status IUCN 2011	UK Red List (Birds of Conservation Concern)	Other Status
Blackbird	Least Concern	Green	
Robin	Least Concern	Green	
Blue tit	Least Concern	Green	
Great tit	Least Concern	Green	
Long-tailed tit	Least Concern	Green	
Common Chaffinch	Least Concern	Green	
Crow	Least Concern	Green	
Jackdaw	Least Concern	Green	
Magpie	Least Concern	Green	
Eurasian Jay	Least Concern	Green	
Sparrowhawk	Vulnerable	Amber	
Wood pigeon	Least Concern	Amber	

8.4.68 The majority of the species were utilising the peripheral habitats of the site, primarily the woodlands and hedgerows adjacent to it. There was occasional use of the fields themselves by crows, magpies, jackdaws and wood pigeon.

8.4.69 Eurasian Sparrowhawk, listed as BoCC Amber due to breeding population decline, was recorded once over the field. Wood pigeon listed as BoCC Amber, as the UK holds a significant proportion of the European population were recorded rarely using and/or overflying the open field.

8.4.70 All of the species recorded are common and very common wintering birds in the area.

8.4.71 None of the species recorded utilising the proposed development site are significant in their own right, or present in significant numbers. The assemblage of species is also not significant

Figure 8.9 Site F&G - Wintering Bird Survey September 2021



Figure 8.10 Site F&G - Wintering Bird Survey October 2021

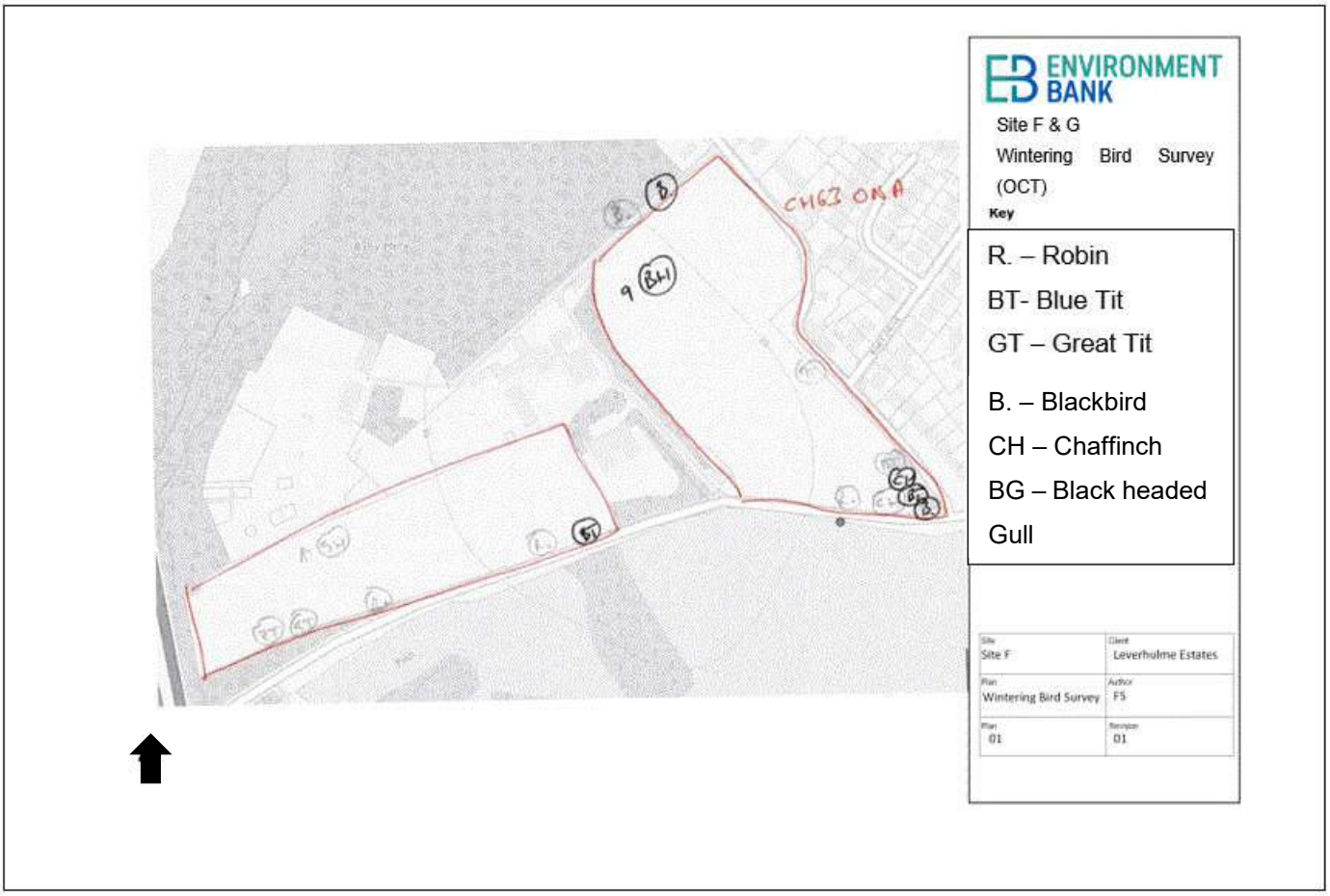


Figure 8.11 Site F&G - Wintering Bird Survey November 2021

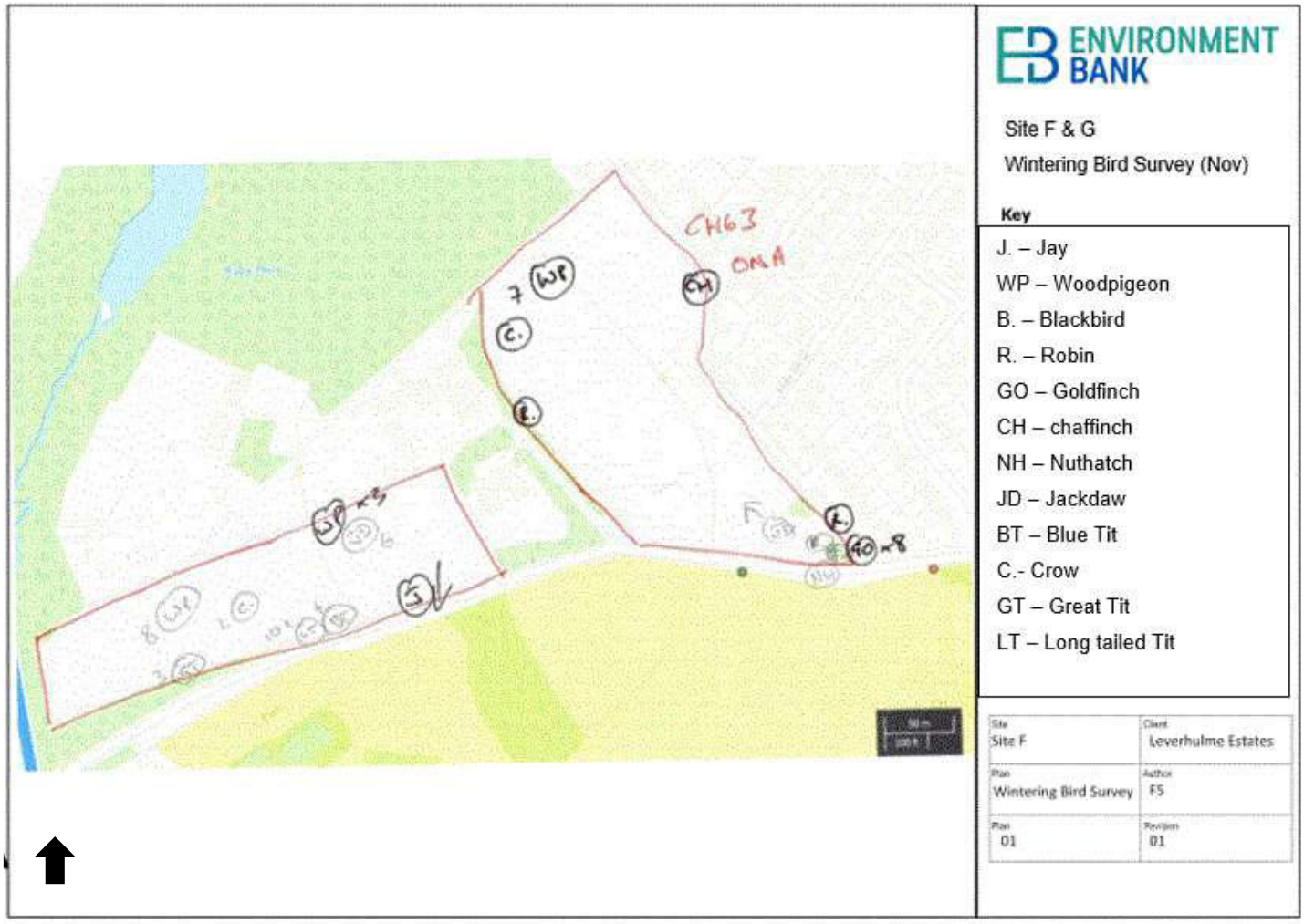


Figure 8.12 Site F&G - Wintering Bird Survey December 2021



Figure 8.13 Site F&G - Wintering Bird Survey January 2022

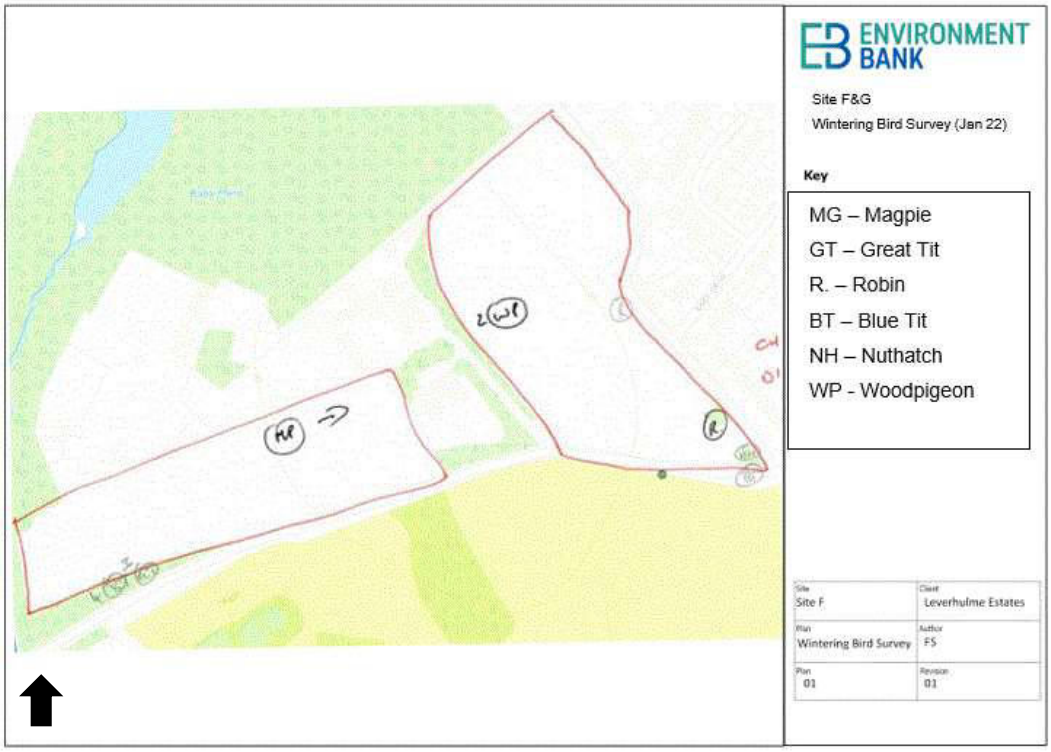


Figure 8.14 Site F&G - Wintering Bird Survey February 2022

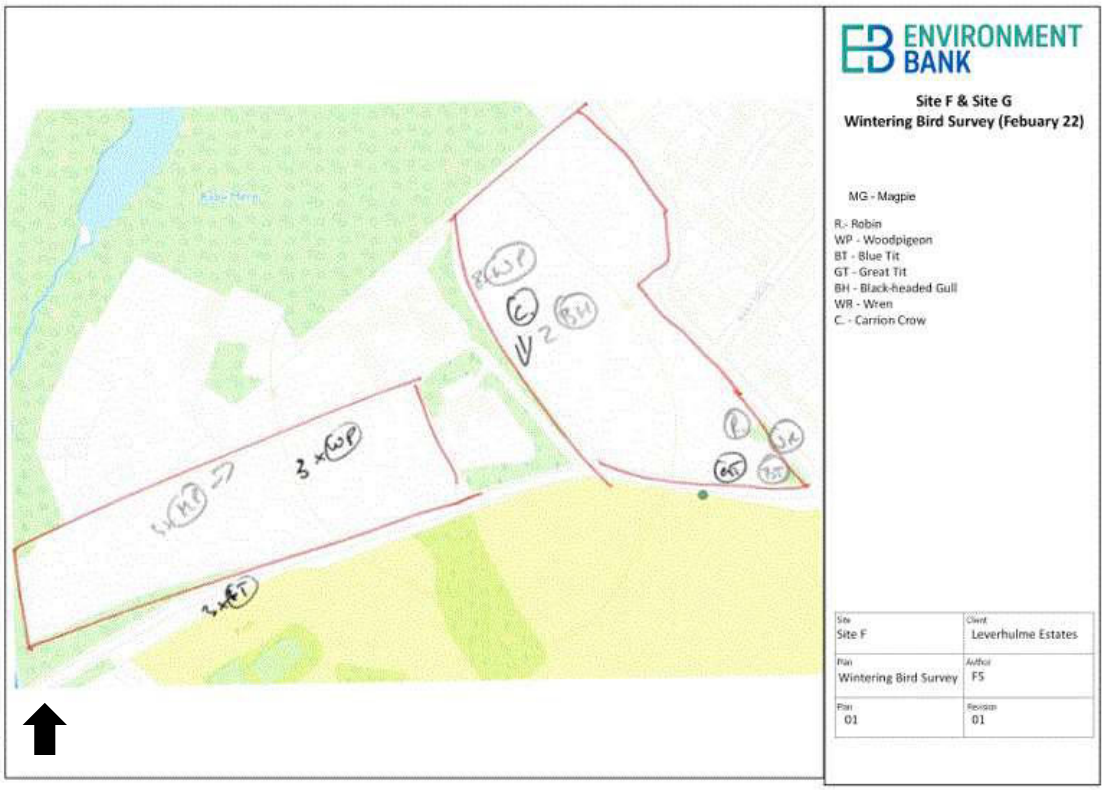


Figure 8.15 Site F&G - Wintering Bird Survey March 2022



Other Protected / Notable Species

Brown hare

8.4.72 One record of brown hare *Lepus europaeus* was returned in the desk study from 2015. Brown hare are a Species of Principal Importance and listed on the Wirral LBAP. No brown hare were noted during field surveys conducted in 2020 and 2021.

8.4.73 The Site comprised mainly of a cereal crop, with boundary hedgerow and woodland that would provide suitable habitat for this species, however, anthropogenic disturbance from nearby residential developments, including dog walkers, would limit the Sites value for this species, with further, less disturbed habitat in the surrounding area.

8.4.74 The geographic level of value of this species group is considered to be Local value.

West European Hedgehog

8.4.75 One record of hedgehog *Erinaceus europaeus*, a Species of Principal Importance was identified within the data search as being present within 1 km of the Site in April 2021.

8.4.76 The Site supports suitable habitat for the species particularly within the hedgerow, woodland, scrub and grassland margins, which provide suitable foraging and resting habitat. In addition, a hedgehog was observed on-Site during the July bat activity transect using the boundary hedgerow along Raby Hall Road.

8.4.77 The geographic level of value of this species group is considered to be Local value.

Invertebrates

8.4.78 Three invertebrate records were returned during the desk study. The records comprised brown-spot pinion moth *Agrochola litura*, lesser whirlpool ram's horn snail *Anisus* (*Disculifer*) *vorticulus* and ringlet *Aphantopus hyperantus* which are listed as Species of Principal Importance, with ringlet butterfly also listed on the Wirral LBAP.

8.4.79 The brown-spot pinion frequents woodland, heathland and bushy suburban habitats, and is reasonably common over a large part of Britain, though not in Ireland. The spring-feeding larvae live on herbaceous plants when young, and later on the leaves of deciduous trees, such as oak *Quercus* sp. and hawthorn.

8.4.80 Ringlet is known to be associated with hedgerows containing favoured nectar sources of bramble and wild privet *Ligustrum* sp., and caterpillar food plants include grass species

cocks-foot, false-brome *Brachypodium sylvaticum*, common couch and meadow grasses *Poa* sp.

8.4.81 The hedgerows, woodland and grassland margin habitats within the Site offer suitable habitat for these species.

8.4.82 The geographic level of value of this species group is considered to be Local value.

8.4.83 The Lesser whirlpool ram's-horn snail is a small aquatic snail with a flattened spiral shell rarely more than 5 mm in diameter. It occurs in unpolluted, calcareous waters in marsh drains with a dense aquatic flora, and favours ditches with a diverse flora but little emergent vegetation. Given the lack of suitable habitat on-Site the geographic level of value of this species is considered to be Negligible value.

Other protected or notable species

8.4.84 No records of water vole, otter or any other protected or notable species were identified within the data search.

Invasive Species

8.4.85 Fifteen records of non-native invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were returned within 1 km of the Site, attributed to Indian balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica*, New Zealand pygmyweed *Crassula helmsii*, Pontica rhododendron *Rhododendron ponticum* and variegated yellow-archangel.

8.4.86 No plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (As amended) were recorded within the Site during the survey. However, a stand of variegated yellow-archangel was recorded in the secondary woodland immediately adjacent to the southern boundary (TN8, SJ 32935 80463).

8.4.87 Two non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded within 1 km of the Site, attributed to Canada goose *Branta canadensis* and Mandarin duck *Aix galericulata*. No widespread invasive species were recorded during the Site survey.

Biodiversity Net Gain Assessment and Application of the Biodiversity Metric

8.4.88 The baseline biodiversity score for the Site has been determined using the information collected during the PEA at the Site. The baseline assessment for the Site has now been

established and will not change throughout the development period. This is the baseline from which future audits can be compared.

8.4.89 The condition of each baseline habitat on-Site was assessed with 0.59 ha of Lowland mixed deciduous woodland considered to be of "good" condition, the remaining Lowland mixed deciduous woodland of "moderate" condition and all mixed and bramble scrub, bracken, other neutral grassland and hedgerows as "poor". Arable habitats are predetermined as N/A – agricultural (Appendix 8.4).

8.4.90 The existing biodiversity value for the baseline habitats was calculated to be 8.95 biodiversity units (BU) and baseline hedgerow features to be 0.53 BU.

8.5 Assessment of Potential Effects

8.5.1 The evaluation in this section is based on the Site survey undertaken as described above. For purposes of the assessment, it is assumed there has been no change in the condition of the Site since the Site survey (unless otherwise stated).

8.5.2 Summary tables of the construction and operational development effects can be found within Appendix 8.9 and Appendix 8.10

Excluded Ecological Features

8.5.1 The ecological impact assessment guidelines (CIEEM, 2019) state that it is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project impacts such that there is no risk to their viability.

8.5.2 Of the designated sites, habitats and species listed in Section 8.4 above, those included in Table 8.11 below have been evaluated and found not to be important in the context of this assessment, meaning that they are not considered to be of conservation importance, or they do not have potential to be significantly affected by the Proposed Development. These sites, habitats and species have therefore been scoped out of this assessment. Table 8.11 provides justification for their exclusion.

Table 8.11 Ecological features scoped out of the assessment

Habitat	Justification
Scattered scrub	This habitat is widespread and commonly occurring and is not of conservation importance.
Cereal crops	This habitat is widespread and commonly occurring and is not of conservation importance

Habitat	Justification
Bracken	This habitat is widespread and commonly occurring and is not of conservation importance
Neutral grassland (Seasonally wet with scrub)	This habitat is widespread and commonly occurring and is not of conservation importance
Neutral grassland	This habitat is widespread and commonly occurring and is not of conservation importance
Blackthorn scrub	This habitat is widespread and commonly occurring and is not of conservation importance
Other neutral grassland	This habitat is widespread and commonly occurring and is not of conservation importance.
Bramble scrub	This habitat is widespread and commonly occurring and is not of conservation importance.
Birds (wintering)	Surveys identified that the Site supports a limited range of commonly occurring birds during the winter and none of the qualifying features of the Dee Estuary SPA were recorded using the Site.
Non-native invasive species	No non-native invasive species were identified on-Site.
Lesser whirlpool ram's-horn snail	No suitable habitat on-Site

Statutory Designated Sites

Potential Impacts

8.5.3 Two international statutory protected sites, The Mersey Estuary Ramsar and SPA and SAC, lie 3.6 km from the Site. These sites are designated for the presence of internationally important populations of regularly occurring Annex 1 species, migratory bird species. Whilst direct impacts are unlikely, there is potential for impacts on the protected sites from the loss of functionally linked land during the construction phase and increased recreational pressure during the operational phase.

8.5.4 Wintering bird surveys have been undertaken at the Site between September 2021 and March 2022 inclusive, the results of which show that the Site supports a limited range of commonly occurring birds during the winter and none of the qualifying features of the Mersey Estuary SPA were recorded using the Site and the Site is therefore not considered to be functionally linked to the protected sites. **No impact on the protected sites during the construction phase is therefore expected.**

8.5.5 Recreational pressure on the protected sites has been identified as a pressure and threat to their favourable conservation status which is acknowledged in the Site Improvement

Plan[25], and the HRA of the Wirral Local Plan[26]. However, unlike most of the NSN sites around the Wirral access to the Mersey SPA and Ramsar is restricted along the southern (Wirral) edge by the Manchester Ship Canal and sea defenses.

8.5.6 AECOM, within their HRA, applied a 1 km zone from the protected sites within which most impact from recreational pressure would be expected, as this is considered to be within walking distance for local residents and would generate the most repeat visits. However, visitor survey evidence collated to inform the Liverpool City Region European Sites Mitigation and Avoidance Strategy identified an inner core zone of up to 5 km within which data indicate that 75 % of visits to the protected sites originate[27].

8.5.7 The shoreline of the SPA and Ramsar is highly urbanised with limited Public Rights of Way and direct access to the Estuary. Eastham Woods Country Park lies a 9 minute (4.8 km) drive east of the Site and lies adjacent to the SPA, however, the presence of hard sea defences and fencing means there is no access to the shore at this point. There is some access to the shore and potential for recreational disturbance at Rock Ferry Waterfront and Promenade which lies a 7 km (13 minute) drive from the Site, however, given the limited access at this point it is unlikely to generate significant trips from the residents of the current development.

8.5.8 Given the location and size of the development and the lack of access to the Mersey Estuary SPA and Ramsar a **negligible** impact which is considered neutral is expected

8.5.9 One national statutory designated site, Dibbinsdale (Brotherton Park and Dibbinsdale) SSSI and LNR lies 0.5 km northeast of the Site. Given the distance from the SSSI **impacts from the Proposed Development during the construction phase of the Proposed Development are considered unlikely**.

8.5.10 The Proposed Development does not meet any of the criteria listed within the IRZ for the SSSI. The condition assessment for the closest SSSI units (Units 1 and 3) provide the following information:

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[25] Natural England (2015) Site Improvement Plan: Dee Estuary/Aber Dyfrdwy & Mersey Narrows.

[26] AECOM (2022) Habitats Regulations Assessment of the Wirral Local Plan 2021-2037

[27] MEAS (2021) Towards a Liverpool City Region European Sites Recreation Mitigation & Avoidance Strategy - Evidence Report (Version 24)

8.5.11 Unit 1 – Broadleaved, mixed and yew woodland.

8.5.12 The condition assessment for the unit undertaken 2018 lists the Site as being in favourable condition. Natural England further state:

'*Relatively undisturbed woodland unit which is the main factor contributing to favourable condition of this unit. Natural process evident with plenty of fallen and standing dead wood. Regeneration fine but need to keep an eye on regeneration of canopy species to ensure sufficient is present to maintain woodland canopy. Pressure from road, houses and agricultural management around unit may prevent further increase in extent*.'

8.5.13 Unit 3 – Broadleaved mixed deciduous woodland.

8.5.14 The condition assessment for the unit undertaken 2018 lists the Site as being in unfavourable condition. Natural England further state:

'*Despite a program of invasive weed and scrub control, this unit continues to fail its targets for invasive non-natives. Much of the laurel has regenerated and the Himalayan Balsam and variegated Archangel have continued to invade the wood. On a more positive note the treatment of the Knotweed has been party successful and the once impenetrable stand of knotweed is now a clearing with just scattered clumps of Knotweed. The unit also has a lack of recruitment of saplings*.'

8.5.15 Access to these units is informal, with no car parking and very little opportunity for roadside parking with the narrow roads going through the SSSI units providing little to no opportunity for roadside parking. The Site is potentially within walking distance (approximately 1.2 km), however, a lack of footpaths is also likely to deter regular visits. Formal access including parking is provided at the Brotherton Nature Centre, which is managed for access, play, recreation and informal education by Wirral Council, 4.35 km west of the Site.

8.5.16 Given the reason for the unfavourable condition of the SSSI and the current management regime of the Site no impact is expected as a result of an increase in recreational pressure on the SSSI during the operational phase of the development.

Avoidance and Mitigation Measures

8.5.17 Measures proposed to mitigate the impacts of the Proposed Development on designated sites include the provision of greenspace both on-Site (approximately 0.92 ha of woodland, wetland and grassland) and within the local area, which will link with existing

and proposed new footpath networks providing a variety of walking options for new and existing residents.

Significance of Residual Effects

8.5.18 Following the application of the above mitigation measures, the potential residual effects are considered to remain **Negligible** and neutral.

Non-statutory Designated Sites

Potential Impacts

8.5.19 There are six non-statutory designated sites present within 1 km of the Site with the closest Raby Mere (Raby Mere A), which lies 108 m to the north.

8.5.20 Given the distance of the LWS to the Proposed Development impacts from increased light, and dust are not expected as a result of the construction phase of the development, and given the close proximity of the development to the M53 no impact from an increase in noise is expected. There is potential for pollution from spills on Site to impact the LWS, however, best practice measures will be followed with regards to pollution prevention and will be detailed within the CEMP and therefore impacts on the nearby designated site during the construction phase are expected to be **Negligible** and neutral.

8.5.21 Given the distance of the remaining sites, no impact is expected as a result of the construction phase of the development.

8.5.22 Post development, the primary effects on Raby Mere LWS are likely to be associated with increased recreation. The lake is stocked with carp and is a popular fishing area with access points around its northern and eastern edge. The woodland which lies adjacent to the Site has restricted access but is likely used informally by local residents. The operational phase of the development is, therefore, considered to have a **Minor Adverse**, **Permanent, Indirect, Local** effect that is non-significant.

Avoidance and Mitigation Measures

8.5.23 The proposed designated Public Open Space (POS), SANG and retained habitats within the Site will provide suitable recreational areas, whilst existing designated footpaths across the Site will be incorporated into the layout design. It is anticipated that residents will utilise these resources within the Site in preference to visiting the nearby designated site, thus minimising disturbance.

8.5.24 The proposed areas of POS are anticipated to provide suitable recreational areas for new residents and offset impacts of the adjacent designated site.

Significance of Residual Effects

8.5.25 Following the application of the above mitigation measures, the potential residual effects are considered to be **Negligible** and neutral.

Habitats

Potential Impacts

8.5.26 The habitats present on-Site are widespread both on a local and national level, of limited ecological value, and are not considered rare. In the context of the Site, the habitats of highest conservation value are the lowland mixed deciduous woodland, other broadleaved woodland and hedgerow.

8.5.27 The woodland and hedgerows will be retained, although the southern hedgerow will be fragmented due to the construction of a new access road. The overall integrity of the hedgerow will be retained and together with the woodland will be buffered by new green space including wetland habitat.

8.5.28 Any construction works within close proximity to the woodland trees and hedgerows, have the potential to cause damage to their structure, roots, health and overall longevity. Given that these habitats are prevalent in the local area and the likely low scale of the impacts, this is considered to have a **Minor Adverse, Permanent, Direct, Local** effect that is non-significant**.**

Avoidance and Mitigation Measures

8.5.29 Hedgerows and woodland trees to be retained following the development will receive appropriate protection during the construction phase of works through the use of tree root protection zones and barriers in accordance with BS5837: 2012 Trees in relation to design, demolition and construction, where appropriate. In addition, best practice measures will be followed with regards to dust and pollution prevention.

8.5.30 The proposed landscaping scheme includes measures to enhance the plant species richness of the Site, whilst providing habitats of greater ecological value, including wildflower grassland, shrubs, additional hedgerows and wetland habitat. This is in addition to landscape scale ecological enhancements to be incorporated across the

Leverhulme Estate upon agreement with Wirral Council and secured via a Section 106 agreement.

Enhancement

8.5.31 It is proposed the retained habitats of value on-Site will be enhanced, where appropriate, to achieve an uplift in biodiversity. Details of the proposed enhancements are included in Appendix 8.4 and includes measures proposed within the Draft Design and Access Statement including:

a. High-density tree planting is proposed and will include native and fruit bearing trees to provide an additional food source for local wildlife and will add to the existing woodland resource at the Site.

b. At present existing trees are limited to the boundaries of the Site, however, the Proposed Development will seek to include streets trees along all new streets within the Site, providing commuting, foraging and nesting opportunities for a range of local wildlife, in addition to aiding urban cooling.

c. Surface water run-off is to be captured on-Site via sustainable drainage features with a drainage basin in the north, and whilst it's primary role will be to prevent flooding, it will be managed with wildlife in mind and incorporate deeper areas of permanent water, and native wetland grassland and scrub planting

8.5.32 The Wirral's current UDP[28] requires a 'no net loss' to biodiversity for developments. However, it is anticipated the emerging Wirral Core Strategy Local Plan (not yet published) will require a minimum 10% uplift in biodiversity for all developments in line with the Environment Act 2021[29].

8.5.33 Initial calculations for BNG have identified that the Proposed Development would result in a residual uplift in BU post development of 1.8 habitat BU and 2.43 hedgerow BU, equivalent to 20.11% and 459.58%, respectively. Although based on a draft masterplan (Drawing 8.1), the assessment will be updated as plans are finalised with a minimum 10 % net gain achieved either on-Site or within the wider estate vision.

[28] Unitary Development Plan, Section 13 - Nature Conservation, Wirral Borough Council. 2000

[29] The Environment Act 2021, HMSO, 2021

8.5.34 Although not required as part of the ES, wider biodiversity enhancements will be provided across the estate as part of the Leverhulme Vision, which will enhance the area for both people and wildlife and a separate Biodiversity Accounting assessment has been prepared alongside this Chapter and will be submitted separately as part of the application.

Drawing 8.1 - Masterplan



8.5.35 Off-Site habitats of value, including those within Arrowe Park LWS, will be buffered from the on-Site areas of development by the creation of natural habitats/woodland edges, enhancing the resilience of these habitats and the LWS.

Significance of Residual Effects

8.5.36 Following the application of the above mitigation measures, the potential residual effects are considered to be **Minor Beneficial** and non significant.

Amphibians

Potential Impacts

8.5.37 No ponds were identified on Site. The construction phase will result in the loss of mainly intensively farmed land which is considered to be sub-optimal habitat for amphibians (including GCN). The presence of GCN was confirmed in one pond within 500 m of the Site, Pond 7 which lay approximately 330 m south of the Site within Bromborough Golf Course. Therefore, vegetation clearance has the potential to have a direct adverse impact on GCNs through potential injuries or fatalities. There is also the direct risk of harm to this species and other amphibians should they fall into pits or trenches left open overnight during the works. Should GCNs become trapped they may be at greater risk of predation, starvation and susceptibility to adverse weather conditions. These impacts have the potential to result in a breach of relevant legislation. Therefore, the potential impact on GCN during construction is considered to have **a Minor Adverse, Temporary, Direct, Local** effect that is non-significant.

8.5.38 Given the extent of suitable GCN habitat loss is relatively low, the presence of further suitable terrestrial habitat within the vicinity of Pond 7 and that most of the optimal terrestrial habitat at the Site will be retained, the construction phase of the Proposed Development is considered to have a **Minor Adverse, Permanent, Direct, Local** impact to the GCN population that is non-significant, however, mitigation measures are required in line with associated legislation.

8.5.39 There is potential for amphibians to be at risk of becoming trapped in gully pots/other hard drainage features associated with roads, however, only one minor road will cross through the green corridors and therefore the risk to amphibians is considered low. The potential impacts of the operational phase of the development on amphibians overall are, therefore, considered to have a **Minor Adverse, Permanent, Direct, Local** impact that is non-significant.

Avoidance and Mitigation Measures

8.5.40 A non-licensed method statement will be produced and adhered to, which includes a search of suitable habitat for GCN by a GCN licensed ecologist, and a watching brief of vegetation clearance. If any GCN are unexpectedly encountered, all work will stop until an appropriate form of action has been agreed in writing with a GCN licensed ecologist.

8.5.41 Consideration should be given to the off-setting of gully pots (if included within the scheme) by 150 mm from kerb edge, to avoid trapping of amphibians.

8.5.42 The inclusion of wetland habitat, wildflower grassland and hedgerow planting, forming green corridors across the Site will provide opportunities for GCN and other amphibians.

Enhancements

8.5.43 Habitat/log piles will be created within the ecological buffer zone within the retained woodland in the south of the Site.

Significance of Residual Effects

8.5.44 Following the application of the above mitigation measures, the potential residual effects are considered to be **Minor Beneficial** and neutral.

Badger

Potential Impacts

8.5.45 Whilst no evidence of badger activity was recorded on-Site, due to the surrounding habitat there is the potential for individuals to venture onto Site during the construction phase, and there is the direct risk of harm to them should they fall into pits or trenches left open overnight during the works. The potential impact to badgers during the construction phase of works is considered to have a **Minor Adverse Temporary, Direct, Local** effect that is non-significant.

8.5.46 No potential impacts of the operational phase of the development on badgers are anticipated, therefore, the operational phase of the Proposed Development on badgers is considered to have a **Negligible** impact and neutral.

Avoidance and Mitigation Measures

8.5.47 During the construction phase of works, no open pits or trenches will be left uncovered or alternatively without a mammal ramp overnight.

Significance of Residual Effects

8.5.48 Following the application of mitigation measures during the construction phase of works, the potential residual impacts of the Proposed Development on badgers are considered to be **Negligible** and neutral.

Bats

Potential Impacts

8.5.49 All trees identified as providing moderate or high BRP are either associated with the southern boundary hedgerow, or within the woodland in the south and northeast of the Site. It is expected that all trees with BRP are to be retained as part of the development, as well as the hedgerow (the detail will be addressed in a future reserved matters application). They will therefore continue to provide potential roosting, foraging and commuting opportunities for bats. In certain circumstances, for example, in late autumn or early spring when daylight hours are limited but weather conditions may be suitable for bats to be active, there may be a brief overlap between bat activity and on-Site construction works. During this period, lighting may be required to enable the construction works to progress, and this along with any associated noise, may temporarily alter bats foraging and commuting activity across an area of the Site. However, this will be a temporary effect.

8.5.50 Most of the species recorded on the Site are not considered to be light-averse (common pipistrelle, soprano pipistrelle and noctule), however, brown long-eared and Myotid bats are known to be light-averse. Therefore, any impacts of lighting on these species must be considered. The combined effects of lighting and noise from construction works during these occasional circumstances would only be a temporary deterrent to foraging and commuting bats in a concentrated area, and not across the wider Site and this is not anticipated to have any adverse impact upon bats.

8.5.51 Whilst the hedgerow will be retained, there will be some fragmentation of hedgerow connectivity due to the construction of the access road. Common pipistrelle, soprano pipistrelle and noctule are all known to cross open spaces, therefore the minor fragmentation of the hedgerow corridor is not anticipated to result in an adverse impact on these species. Brown-long-eared and Myotid bats will fly across open spaces but, like most bats, will use hedgerows and other linear features to navigate. Given that only one section of hedgerow will be removed along Raby Hall Road the fragmentation of the

hedgerow is anticipated to result in a **Minor Adverse, Temporary, Indirect, Local** impact on light averse species that is non-significant.

8.5.52 Whilst no evidence of roosting activity was recorded during the surveys, there is potential for bats to use the mature trees within the woodland and at the boundaries for roosting. However, these trees are expected to be retained.

8.5.53 The construction phase of the Proposed Development is considered to have a **Negligible** impact to the bat population that is neutral for light tolerant bat species.

8.5.54 The Proposed Development will incorporate artificial lighting across the Site. Based on a precautionary assumption that bats are roosting within the boundary trees, the operational phase of the Proposed Development, with the increase in light levels and use of the Site by light-averse species, is anticipated to result in a **Moderate Adverse, Permanent, Indirect, Local** effect at the local level, which is considered to be significant.

Avoidance and Mitigation Measures

8.5.55 All trees and vegetated corridors on-Site and immediately adjacent to the Site will be protected during the construction phase in accordance with BS5837:2012[30]. This will also create a buffer to vehicular movement, reducing the impacts of noise and vibration.

8.5.56 Bats are mobile animals and often change roost sites on a regular basis and during different times of year. The trees which have roosting potential may become colonised over time. As these trees will be retained, there will be no direct impacts on potential roost features, however, a sensitive lighting scheme (construction and operational) will be designed and implemented to avoid light spill on potential bat roost features and potential bat dispersal routes (hedgerows and treelines linking directly to the trees with roosting potential). However, there will be an increase in light levels within the local area, which is anticipated to affect the more light-averse species.

8.5.57 The proposed landscaping scheme includes the addition of wetland habitat, wildflower grassland and new tree and hedgerow planting, as well as the retention of existing woodland and hedgerow, which is anticipated to enhance the Site for invertebrates and in turn provide increased prey availability for bats within the local area.

[30] BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations, British Standards Institute, 2012

Enhancements

8.5.58 The production and implementation of a bat box / bat brick scheme for the Site (within new buildings and on retained trees) will enhance the wider Site for roosting bats.

Significance of Residual Effects

8.5.59 Following the application of mitigation measures during the construction and post development phase of works, the potential residual impacts of the Proposed Development on light tolerant species is considered to be **Minor Beneficial** and non-significant, and for light averse species it is considered to be **Minor Adverse** effect and non-significant.

Birds

Potential Impacts

8.5.60 Most of the hedgerow and woodland within the Site will be retained which will result in the retention of most of the nesting habitat for species associated with these features (in particular house sparrow and dunnock). Site clearance will result in the small-scale loss of a portion of hedgerow which will be mitigated through the inclusion of additional tree and hedgerow planting at the Site, providing opportunities for nesting and foraging birds once established.

8.5.61 In addition, construction works being carried out within proximity to nesting birds may affect them indirectly, depending on the works being carried out, and the species of bird affected. Noise and vibration disturbance effects may result in birds being repeatedly flushed off nests, and has the potential to have a **Minor, Adverse, Temporary, Indirect, Local** effect that is non-significant.

8.5.62 Vegetation clearance activities also have the potential to harm nesting birds and their dependent young which is considered to have a **Minor Adverse Temporary, Direct, Local** effect that is non-significant.

8.5.63 Post development, the Proposed Development will result in increased levels of lighting and noise disturbance across the site.

8.5.64 The potential impacts post development on birds overall are, therefore, considered to have a **Minor Adverse, Permanent, Indirect, Local** impact that is non-significant.

Avoidance and Mitigation Measures

8.5.65 Where practicable, vegetation clearance is to be undertaken outside of the main nesting bird season of March to August (inclusive). Should this not be possible then a suitably experienced ecologist is to carry out a nesting bird check no more than 24 hours before vegetation clearance is due to commence. Any active nests will be protected, and a buffer marked out with appropriate fencing, until the young have fledged. The project ecologist will determine the required buffer area based on species and status of breeding condition. The measures can be adopted through the implementation of the CEMP.

8.5.66 The habitats on Site of highest value to nesting birds are to be retained within the development i.e. the hedgerow, mature trees and woodland. A suitable buffer is to be maintained around the woodland to minimise disturbance and retain its value as a nesting and foraging resource. Additional shrub and tree and hedgerow planting will provide further nesting opportunities for common species.

Enhancements

8.5.67 The production and implementation of a bird box / nest brick scheme for the Site (within new buildings and on retained trees) will enhance the wider Site for nesting birds.

Significance of Residual Effects

8.5.68 Following the application of mitigation measures during the construction phase of works, the potential residual impacts of the Proposed Development on breeding birds are considered to have a **Minor Beneficial** impact, which is non-significant.

Brown Hare

Potential Impacts

8.5.69 Whilst no evidence of brown hare activity was recorded on-Site, due to the surrounding habitat there is the potential for individuals to venture onto Site during the construction phase, and there is the direct risk of harm to them should they fall into pits or trenches left open overnight during the works. The potential impact to brown hare during the construction phase of works is considered to have a **Minor Adverse, Temporary, Direct, Local** effect that is non-significant.

8.5.70 No potential impacts of the operational phase of the development on brown hare are anticipated, therefore, the operation phase of the Proposed Development on brown hare is considered to have a **Negligible** impact, which is, therefore, neutral

Avoidance and Mitigation Measures

8.5.71 During the construction phase of works, no open pits or trenches will be left uncovered or alternatively without a mammal ramp overnight.

Significance of Residual Effects

8.5.72 Following the application of mitigation measures during the construction phase of works, the potential residual impacts of the Proposed Development on brown hare are considered to be **Negligible** and neutral

Hedgehog

Potential Impacts

8.5.73 The vegetated boundaries of the Site offer suitable foraging and commuting habitat for hedgehog. The majority of these vegetative corridors are to be retained and it is anticipated that any individuals present elsewhere on-Site would disperse into surrounding habitat as a result of any disturbance. However, there is a risk of harm to this species should they fall into pits or trenches left open overnight during the works. This is considered to have a **Minor Adverse, Permanent, Direct, Local** effect that is non-significant.

8.5.74 Post development there is a risk of harm to hedgehogs crossing roads and being harmed by domestic pets.

8.5.75 The potential impacts of the operational phase of the development on hedgehogs overall are, therefore, considered to have a **Minor Adverse, Permanent, Direct, Local** impact that is non-significant.

Avoidance and Mitigation Measures

8.5.76 During the construction phase, no open pits or trenches will be left uncovered or alternatively without a mammal ramp overnight.

8.5.77 The increased level of hedgerow and wildflower grassland planting on-Site, the inclusion of new wetland habitat and new garden habitats, in association with the retained hedgerows and ponds, with 10 m buffers, will provide increased opportunities for foraging hedgehogs.

Enhancements

8.5.78 The use of hedgehog-friendly fencing (fencing that provides gaps at the base sufficiently large to allow hedgehogs to pass through) will allow free movement of hedgehogs across the Site and between gardens, thereby reducing the need for hedgehogs to crossroads, and to provide access for hedgehogs to a wider range of foraging opportunities.

Significance of Residual Effects

8.5.79 Following the application of the above mitigation measures, the potential residual effects are considered to have a **Minor Beneficial** impact, which is, therefore, non-significant.

Ringlet and Brown Spot Pinion

Potential Impacts

8.5.80 The status of these species on-Site is currently unknown. Brown-spot pinion moth is considered common and widespread and will utilise a range of habitats and therefore any impact on this species as a result of the construction phase of the development is considered to be **Negligible** and neutral.

8.5.81 Ringlet butterfly is associated with hedgerows and grassland containing suitable nectar and food plants. The availability of suitable hedgerows and grassland will not be significantly impacted during the construction phase of the Proposed Development. Therefore, potential impacts of the Proposed Development during the construction phase on ringlet are considered to have a **Negligible** impact that is neutral

8.5.82 The inclusion of new tree planting and wildflower grassland within the Proposed Development will enhance the potential of the Site to support these species. Therefore, potential impacts of the Proposed Development during the operational phase on these species are considered to have a **Minor Beneficial, Permanent, Direct, Local** impact that is non-significant.

Avoidance and Mitigation Measures

8.5.83 Tree and hedgerow retention and protection in accordance with standard environmental best practices.

8.5.84 The Proposed Development scheme includes a landscaping scheme that will enhance the plant species richness of the Site, whilst providing habitats of greater ecological value, including wildflower grassland, drainage attenuation/wetland habitats, shrubs and enhanced hedgerow and tree planting.

Enhancements

8.5.85 The planting of scrub species of known value to wildlife will provide a source of pollen and nectar for these species and others.

Significance of Residual Effects

8.5.86 Following the application of mitigation measures during the construction and operational phase of works, the potential residual impacts of the Proposed Development on these species is considered to have a **Minor Beneficial** impact, which is, therefore, non-significant.

8.6 Residual Effects Conclusions

8.6.1 The habitats present on-Site are widespread, in both a local and national context. Those habitats with the greatest ecological value (i.e. pond, hedgerows and broad leaved woodland) are to be retained within the development, where possible. Whilst there is likely to be a temporal delay in achieving the biodiversity objectives for the Site (i.e. whilst new habitats become established), it is anticipated that in the long term there will be no significant residual effects on habitats or protected species resulting from the Proposed Development.

8.7 Cumulative Effects

Inter-project effects

8.7.1 The Proposed Development makes up one of a series of Phase 1 development proposals being advanced by the Client as part of the 'Leverhulme Vision' and whilst each have been considered for their potential to cause ecological effects, an assessment of their potential to have a cumulative ecological impact must also be considered. In addition, the Environmental Impact Assessment (EIA) Combined Screening and Scoping Report for the Site[31] agreed with WBC[32] identified a further study area which included the wards of Clatterbridge, Heswall, Pensby and Thingwall, Greasby, Frankby and Irby and a 2.5 km buffer area around each of the Sites which is considered both robust and proportionate. With regards to ecology a 7 km zone of influence around the development is

[31] Combined Screening and Scoping Report, Strutt & Parker, 2021

[32] Screening Opinion and Scoping Request (Residential Development), Wirral Borough Council, 2022

considered sufficient to assess any cumulative effects on local species and habitats. Table 8.2 provides an assessment of the potential for cumulative effects of these developments in combination with the Proposed Development.

8.7.2 There is potential for inter-project effects as a result of increased recreational pressure on the internationally designated sites. However, given the location of the protected sites, the limited access and the further suitable recreational areas within proximity to the Site, the provision of POS within the Site with further recreational enhancements, such as enhanced footpath networks and a cycle superhighway in the local area planned as part of the Leverhulme Vison, no cumulative impacts are expected.

Table 8.12 – Inter-Project Cumulative Effects Assessment

Scheme	Description of Development	Distance from Site (km)	Status	Predicted Impacts	Inter-Project Effects
G Land East of Raby Hall, Raby Hall Road, Raby Mere	Residential development for up to 80 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new open green space and play area, wildlife habitats and green corridors; and off-site environmental, biodiversity and accessibility enhancements.	0.1	Potential planning application	No significant impacts were identified as a result of the proposed development, however, a minor adverse non-significant effect on light averse species was identified post development.	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.
Land at Acre Lane and Meadowside Road, Bromborough	Detailed application for the erection of 217 dwellings, with associated access (off Acre Lane and Meadowside Road) and landscaping and other ancillary works.	1.5	Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295)	No significant impacts were identified as a result of the proposed development	No significant impacts were identified in combination with the Proposed Development. Given the distance of the site from the Proposed Development and the mitigation measures proposed any residual impacts from the Proposed Development in-combination are considered negligible and neutral.

Scheme	Description of Development	Distance from Site (km)	Status	Predicted Impacts	Inter-Project Effects
E Land at Milner Road and Barnston Road, Heswall	Residential development for up to 120 dwellings (Use Class C3), including 30% affordable housing and 10% self-build/custom build properties; delivery of part of the Borough's cycle supergreenway; green infrastructure including a new public park and play area, community orchard, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	5.1	Potential planning application	No significant impacts were identified as a result of the proposed development, however, a minor adverse non-significant effect on light averse species was identified	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.
D Land West of Barnston Road, North of Gills Lane, Barnston	Residential development for up to 153 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new public park and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and	5.9	Potential planning application	No significant impacts were identified as a result of the Proposed development, however, a minor adverse non-significant effect on light averse species was identified	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is

Scheme	Description of Development	Distance from Site (km)	Status	Predicted Impacts	Inter-Project Effects
	accessibility enhancements.				considered non-significant.
C Land East of Thorncroft Drive, North of Gills Lane, Pensby	Residential development for up to 15 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a green space, wildlife habitats and wetland; and off-site environmental, biodiversity and accessibility enhancements.	6.2	Potential planning application	No significant impacts were identified as a result of the Proposed development, however, a minor adverse non-significant effect on light averse species was identified	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.
B Land East of Dale View Close, North of Gills Lane, Pensby	Residential development for up to 92 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new public open space and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	6.3	Potential planning application	No significant impacts were identified as a result of the Proposed development, however, a minor adverse non-significant effect on light averse species was identified	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.

Intra-project effects

8.7.3 Potential intra-project effects such as impacts from increased noise and vibration have been included within each of the ecological receptor sections. In addition, ecological input has been provided within other discipline Chapters such as Landscape and Visual Assessment, where required. No further intra project effects are expected as a result of the development.

8.8 List of Abbreviations

Abbreviations	
BCT	Bat Conservation Trust
BNG	Biodiversity Net Gain
BoCC	Birds of Conservation Concern
BRP	Bat Roost Potential
BU	Biodiversity Unit
CIEEM	Chartered Institute of Ecology and Environmental Management
CRoW	Countryside and Rights of Way
EBP	England Biodiversity Priority
EcIA	Ecological Impact Assessment
eDNA	environmental eDNA
EIA	Environmental Impact Assessment
EPS	European Protected Species
ES	Environmental Statement
GCN	Great Crested Newt
HRA	Habitat Regulation Stage 1 Screening Assessment
HSI	Habitat Suitability Index
ILP	Institution of Lighting Professionals
INNS	Invasive Non-native Species
IRZ	Impact Risk Zone
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan species
LNR	Local Nature Reserve
LPA	Local Planning Authority
LWS	Local Wildlife Site
MAGIC	Multi-Agency Geographic Information for the Countryside
NERC	Natural Environment and Rural Communities Act
NPPF	National Planning Policy Framework
OS	Ordnance Survey
PEA	Preliminary Ecological Appraisal
POS	Public Open Space
PRA	Preliminary Roost Assessment
RECORD	Biological information Centre for Cheshire, Halton, Warrington and Wirral
SAC	Special Area of Conservation
SANG	Suitable Alternative Natural Greenspace
SPA	Special Protection Area

Abbreviations	
SSSI	Special Site of Special Scientific Interest
TN	Target note
UDP	Unitary Development Plan
UKBAP	UK Biodiversity Action Plan
UKHab	UK Habitat Classification
WBC	Wirral Borough Council
WCA	Wildlife and Countryside Act

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Environmental Impact Assessment
Chapter 9: Acoustics

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

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Statement of Competency

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Claire Bye (BSc AMIOA) (Senior Acoustic Consultant) is an environmental and architectural acoustic consultant with 5 years' experience and has led multiple building acoustic projects across a wide range of sectors such as education, healthcare, residential, office buildings and more.

Miriam Pratap (BSc AMIOA) (Senior Acoustic Consultant) has over 4 years' experience within acoustics, her work involves environmental acoustics, building acoustics, hardware design and acoustic computer modelling.

9. Acoustics

9.1. Introduction

9.1.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to Acoustics.

9.1.2 The Chapter describes the consultation that has been undertaken during the EIA, the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.

9.1.3 The assessment reports on the likely significance of the following noise sources:

i. The noise effects of construction.
ii. The noise effects of environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed residential development.
iii. The noise effect of increased traffic movements on transport links to and from the Site.

9.1.4 Any mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects, are identified.

9.1.5 The conclusions are provided both in terms of effects and the residual effects, and the significance, or otherwise, of these effects is presented.

9.2. Policy and Legislative Context

9.2.1 The following documents have informed the assessment of effects within this Chapter:

i. The National Planning Policy Framework (2021); and the
ii. Planning Practice Guidance.

9.2.2 The above two documents are discussed below. Local Policy and Guidance documents are then presented.

National Planning Policy Framework (2021)

9.2.3 The NPPF does not specify any noise limits to be applied to new development, rather at Paragraph 174 e) it states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by… preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans…"

9.2.4 At Paragraph 185 it states:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life… b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason…".

Noise Policy Statement for England

9.2.5 The Noise Policy Statement for England (NPSE) was published in March 2010. It sets out the long-term vision of government noise policy, which is fundamentally to:

"Promote good health and good quality of life through the effective management and control of noise within the context of Government policy on sustainable development".

9.2.6 The vision is supported by three key aims:

i. Avoid significant adverse impacts on health and quality of life;
ii. Mitigate and reduce to a minimum, other adverse impacts on health; and
iii. Where possible, contribute to the improvement of health and quality of life.

9.2.7 The NPSE should apply to all forms of noise including environmental noise, neighbour noise and neighbourhood noise but does not apply to noise in the workplace. The NPSE has adopted the following concepts, to help consider whether noise is likely to have "significant adverse" or "adverse" effects on health and quality of life:

i. SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.
ii. LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.
iii. NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

National Planning Practice Guidance

9.2.8 On 6 March 2014, the Department for Communities and Local Government (DCLG) launched the Planning Practice Guidance (PPG) web-based resource.

9.2.9 The section on noise includes a table that summarises "*the noise exposure hierarchy"* which offers "examples of outcomes" relevant to the *'No Observed Effect Level'* (NOEL), *'Lowest Observed Adverse Effect Level'* (LOAEL) and *'Significant Observed* Adverse Effect Level' (SOAEL) effect levels described in the NPSE and discussed below. These outcomes are in descriptive form, there is still no numerical definition of the NOEL, LOAEL and SOAEL and no reference to the further research that was identified as necessary in the NPSE in 2010.

Local Planning Policy

9.2.10 Wirral Borough Council is currently preparing four new supplementary planning documents to support the implementation of the Core Strategy Local Plan. One of those documents is for Residential Development which aims to address the following:

9.2.11 *"Guidance to ensure reasonable levels of privacy, natural light, outlook and access to amenity space, including advice on backland and infill development and conversions."*

9.2.12 Wirral Borough council has also prepared a Written Statement of the Unitary Development Plan. This sets out the council's policies and proposals for the use of land within the Borough and is an important factor in assessing and determining planning applications.

Guidance Documents

9.2.13 The National and Local Policies detailed above have been informed by a number of British Standards and Guidance documents. Those British Standards and Guidance Documents that will be referenced in this assessment are detailed in Table 9.1 below.

Table 9.1 - Guidance Documents

Assessment	British Standards	Guidance Documents
Assessment One Noise arising from construction activities, including construction traffic.	BS5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.	-
Assessment Two Environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed residential development.	BS8233:2014 Guidance on sound insulation and noise reduction for buildings.	ProPG: Planning & Noise – Professional Practice Guidance on Planning & Noise, New Residential Development.
Assessment Three The noise impact of increased traffic movements on transport links to and from the Site	-	Design Manual for Roads and Bridges Volume (DMRB) LA111 Noise and vibration.

9.2.14 The British Standards and Guidance documents referenced in Table 9.1 that are to be used in each Assessment are discussed further in Section 9.3.

Summary of Consultation

9.2.15 In email correspondence with Wirral Borough Council it was agreed that:

i. A baseline noise survey would be completed at the following locations:
   - At the boundary of the West of Raby Hall Site with the M53 located to the West.
   - At the boundary of the East of Raby Hall Site with Raby Hall Road located to the South.
   - At the East of the boundary of the site adjacent to Elland Road.

ii. Noise from the following noise sources would require assessment:

i. Construction.
ii. Environmental noise incident upon the proposed residential uses.
iii. Site related traffic.

9.2.16 Table 9.2 provides an overview of the consultation that has been undertaken to inform the Proposed Scheme and EIA, including the consideration of likely significant effects and the methodology for assessment.

Table 9.2 - Council Consultation

Body / Organization	Contact	Date and Form of Consultation	Summary
Wirral Borough Council	Norman Joughin Senior Environmental Health Officer	17th February 2021	The baseline survey and assessment methodologies were agreed.

9.3. Methodology and Assessment Criteria

Scope of the Assessment

Assessment One (Construction Noise)

9.3.1 An assessment of construction will be undertaken at the nearest noise sensitive receptors to the Site. The levels would be predicted using the guidance contained in British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. This standard sets out a methodology for predicting noise levels arising from a wide variety of construction and related activities and contains tables of sound power levels generated by a wide variety of mobile and fixed plant equipment.

9.3.2 Compliance with BS5228-1:2009+A1:2014 is expected as a minimum standard when assessing the impact of construction noise upon the existing noise environment at nearby sensitive receptors.

9.3.3 BS5228-1:2009+A1:2014 gives several examples of acceptable noise limits for construction or demolition noise. For this assessment as baseline noise data will be available, it is proposed that the ABC method will be used to determine the threshold value at the receptor locations.

9.3.4 Under the ABC method, a threshold value noise level is determined by establishing the existing ambient noise level at each location. This measured ambient noise level is then rounded to the nearest whole 5dB(A) and the threshold noise value for each receptor is then established from Table E.1 of BS5228-1:2009+A1:2014. This threshold value is the LAeq,T noise level that should not be exceeded at the receptor location by operations at the site. In accordance with this method the threshold noise levels for a potentially significant effect are as detailed in Table 9.3 below.

Table 9.3 - Construction Noise Residential Receptors - Example Threshold Values

Assessment category and threshold value period (L_{Aeq})	**Threshold value, in decibels (dB)**		
	Category A [A)]	**Category B** [B)]	**Category C** [C)]
Night-time (23.00-07.00)	45	50	55
Evenings and weekends [D)]	55	60	65
Daytime (07.00-19.00) and Saturdays (07.00-13.00)	65	70	75
NOTE1 A significant effect has been deemed to occur if the total L_{Aeq} noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level. NOTE 2 If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total L_{Aeq} noise level for the period increases by more than 3 dB due to construction activity. NOTE 3 Applied to residential receptors only.			
A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values. B) Category B: threshold values to use when the ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values. C) Category C: threshold values to use when the ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values. D) 19.01-23.00 weekdays, 13.01-23.00 Saturdays and 07.01-23.00 Sundays.			

9.3.5 If the threshold value is exceeded, then the effect of construction noise upon nearby receptors may be significant. BS5228-1:2009+A1:2014 states that the significance of the effect will depend upon *"other project-specific factors, such as the number of receptors affected and the duration and character of the impact"* (Paragraph E.3.2). Whereby professional judgement will be used to determine whether an effect is considered to be significant, and commentary explaining the reasons for this judgement will be provided.

Assessment Two (Environmental Noise)

9.3.6 With regards to determining the environmental noise impact upon the residential development, SLR would make use of the onsite noise data collected during the baseline survey.

9.3.7 At this stage SLR would input the data into a noise model, which would include the Masterplan layout of the Site, to calculate noise levels across the Site. The predicted noise levels would then be assessed against external and internal noise limits detailed in BS 8233:2014: Guidance on sound insulation and noise reduction for buildings.

9.3.8 BS8233:2014 provides recommendations for the control of noise in and around new buildings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new buildings or refurbished buildings undergoing a change of use rather than to assess the effect of changes in the external noise climate. The standard suggests suitable internal noise levels within different types of buildings, including residential and hotel dwellings, as shown in Table 9.4 below.

Table 9.4 - Residential Development Suitable Internal Noise Levels, dB

Activity	**Location**	**07:00 to 23:00** $L_{Aeq,16hr}$	**23:00 to 07:00** $L_{Aeq,8hr}$	**23:00 to 07:00 Maximum Level**
Residential Resting	Living room	35	-	
Residential Dining	Dining room/area	40	-	
Residential Sleeping (daytime resting)	Bedroom	35	30	

9.3.9 BS8233:2014 states that the recommended limits can be relaxed by up to 5dB *"where development is considered necessary or desirable"* (Paragraph 7.7.2).

9.3.10 Whilst it may be considered desirable to achieve the BS8233:2014 recommended internal noise levels with windows open, it is stated that where the limit cannot be met with an open window *"there needs to be appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level"* (Paragraph 7.7.2).

9.3.11 It is, therefore, not essential that the recommended internal noise levels are achievable with open windows if suitable alternative means of ventilation can be provided.

9.3.12 With regards to external noise, Section 7.7.3.2 of BS8233:2014 states that:

9.3.13 "*For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited*".

9.3.14 As BS8233:2014 does not specify internal limits for maximum noise levels within bedrooms during the night-time, reference has been made to the guidance document ProPG: *Planning & Noise – Professional Practice Guidance on Planning & Noise, New Residential Development*, produced by the Institute of Acoustics (IOA), Chartered Institute of Environmental Health (CIEH) and the Association of Noise Consultants (ANC).

9.3.15 This document states: *"For a reasonable standard in noise-sensitive rooms at night (e.g. bedrooms) individual noise events should not normally exceed 45dB LAFmax more than 10 times a night."*

Assessment Three (Traffic Noise)

9.3.16 Traffic generated by the proposals may alter noise levels near the affected network. In accordance with the *Design Manual for Roads and Bridges Volume (DMRB) LA111 Noise and Vibration*, SLR would undertake an assessment to include all roads where it is anticipated that noise from traffic may change.

9.3.17 For each link the Basic Noise Level (BNL) will be established for the "*With Scheme*" and "*Without Scheme*" Scenarios for the following years; 2021, 2023, 2026 and 2031. The BNL is the L_{A10}, T dB noise level at 10m from the kerb of the road assessed.

9.3.18 The BNL results for each link will be tabulated and the impact and significance would be determined.

Method of Baseline Data Collection

9.3.19 The environmental noise survey was undertaken in accordance with the procedures detailed in BS 7445-2:*1991 "Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use."*

Identification of Sensitive Receptors

9.3.20 A combination of desktop review and on-site investigation assisted in identifying the nearest and most affected noise sensitive receptors.

Assessment Criteria

9.3.21 The assessment of likely significant environmental effects as a result of the Proposed Scheme has taken into account the construction and operational phases.

9.3.22 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining Sensitivity of Receptor

9.3.23 The sensitivity of affected receptors has been considered on a scale of high, medium, low or negligible.

9.3.24 The sensitivity of the receiving environment is shown in Table 9.5 below.

Table 9.5 - Sensitivity Criteria for Acoustic Receptors

Sensitivity	Definition
High	Residential properties (night-time), Schools and healthcare building (daytime)
Medium	Residential properties (daytime), SAC, SPA, SSSI (or similar areas of special interest)
Low	Offices and other non-noise producing employment areas, and industrial areas

Impact and Effect

9.3.25 Generic noise impacts and effects are detailed in the Guidelines for Environmental Noise Impact Assessment. Where an adverse impact is identified the guidelines present the following generic relationship between noise impact and noise effect.

i. Negligible Impact Noise Effect: *"Noise impacts can be heard, but do not cause any change in behaviour or attitude, e.g. turning up volume on television; speaking more loudly; closing windows. Can slightly affect the character of the area but not such that there is perceived change in the quality of life";*
ii. Low Impact Noise Effect: "*Noise impact can be heard and causes small changes in behaviour and/ or attitude, e.g. turning up volume of television; speaking more loudly; closing windows. Potential for non-awakening sleep disturbance. Affects the character of the area such that there is a perceived change in the quality of life";*
iii. Medium Impact Noise Effect: "*Causes a material change in behaviour and/or attitude, e.g. voiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in character of the area*"; and
iv. High Impact Noise Effect: *"Significant changes in behaviour and/or inability to mitigate effect of noise leading to psychological stress or physiological effects e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory".*

9.3.26 Where an effect is classified as large, this is considered to represent a '*significant effect'* in terms of the EIA Regulations. Where an effect is classified as medium, this may be considered to represent a '*significant effect'* but should always be subject to professional judgement and interpretation, particularly where the sensitivity or impact magnitude levels are not clear or are borderline between categories or the impact is temporary or intermittent. The Level of Effect Matrix provided within Table 9.10.

9.3.27 Impacts and effects can be beneficial, neutral or adverse and these would be specified where applicable. Effects can also be temporary, intermittent or permanent in nature. It should be noted that significant effects need not be unacceptable or irreversible.

9.3.28 The impact magnitude definition for each Assessment is provided below.

Determining Level of Impact

Assessment One (Construction Noise)

9.3.29 The impact of construction noise upon existing residential receptors, assessed in accordance with the ABC method presented in BS5228-1:2009+A1:2014, is as detailed in Table 9.6 below.

Table 9.6 - Construction Noise – Noise Impact Magnitude

Magnitude	Increase in the $L_{Aeq,T}$ Noise Level
High	Threshold value exceeded by more than 5dB
Medium	Threshold value exceeded between 3.0 and 4.9dB
Low	Threshold value exceeded between 0.1 and 2.9dB
Negligible	Threshold value not exceeded

Assessment Two (Environmental Noise)

9.3.30 The impact of environmental noise upon proposed residential receptors will be determined with reference to BS8233:2014.

9.3.31 Based on the guidance presented in BS8233:2014 the impact of environmental noise upon proposed residential receptors during the daytime is detailed in Table 9.7. The impact at night is detailed in Table 9.8.

Table 9.7 - Environmental Noise Upon Residential Receptors Daytime – Noise Impact Magnitude

Magnitude	$L_{Aeq,T}$ Daytime Noise Level dB External	$L_{Aeq,T}$ Daytime Noise Level dB Internal
High	More than 60	More than 45.0
Medium	55.1 – 60.0	40.1 – 45.0
Low	50.0 – 55.0	35.0 – 40.0
Negligible	Less than 50.0	Less than 35.0

Table 9.8 - Environmental Noise Upon Residential Receptors Night-Time (Internal) – Noise Impact Magnitude

Magnitude	$L_{Aeq,T}$ Night-Time Noise Level dB Internal
High	More than 35.0
Medium	33.0 – 34.9
Low	30.0 – 32.9
Negligible	Less than 30.0

Assessment Three (Traffic Noise)

9.3.32 The impact of Site related traffic noise upon existing receptors will be calculated in accordance with the Calculation of Road Traffic Noise (1988) and LAN 111 as per Table 3.54a.

9.3.33 The impact of development related traffic noise upon existing receptors in the short-term is detailed in Table 9.9.

Table 9.9 - Development Related Traffic – Short-Term Noise Impact Magnitude

Magnitude	Noise Change $L_{A10,18hr}$ dB
High	5.0+
Medium	3.0 – 4.9
Low	1.0 – 2.9
Negligible	0.1 – 0.9

Significance of Effects

9.3.34 The sensitivity of the receiving environment together with the magnitude of impact defines the level of effect as shown in Table 9.10. Any effect of moderate or major significance is considered to represent a likely significant effect.

Table 9.10 - Significance of Effect Matrix

Magnitude of Change	Sensitivity		
	High	**Moderate**	**Low**
High	Major	Moderate to Major	Minor to Moderate
Medium	Moderate to Major	Moderate	Minor
Low	Minor to Moderate	Minor	Negligible to Minor
Negligible	Negligible	Negligible	Negligible

9.4. Existing Baseline Conditions

Sources of Baseline Information

9.4.1 To determine the baseline noise environment at the site, a noise survey was undertaken between Monday 1st March and Tuesday 2nd March 2021, as agreed with the WBC Environmental Health Officer.

Monitoring Equipment

9.4.2 The equipment used during the noise survey is detailed in Table 9.11. All measurement instrumentation was calibrated before and after the measurements were recorded. No significant drift was observed following the calibration. The calibration chain is traceable via the United Kingdom Accreditation Service to National Standards held at the National Physical Laboratory.

Table 9.11 - Survey Equipment

Location	Equipment	Serial Number
Location 1	Rion NL-52 Type 1 Sound Level Meter	00976173
	Rion NC-74 Acoustic Calibrator	34478298
Location 2	Cirrus CR:171B Type 1 Sound Level Meter	G061094
	Cirrus CR:515 Acoustic Calibrator	72210
Location 3	Rion NL-52 Type 1 Sound Level Meter	00331823
	Rion NC-74 Acoustic Calibrator	34336013

Monitoring Locations

9.4.3 Baseline noise levels were measured at the following locations during the survey:

i. Location 1: At the boundary of the West of Raby Hall Site with the M53 located to the West.
ii. Location 2: At the boundary of the East of Raby Hall Site with Raby Hall Road located to the South.
iii. Location 3: At the East of the boundary of the site adjacent to Elland Road.

9.4.4 The survey locations can be seen in Figure 9.1.

Figure 9.1 – Site and Monitoring Locations



9.4.5 At each monitoring location, the microphone was placed 1.5m above the ground in free-field conditions, i.e. at least 3.5m from the nearest vertical reflecting surface, with the following noise level indices being recorded:

i. $L_{Aeq,T}$.
ii. L_{A90}.
iii. L_{A10}.
iv. L_{AFmax}.

Weather

9.4.6 During the survey the weather was suitable for monitoring noise levels with mostly dry conditions and wind speeds less than 5m/s.

Noise Sensitive Locations

9.4.7 Noise sensitive receptors (NSRs) have been identified as follows:

i. Location 1 – Raby Hall

9.4.8 The noise sensitive locations have been annotated in in Figure 9.2

Figure 9.2 – Noise Sensitive Receptors



Baseline Noise Level Results

9.4.9 A summary of the baseline survey results is shown in Table 9.12 (Location 1), Table 9.13 (Location 2) and Table 9.14 (Location 3). The full survey results can be seen in Appendix 9.1.

Table 9.12 - Location 1 - Summary of Measured Noise Levels, free-field, dB

Date	Time Period	L_{Aeq}	L_{Amax}	L_{A10}	L_{A90}	No. of times L_{Amax} over 60dB(A)
01/03/2021 – 02/03/2021	Daytime (07:00 - 23:00)	70.1	84.8	72.6	66.3	-
	Night-Time (23:00 - 07:00)	63.6	77.1	64.4	34.9	7

Table 9.13 - Location 2 - Summary of Measured Noise Levels, free-field, dB

Date	Time Period	L_{Aeq}	L_{Amax}	L_{A10}	L_{A90}	No. of times L_{Amax} over 60dB(A)
01/03/2021 – 02/03/2021	Daytime (07:00 - 23:00)	50.6	79.2	51.1	45.6	-
	Night-Time (23:00 - 07:00)	44.6	74.0	44.7	36.3	6

Table 9.14 – Location 3 - Summary of Measured Noise Levels, free-field, dB

Date	Time Period	L_{Aeq}	L_{Amax}	L_{A10}	L_{A90}	No. of times L_{Amax} over 60dB(A)
01/03/2021 – 02/03/2021	Daytime (07:00 - 23:00)	54.3	84.0	57.9	43.9	-
	Night-Time (23:00 - 07:00)	43.4	72.8	37.8	31.2	14

9.5. Assessment of Potential Effects

Construction Phase Impacts (Assessment One)

9.5.1 It is inevitable with any project of this nature that some disturbance would be caused to those living and working nearby during the works should appropriate mitigation not be employed. However, disruption due to construction is a localised phenomenon and is temporary and intermittent in nature.

Noise Sensitive Receptors

9.5.2 This assessment will consider the impact of construction noise upon Noise Sensitive Receptors (NSRs) near to the site.

9.5.3 The construction noise limit at each receptor is detailed in Table 9.15. The limit has been determined using the ABC method detailed in of BS5228-1:2009+A1:2014. The lowest daytime assessment ambient sound level has been used.

Table 9.15 - Threshold Construction Noise Limits dB(A)

Receptor	Baseline lowest daytime Ambient Noise Level	Threshold Noise Limit
Raby Hall	54.3	65.0

Construction Phases and Plant

9.5.4 For the purposes of this construction noise assessment SLR has determined the noise level during four typical construction activities which are detailed below. The Tables outline the items of plant which will be utilised during each activity, and the equipment sound power levels (determined from BS5228:2009+A1:2014), and the percentage on-time off each item of plant.

i. Phase 1: Site Clearance and Enabling Works.
ii. Phase 2: Groundworks.
iii. Phase 3: Substructure Works.
iv. Phase 4: Superstructure Works.

9.5.5 Tables 9.16 to 9.19 details the type and number of plant that is expected to be used during each Phase.

Table 9.16 - Phase 1 - Plant List

Type of Machinery	Quantity on Site	Sound Power Level, dB	Percentage Use[1]
Tracked Excavator	1	107	80%
Spreading Fill	1	109	25%
Vibratory Roller	1	102	30%
Lorry (Unloading)	1	108	40%
Concrete Truck Mixer	1	103	5%
Road Sweeper	1	104	5%

Table 9.17 - Phase 2 – Plant List

Type of Machinery	Quantity on Site	Sound Power Level, dB	Percentage Use[1]
Cherry Picker	1	95	30%
Concrete Truck Mixer	1	103	25%
Compressor	1	106	50%
Concrete Agitator	1	103	80%
Crawler Crane	1	103	90%
Lorry (Unloading)	2	108	40%
Lorry Concrete Pump	1	109	80%
Petrol Saw	1	109	20%
Piling Rig	1	111	90%
Small Breaker	1	110	20%
Tracked Excavator	1	107	80%
Hand-held Circular Saw	1	109	35%
Dumper Trucks	1	106	25%
Diesel Jet Washer	1	108	25%
Vibratory Roller	1	102	30%

[1] Over a one-hour period

Table 9.18 - Phase 3 – Plant List

Type of Machinery	Quantity on Site	Sound Power Level, dB	Percentage Use[1]
Breaker	1	110	20%
Concrete Truck Mixer	1	103	10%
Compressor	2	106	70%
Lorry (Unloading)	1	108	40%
Tracked Excavator (Rubber Tracks)	1	107	80%
Dumper Trucks	1	106	25%
Forklift	1	107	80%
Hammer	3	98	80%
Mobile Crane	1	99	100%
Petrol Saw	1	109	40%
Poker Vibrator	1	97	40%
Vibratory Roller	1	102	30%

Table 9.19 - Phase 4 – Plant List

Type Of Machinery	Quantity on Site	Sound Power Level, dB	Percentage Use[1]
Lorry (unloading)	1	108	10%
Petrol Saw	1	109	5%
Dumper Trucks	1	106	25%
Cherry Picker	1	95	60%
Concrete Pump	1	112	70%
Poker	1	97	40%
Tracked Excavator	1	107	75%
Mobile Crane Operation	1	103	10%
Telescopic Forklift (17m) JCB 540	1	107	20%
Hand Tools (hammers)	3	98	40%

9.5.6 At this stage it is envisaged that all activities will take place within normal daytime working hours (07.30 to 18.00 hours, Monday to Friday and 07.00 to 13.00 on a Saturday).

Noise Prediction Methodology

9.5.7 Using the sound power levels and associated percentage on-times shown in Tables 9.16 to 9.19, noise levels from each construction activity have been predicted at the nearest noise sensitive receptors to the site.

9.5.8 The predictions have been undertaken using the proprietary noise modelling software CadnaA which incorporates the methodology outlined in BS5228:2009+A1:2014. The model assumes hard ground and applies the screening effect of barriers from Figure F.3 of BS5228:2009+A1:2014 at 500Hz.

9.5.9 During Phases 1, 2, 3 it has been assumed that most of the plant will be operating at ground level. A height of 2m above ground level of each item of plant has been assumed.

9.5.10 During Phase 4, superstructure works, some plant will be operating at increased heights. A height of 12m above ground level of each item of plant (that will operate at height) has been assumed.

9.5.11 The location of each item of plant during each phase of construction has been positioned across the site. At times plant would be closer and further away from the receptor.

Predicted Noise Levels and Assessment

9.5.12 With reference to the methodology above the predicted noise levels for each Activity of the construction works at each of the nearest noise-sensitive receptors are shown in Table 9.20 below.

9.5.13 The table also compares the predicted noise levels with the threshold value adopted for the assessment.

9.5.14 Noise levels have been predicted at a height of 1.5m which is representative of a ground-floor window.

Table 9.20 - Predicted Noise Levels and Assessment, L_{Aeq} dB

Receptor	Construction Phase	Predicted Noise Level	Threshold Value	Difference	Impact
Raby Hall	Phase 1 - Demolition and Enabling Works	50.7	65.0	-14.3	Negligible
	Phase 2 – Ground Works	55.0		-10.0	Negligible
	Phase 3 - Substructure Construction	53.4		-11.6	Negligible
	Phase 4 – Superstructure Works	57.5		-7.5	Negligible

9.5.15 The sensitivity of each receptor is considered to be High. At all receptors the Noise Impact is **Negligible**. Therefore, it is likely to be a **Direct Temporary Short-Term Effect** which is considered to be **Negligible** and **Not Significant** at all receptors.

Mitigation

9.5.16 Mitigation measures that may be implemented to reduce construction noise levels are set out in Appendix 9.2. The majority of these mitigation measures can be incorporated within a suitable Construction Environmental Management Plan ('CEMP') to be implemented during the construction phase.

Operational Phase – Environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed residential accommodation (Assessment Two)

9.5.17 To determine the noise environment across the site, SLR has developed a noise model of the area using the noise modelling software package CadnaA.

9.5.18 The noise survey results collected at each location have been used to calibrate the noise model which contains the existing site contours. The model has then been adjusted to ensure that the predicted noise level at each location closely match the surveyed daytime and night-time noise levels measured.

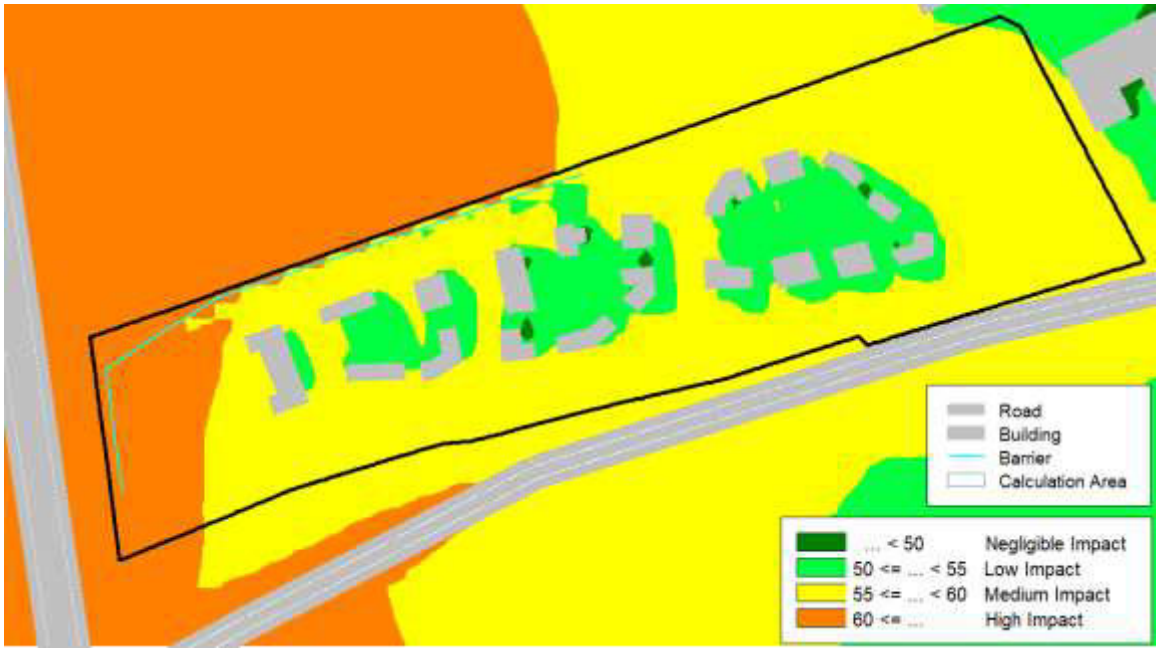
9.5.19 Throughout the Project, the SLR Acoustic's Team was consulted to advise on good Acoustic Design at the Site. In summary the following design advice was provided which informed the Outline Layout taken forward for assessment:

i. The site should be designed to maximise the distance between the M53 and the westernmost plots.
ii. The layout should be carefully designed to position gardens on facades facing away from the road network. Furthermore, a 3m high barrier should be included in the Site design (as shown by the blue line in Figure 9-3). Without this fence, much of the Site fell within the High Impact (orange) area. Including the fence has improved the Acoustic Design of the Site with the Impact reduced from High to Medium in the most affected area.
iii. Including the buildings has further reduced the noise level in private amenity spaces to an area of Low Impact.
iv. At the Reserved matters stage, it is advised that floor plan rearrangements to relocate living areas to quieter facades should be considered. However, as most of the rooms across the development are proposed as bedrooms and living spaces, which are equally noise sensitive, this may not be possible. Therefore, when determining an appropriate ventilation strategy, alternatives to an open window will require consideration.

External

9.5.20 With the development buildings and boundary for the site included within the noise model, the daytime external $L_{Aeq,16hr}$ noise environment and Impact at a height of 1.5m can be seen in Figure 9.3. The predicted noise levels across the site have been modelled based on the measured "baseline" noise levels by attributing noise sources to the surrounding road network.

Figure 9.3 – $L_{Aeq,16hr}$ dB External Daytime Noise Levels



9.5.21 With reference to Figure 9.3 and Table 9.10:

i. In the dark green areas external ambient noise levels are below 50dB(A). The Noise Impact Magnitude has been identified as **Negligible** with a **Negligible Effect** which is **not significant.**

ii. In the light green areas external ambient noise levels are between 50 and 55dB(A). The Noise Impact Magnitude has been identified as **Low** with a **Minor Effect** which is **not significant** to the proposals.

iii. In the yellow areas external ambient noise levels are between 55 and 60dB(A). The Noise Impact Magnitude has been identified as **Medium** with a **Moderate Effect**. However, as the area effected is that fronting the proposed plots it is expected that there would be private amenity space to each property to the rear, where noise levels are predicted to be below 55dB(A).

iv. In the orange areas external ambient noise levels are over 60dB(A). The Noise Impact Magnitude has been identified as **High** with a **Moderate to Major Effect**, however there are no private amenity proposed for these areas, so it is **not significant**.

9.5.22 With reference to the assessment, it must be recognised that with regards to external noise, Section 7.7.3.2 of BS 8233:2014 states that:

9.5.23 *"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited".*

9.5.24 The guideline value of 55dB applies to traditional external areas, such as gardens and patios. It is expected that at the Reserved Matters Stage all private amenity space of this nature will be designed to be within an area of noise of 55dB(A) or less, a measure compliant with the requirements of BS8233:2014. The areas of Medium and High Impact at the affected plots is likely to be used instead as driveway or access areas. The effect is therefore considered not significant.

Internal

9.5.25 Noise levels incident upon the façade will require mitigation to meet the internal noise limits stipulated in BS8233:2014 (shown in Table 9-7 and 9-8) and result in a Not Significant effect. The mitigation required and the residual impacts are discussed later in this ES. In this section however the noise level without mitigation is discussed.

9.5.26 For reference the glazing specification needed has been tested against the following three noise levels that are required by guidance internally:

i. Daytime internal L_{Aeq} ambient noise level of 35dB(A)
ii. Night-Time internal L_{Aeq} ambient noise level of 30dB(A)
iii. Night-Time L_{Amax} maximum noise level of 45dB(A)

9.5.27 The daytime limit of 35dB(A) has been selected for the unmitigated 'Open Window' assessment as from an analysis of the survey data it has been determined that it is the daytime noise environment that determines the highest glazing specification required.

9.5.28 As inferred to above, the glazing required to meet the daytime internal noise limit of 35dB(A) will ensure that both the night-time ambient limit, and the night-time maximum limit will also be met.

9.5.29 Assuming an open window will reduce external noise level by up to 15dB(A) Figures 9-4 and 9-5 show those facades where a window may be open and the internal ambient noise level limit of 35dB(A) be met.

Figure 9.4 – $L_{Aeq,16hr}$ dB Internal Ground Floor Daytime Noise Levels with an Open Window

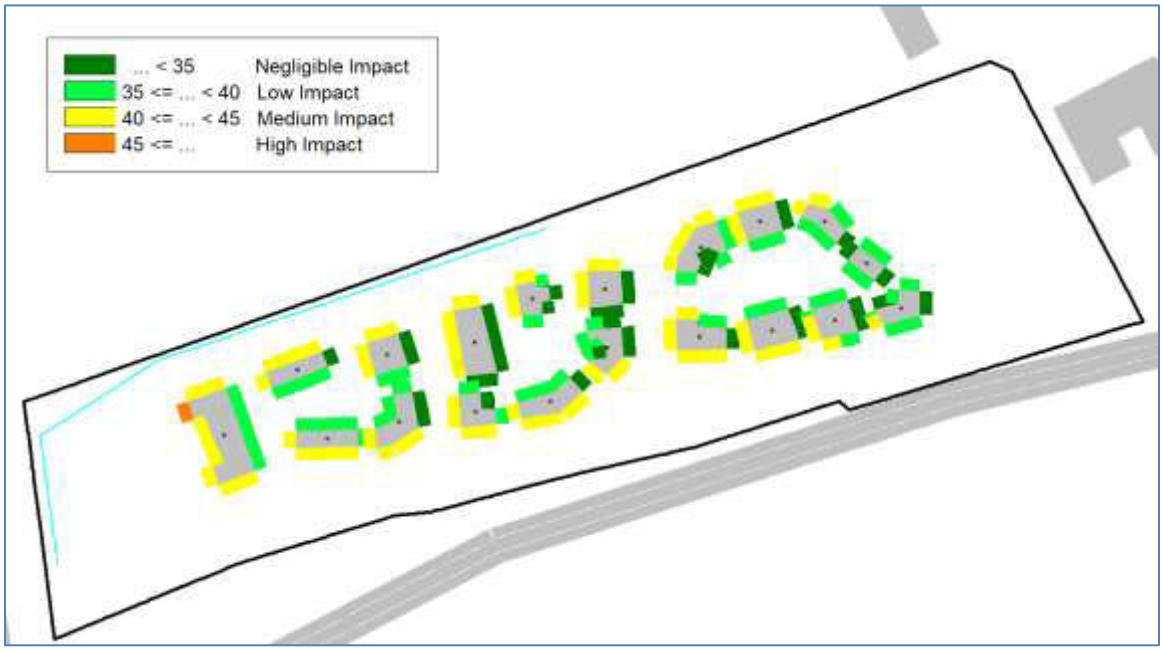
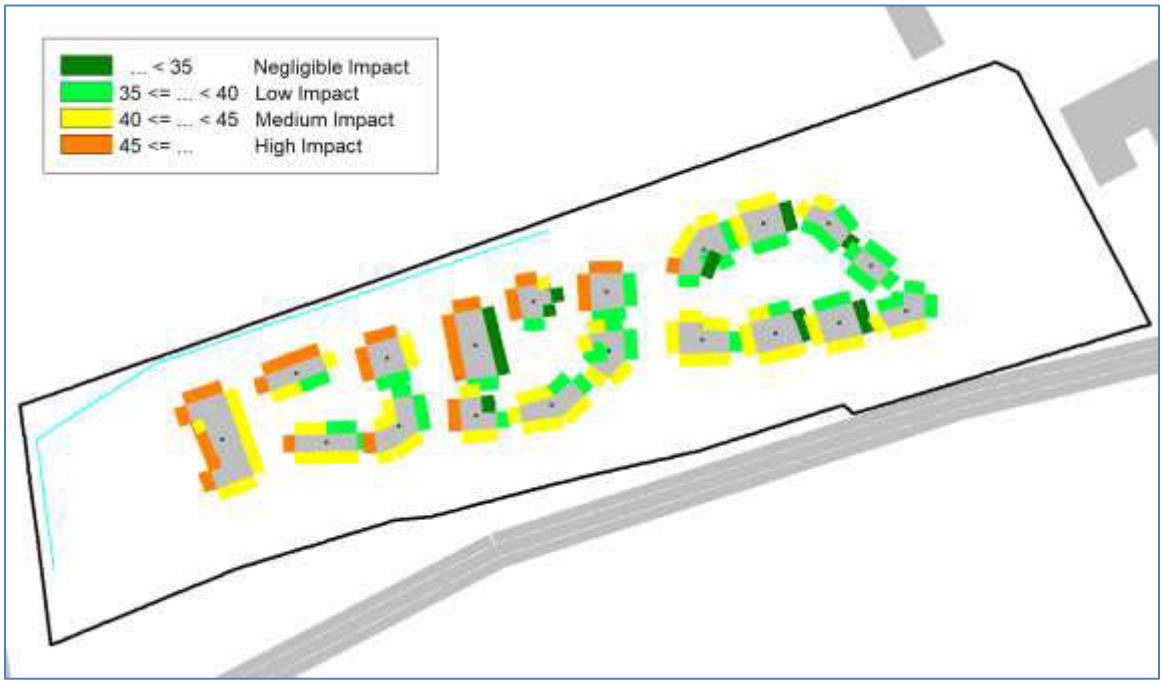


Figure 9.5 – $L_{Aeq,16hr}$ dB Internal First Floor Daytime Noise Levels with an Open Window



9.5.30 It can be seen from Figures 9.4 and 9.5 that at a number of facades windows may be partially open **without causing a Significant Effect.** At these facades the **Impact is Negligible** (day green), **or Low** (light green). At those facades shown yellow or orange the **Impact** with a partially open window is **Medium or High** with a corresponding **Moderate** to **Major Effect**. At these facades it is recommended that alternative means of ventilation to an open window is assessed at the Reserved Matters Stage. Mitigation to reduce internal noise levels to an acceptable level through the provision of a suitably sound attenuated glazing unit are detailed later in this Chapter.

Mitigation

External

9.5.31 At this Outline Stage the area expected to be used for private amenity spaces fall within areas of **Negligible or Low Impact** i.e., no further mitigation measures are required.

9.5.32 At the Reserved Matters Stage, should the layout be changed, and private amenity areas be placed in areas of medium or high impact, it is expected that noise mitigation in the form of acoustic fences would provide sufficient mitigation.

Internal

9.5.33 Noise levels incident upon the façade will require mitigation to meet the internal noise limits stipulated in BS8233:2014.

9.5.34 Windows do not reduce noise equally across the entire frequency spectrum, so the frequency content of the sound will influence the overall sound reduction performance of a given window and by extension, the resulting noise levels within the receiving room.

9.5.35 However, many glazing manufacturers test their products under laboratory conditions using a typical road traffic noise frequency spectrum source. The resultant measured noise attenuation, in dB, gives a very useful guide to in-situ sound reduction performance of the window for situations where road traffic noise dominates. This performance index is known as the $R_W + C_{tr}$.

9.5.36 As stated previously, from an analysis of the data it has been determined that the highest glazing specification is required to meet the following limits for the daytime internal ambient noise limit of 35dB(A).

9.5.37 The glazing specification required at each floor is shown in Appendix 9.3. In each Figure in Appendix 9.3 the decibel reduction required by the glazing at each façade can be seen by the numbering. For the purpose of selecting the appropriate ventilator the reader should refer to the $D_{n,e,w}$ (C_{tr} value).

9.5.38 The glazing specification required at each floor is shown in Appendix 9.3. In each Figure in Appendix 9.3 the decibel reduction required by the glazing at each façade can be seen by the numbering. For the purpose of selecting the appropriate ventilator the reader should refer to the $D_{n,e,w}$ (C_{tr} value).

9.5.39 As referenced in ISO 717-1:2013 Acoustics – Rating of Sound Insulation in Buildings and of Building Elements the $D_{n,e,w}$ is a single number quantity of airborne sound insulation and is a weighted element-normalized level difference that includes a correction for low frequency noise such as noise from road traffic. The number is standardised to a reference area of 10m2 and therefore gives a value higher than the actual insertion loss. Consequently, it is standard practice, when selecting an appropriate ventilator, to select a ventilator that has a $D_{n,e,w}$ (C_{tr} value) up to 6dB(A) higher than the required $R_W + C_{tr}$ dB value.

Operational Phase – Traffic Noise (Assessment Three)

Noise Prediction Methodology

9.5.40 The proposals are likely to alter noise levels near the affected network. In accordance with the Design Manual for Roads and Bridges Volume (DMRB) LAN 111 Noise and Vibration, SLR has undertaken an assessment to include the links that require assessment. The following links will be assessed:

i. Link 1. Junction Allport Road/Greenfield – Allport Road (west);
ii. Link 2. Junction Allport Road/Allport Lane/Bridle Lane - Allport Road (west);
iii. Link 3. Junction Raby Hall Road/Blakeley Road – Raby Hall Road (east);
iv. Link 4. Junction Raby Hall Road/Blakeley Road – Raby Hall Road (west);

Predicted Noise Levels and Assessment

9.5.41 For each link the Basic Noise Level (BNL) has been established for the *"With Scheme"* and *"Without Scheme"* Scenarios for the years 2021, 2023, 2026 and 2031. The BNL is the $L_{A10,T}$ dB noise level at 10m from the kerb of the road assessed.

9.5.42 The BNL results for each link have been tabulated and the impact and significance determined.

9.5.43 The results of each assessment are provided in Table 9.21 to 9.24 below.

Table 9.21 - Basic Noise Level 2021

Link	Without Scheme 2021				With Scheme 2021				Change in BNL	Impact	Effect
	18-hour traffic flow	% HGV	Average Speed km/h	BNL	18-hour traffic flow	% HGV	Average Speed km/h	BNL			
1	10030	1.1%	50	66.3	10191	1.1%	50	66.4	0.1	Negligible	Negligible
2	8888	2.0%	50	65.8	9041	2.0%	50	65.9	0.1	Negligible	Negligible
3	6401	11.0%	80	67.7	6562	11.0%	80	67.8	0.1	Negligible	Negligible
4	6401	11.0%	80	67.7	6597	11.0%	80	67.9	0.1	Negligible	Negligible

Table 9.22 - Basic Noise Level 2023

Link	Without Scheme 2023				With Scheme 2023				Change in BNL	Impact	Effect
	18-hour traffic flow	% HGV	Average Speed km/h	BNL	18-hour traffic flow	% HGV	Average Speed km/h	BNL			
1	10241	1.1%	50	66.4	10405	1.1%	50	66.5	0.1	Negligible	Negligible
2	9075	2.0%	50	65.9	9231	2.0%	50	66.0	0.1	Negligible	Negligible
3	6536	11.0%	80	67.8	6700	11.0%	80	67.9	0.1	Negligible	Negligible
4	6536	11.0%	80	67.8	6735	11.0%	80	68.0	0.1	Negligible	Negligible

Table 9.23 - Basic Noise Level 2026

Link	Without Scheme 2026				With Scheme 2026				Change in BNL	Impact	Effect
	18-hour traffic flow	% HGV	Average Speed km/h	BNL	18-hour traffic flow	% HGV	Average Speed km/h	BNL			
1	10526	1.1%	50	66.5	10695	1.1%	50	66.6	0.1	Negligible	Negligible
2	9327	2.0%	50	66.0	9488	2.0%	50	66.1	0.1	Negligible	Negligible
3	6718	11.0%	80	67.9	6887	11.0%	80	68.1	0.1	Negligible	Negligible
4	6718	11.0%	80	67.9	6923	11.0%	80	68.1	0.1	Negligible	Negligible

Table 9.24 - Basic Noise Level 2031

Link	Without Scheme 2031				With Scheme 2031				Change in BNL	Impact	Effect
	18-hour traffic flow	% HGV	Average Speed km/h	BNL	18-hour traffic flow	% HGV	Average Speed km/h	BNL			
1	10910	1.1%	50	66.7	11085	1.1%	50	66.8	0.1	Negligible	Negligible
2	9667	2.0%	50	66.2	9833	2.0%	50	66.2	0.1	Negligible	Negligible
3	6963	11.0%	80	68.1	7138	11.0%	80	68.2	0.1	Negligible	Negligible
4	6963	11.0%	80	68.1	7176	11.0%	80	68.2	0.1	Negligible	Negligible

9.5.44 It can be seen from Table 9.21 to 9.24 that overall, the sensitivity of each receptor is considered to be **Medium** during daytime hours and High during night-time hours. At all links the **Impact** is **Negligible**, with a **Negligible Effect**. Therefore, there is likely to be an **Effect** which is considered to be **Negligible**. The effect is considered to be **Not Significant**.

Mitigation

9.5.45 During the operational phase no mitigation measures are required in order to have a Negligible effect at the nearest and most sensitive noise receptors. This is not a significant impact.

9.6. Residual and Cumulative Effects

Residual Effects

Construction Phase Impacts (Assessment One)

9.6.1 Whilst the mitigated limits are expected to be met, it is suggested that the applicant would undertake attended short term monitoring at nearby noise sensitive receptors to validate the predicted construction noise levels in this Chapter.

9.6.2 It is anticipated that short term noise monitoring may be completed on a minimum of four occasions to coincide with the beginning of each phase of construction. If the limit is exceeded, SLR would recommend that further provision is made for additional monitoring.

Operational Phase Impacts Environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed residential accommodation (Assessment Two)

External

9.6.3 The **Impact** remains at **Negligible** to **Low** without the need for mitigation measures. The **Significance of the Effect** is **Negligible** to **Minor.**

9.6.4 At the Reserved Matters Stage, should the layout be changed, and private amenity areas be placed in areas of medium or high impact, it is expected that noise mitigation in the form of additional acoustic fences would provide sufficient mitigation.

Internal

9.6.5 From an analysis of the data, it has been determined that the highest glazing specification is determined by the daytime internal level of 35dB(A). The glazing required to meet the BS8233:2014 limits is presented for each plot in Appendix 9.3.

9.6.6 With the glazing recommended installed, SLR anticipate that the **Impact** would be at worst Negligible. The long-term level of **Effect** would be **Negligible.** This is **Not Significant**

Cumulative Effects

9.6.7 With regards to cumulative effects this assessment has included all traffic flows from the following Sites in the with "With Scheme" assessments.

i. Land East of Glenwood Drive
ii. Land East of Dale View Close, North of Gills Lane Pensby
iii. Land East of Thorncroft Drive, North of Gills Lane, Pensby
iv. Land West of Barnston Road, North of Gills Lane, Pensby
v. Land at Milner Road and Barnston Road, Heswell
vi. Land West of Raby Hall Road, Raby Mere
vii. Land east of Raby Hall, Raby Mere
viii. And all other committed development for which traffic data was available

Summary of Effects

9.6.8 SLR has been instructed to complete a Noise Chapter for a new residential led development at Land West of Raby Hall, Raby Hall Road, Raby Mere. This Report has been written in an Environmental Statement (ES) format as it is understood that the Report may be incorporated into a wider ES Chapter. The following had been undertaken:

i. An assessment of construction.
ii. An assessment of environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed residential Receptors.
iii. An assessment of the noise impact of development related traffic movements on existing sensitive receptors adjacent to transport links to and from the Site.

9.6.9 A summary of the assessment results are provided in Appendix 9.3 and 9.4.

Intra Project Effects

9.6.10 Intra Project Effects have been accounted for in the assessment of the impact of increased traffic on the surrounding road network, as the traffic data provided included all committed developments and the traffic anticipated from the eight development sites being proposed by Leverhulme.

9.7. List of Abbreviations

Abbreviations	
ANC	Association of Noise Consultants
BNL	Basic Noise Level
CIEH	Chartered Institute of Environmental Health
DCLG	Department for Communities and Local Government
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
IOA	Institute of Acoustics
LOAEL	Lowest Observed Effect Level
NOEL	No Observed Effect Level
NPPF	National Planning Policy Framework
NPSE	Noise Policy Statement for England
PPG	Planning Practice Guidance
ProPG	Planning & Noise - Professional Practice Guidance
SOAEL	Significant Observed Adverse Effect Level

9.8. List of References

Wirral Council – Supplementary Planning Document for Residential Development (2013) Microsoft Word - SPD for Residential Development Proposed Scope July 2013.doc (wirral.gov.uk)

Environmental Statement
Chapter No 10: Air Quality

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

March 2022

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Statement of Competency

The chapter has been prepared by SLR Consulting Ltd, an EIA Quality Mark registered company with the Institute of Environmental Management and Assessment (IEMA).

The air quality chapter has been prepared by Jamie Munro, a senior consultant at SLR Consulting with over 4 years' experience within air quality. Jamie has led multiple air quality assessments across a wide range of sectors including built environment.

The air quality chapter has been reviewed by Ben Turner, an associate consultant at SLR Consulting with over four years' professional experience. Ben has provided advice to UK Central Government – as well as numerous Regional/Local Government Authorities for the protection of human health. Ben has also contributed to the preparation of technical and policy guidance on behalf of Defra used by UK air quality practitioners and regulators.

Ben has experience in leading air quality assessments in support of major significant infrastructure projects and large housing schemes across the UK, including the proposed third runway expansion at Heathrow Airport, as-well as a residential-led development comprising 1,000 dwellings in Manchester. Ben also has experience in undertaking peer reviews of technical EIA documentation on behalf of statutory consultees, and provided expert witness services via the preparation and presentation of oral and written professional evidence in formal public planning inquiries. Ben also holds a 1st class degree (honours) in Geography/Environmental Sciences.

The author (Jamie Munro) and reviewer (Ben Turner) of the air quality chapter are both Members of the Institute of Air Quality Management (MIAQM) as well as the Institution of Environmental Sciences (MIEnvSc).

10. Air Quality

10.1. Introduction

10.1.1 This chapter of the Environmental Statement (ES) considers the likely significant effects associated with the Proposed Development on air quality in consideration of construction and operational activities.

10.1.2 The chapter is supported by Air Quality Technical Appendices 10.1 to 10.6.

10.2. Policy and Legislative Context

Legislative Context

Air Quality Standards

10.2.1 The Air Quality Standards Regulations 2010 (UK Government, 2010) (AQSR) transpose both the EU Ambient Air Quality Directive (2008/50/EC) (European Parliament, 200), and the Fourth Daughter Directive (2004/107/EC) (European Parliament, 2004) within UK legislation, in order to align and bring together in one statutory instrument the Government's obligations. The AQSR includes Limit Values, Target Values, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment. Limit values are legally binding and are considered to apply everywhere with the exception of the carriageway and central reservation of roads and any location where the public do not have access (e.g. industrial sites). Compliance is regulated at a national level (based upon a series of zones and agglomerations).

10.2.2 In the interim period the UK has formally left the EU, however despite this, EU rules and regulations referred above have subsequently been written into UK law and are still relevant.

Air Quality Strategy

10.2.3 Irrespective of the above, the UK Government and the devolved administrations are required under the Environment Act 1995 to produce a national air quality strategy to improve air quality. The latest Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland was published in 2007 (Defra, 2007).

10.2.4 The AQS provides the over-arching strategic framework for air quality management in the UK and contains national air quality standards and objectives established by the UK Government and Devolved Administrations for the protection of public health and the environment. There is no legal requirement to meet these objectives except where they mirror an equivalent legally binding Limit Value as prescribed within EU legislation, however compliance is regulated by local planning authorities.

10.2.5 The ambient air quality standards of relevance to human receptors in this assessment (collectively termed Air Quality Assessment Levels (AQALs) throughout this report) are provided in Table 10.1.

Table 10.1 - Relevant Ambient AQALs

Pollutant	AQAL (µg/m^3)	Averaging Period
Nitrogen Dioxide (NO_2)	40	Annual mean
	200	1-hour mean (not to be exceeded on more than 18 occasions per annum)
Particles (PM_{10})	40	Annual mean
	50	24-hour mean (not to be exceeded on more than 35 occasions per annum)
Particles ($PM_{2.5}$)	25	Annual mean

10.2.6 The above AQS objectives apply at locations outside buildings or other natural or man-made structures above or below ground, where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period – herein referred to as relevant exposure. Table 10.2 provides an indication of those locations.

Table 10.2 - Human Health Relevant Exposure

AQAL Averaging Period	AQALs should apply at	AQALs should not apply at
Annual Mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices
24-hour mean	As above together with hotels and gardens of residential properties	Hotels
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Gardens of residences

Local Air Quality Management

10.2.7 As reinforced within the AQS, Part IV of the Environment Act 1995 induces a statutory duty for local authorities to undergo a process of Local Air Quality Management (LAQM). This requires local authorities to Review and Assess air quality within their boundaries to determine the likeliness of compliance, regularly and systematically.

10.2.8 Where any of the prescribed AQS objectives are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality in pursuit of the objective.

Clean Air Strategy

10.2.9 The Clean Air Strategy (CAS) (Defra, 2019) sets out the Government's proposals aimed at delivering cleaner air in England, and indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

General Nuisance Legislation

10.2.10 Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

10.2.11 Fractions of dust greater than 10µm (i.e. greater than PM_{10}) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

Planning Policy Context

10.2.12 The following policies have been considered within this assessment.

National Policy

10.2.13 The 2021 update to the National Planning Policy Framework (NPPF) sets out planning policy for England. The NPPF states that the planning system should contribute to and enhance the natural and local environment, by preventing new development from contributing to or being adversely affected by unacceptable concentrations of air pollution and development should, wherever possible, help to improve local environmental conditions such as air quality.

10.2.14 In specific relation to air quality policy, the document states:

Chapter 15 - Conserving and Enhancing the Natural Environment

Para. 185. "Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

10.2.15 The NPPF is accompanied by web based supporting Planning Practice Guidance (PPG) which includes guiding principles on how planning can take account of the impacts of new development on air quality. In regard to air quality, the PPG states:

Para. 4. "Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values […] It is important that the potential impact of new development on air quality is taken into account […] where the national assessment indicates that relevant limits have been exceeded or are near the limit."

Para 14. "Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife)."

10.2.16 The PPG sets out the information that may be required within the context of a supporting air quality assessment, stating that *"assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality […] Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact".*

Local Policy

10.2.17 Wirral Borough Council's (WBC) Unitary Development Plan (UDP) (WBC, 2000) was adopted in 2000 and is utilised for the assessment determination of planning applications. Relevant policies from this plan in relation to air quality are as follows:

Policy PO1 – Potentially Polluting Development:

"Potentially polluting development or land-use will only be permitted when the Local Planning Authority is satisfied that:
i) The proposed development would not cause harm or nuisance to neighbouring uses, the natural environment or general amenity, as a result of discharges to air, land or water, or from noise, smells, dust, soot, ash, grit or vibration;
ii) Any measures required to comply with pollution control legislation will not lead to an unacceptable loss of amenity by virtue of noise or visual intrusion; and
iii) The real or perceived risk of a pollution incident occurring and the extent of it's potential consequences, would not have unacceptable land-use implications beyond the boundary of the site, including prejudicing the realisation of land-use and other environmental planning objectives set out elsewhere in the Plan."

Policy PO2 – Development Near Existing Sources of Pollution:

"Proposals located near existing developments which are authorised or licensed under pollution control legislation, will only be permitted where the Local Planning Authority is satisfied that:

i) The location or nature of the proposed development would not be vulnerable to pollution from the existing land-use, either that permitted under pollution control authorisations or which might result from a failure in pollution control measures;

ii) The proposed development would not results in the need for a higher standard of pollution control measures at the existing development or lead to a failure to renew the relevant pollution control authorisations; and

iii) Where the proposed development is itself potentially polluting there is no adverse, cumulative impact resulting from the existing and proposed developments.

Particular regard will be had to proposed uses which would lead to a material increase in the numbers of people working or living within or visiting areas close to sources of pollution which pose a risk to human health."

10.2.18 The WBC Local Plan 2020-2037, which once adopted will replace the existing UDP, is at an early stage of preparation. There are currently no policies to consider.

10.3. Methodology and Assessment Criteria

Scope of the Assessment

10.3.1 Pre-assessment consultation was undertaken with WBC to agree upon the extent and methodology of the air quality assessment. The following scope of works, as agreed with WBC, has been undertaken:

a) Baseline evaluation;

b) Construction phase assessment:

- Construction dust assessment

c) Operational phase assessment:

- Road traffic screening assessment; and
- Detailed site suitability assessment.

d) Mitigation measures.

10.3.2 This assessment has been carried out in accordance with the principles contained within the guidance documents below.

a) Department of Environment Food and Rural Affairs (Defra): Local Air Quality Management Technical Guidance (LAQM.TG(16)) (Defra, 2021);

b) Defra: COVID-19: Supplementary Guidance. Local Air Quality Management Reporting in 2021 (Defra and the Greater London Authority, 2021);

c) Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM): Land-Use Planning and Development Control: Planning for Air Quality (EPUK & IAQM, 2017);

d) IAQM: Guidance on the Assessment Dust from Demolition and Construction (IAQM, 2016); and

e) IAQM: Air Quality Impacts on Designated Nature Conservation Sites Guidance (IAQM, 2020).

Method of Baseline Data Collection

10.3.3 Publicly available air quality data was utilised to inform the baseline. No project specific monitoring was undertaken.

10.3.4 For the purposes of informing the operational road traffic screening assessment, traffic data (number of trips generated by the Proposed Development) was provided by Curtins - the appointed transport consultant. All vehicle movements generated by the Proposed Development have been assumed to be Light-Duty Vehicles (LDVs) for robustness (given the nature of the scheme).

10.3.5 Traffic data, as input to the detailed site suitability assessment, was obtained from the Department for Transport's (DfT) traffic count point website, a LAQM.TG(16) recommended source of traffic flow data. Curtins provided a TEMPro growth factor (2019 to 2023) to derive a projected 2023 dataset, as input into the ADMS-Roads model, in accordance with LAQM.TG(16) guidance. Maximum (full capacity) development generated flows associated with the Leverhulme residential development applications were also taken into account within the dispersion modelling exercise i.e. for those road links modelled.

10.3.6 Full details of traffic data used for the site suitability assessment are provided in Appendix 10.1.

Identification of Sensitive Receptors

10.3.7 The following sensitive receptors have been identified and assessed within the ES:

a) Construction dust assessment:
   - Existing sensitive human receptors; and
   - Ecological sensitive receptors.

b) Operational phase road traffic screening assessment:
   - Existing human sensitive receptors; and
   - Ecological sensitive receptors.

c) Site suitability assessment:
   - New sensitive human receptors (future occupants).

<u>Construction Dust Assessment</u>

10.3.8 The assessment of construction phase dust and particulate matter fugitive emissions has been undertaken in accordance with IAQM guidance (IAQM, 2016). The following sensitive receptors have been considered:

a) Human receptors within 350m of the Proposed Development boundary, and within 50m of routes used by construction vehicles, up to 500m from the Proposed Development; and

b) Ecological receptors within 50m of the Proposed Development boundary and within 50m of routes used by construction vehicles, up to 500m from the Proposed Development.

Operational Phase Road Traffic Screening Assessment

Human Receptors

10.3.9 Existing receptors of relevance to the operational phase road traffic screening assessment relate to sensitive land-uses of relevant exposure (residential, education etc.) located in proximity of the affected road network.

10.3.10 Explicit identification of existing human sensitive receptors has not been conducted as part of this screening assessment, as consideration has initially been given to road traffic volumes generated by the Site to determine whether further assessment is required, or can otherwise be described as insignificant.

Ecological Receptors

10.3.11 The assessment procedure outlined within the IAQM's guidance document (IAQM, 2020) has been used in relation to the assessment of sensitive ecological receptors with respect to operational road traffic emissions.

10.3.12 This initially comprises a screening assessment to indicate whether any sensitive qualifying features are located within 200m of a road link projected to experience developmental-generated vehicle movements. Sensitive qualifying features comprise local, national and international designations.

10.3.13 There are no relevant ecological designations (as stipulated within the IAQM guidance document) within 200m of the effected road network. No further consideration is required.

Site Suitability Assessment

10.3.14 Receptors of relevance to the site suitability assessment relate to future occupants introduced by the Proposed Development. Consideration has been given to worst-case locations, in terms of exposure relative to the surrounding road network.

10.3.15 The sensitive human receptor locations (representative of potential exposure) considered in the assessment of site suitability are shown in Appendix 10.1, whilst their locations are illustrated in of Appendix 10.4. These represent new receptors only.

10.3.16 All receptors were considered in relation to exposure at breathing height relative to the adjacent modelled road, at ground level, i.e. 1.5m height. Receptor locations represent relevant exposure – in accordance with LAQM.TG(16) (presented in Table 10.2).

10.3.17 To ensure flexibility in the Site design, consideration has been given to the maximum concentration modelled across the Site via use of a cartesian grid to determine the extent of the Site which is suitable for residential purposes – given the presence of the M53 on the western Site boundary.

Assessment Criteria

Construction Dust

10.3.18 The IAQM construction dust guidance (IAQM, 2016) assessment methodology provides a framework to establish the unmitigated risk of construction dust impacts associated with a development at both human and ecological receptors.

10.3.19 This risk is based upon an empirical relationship between the anticipated dust emission magnitude associated with four activities (demolition, earthworks, construction and trackout) and the sensitivity of the surrounding area with respect to:

a) annoyance due to dust soiling;

b) the risk of health effects due to an increase in exposure to PM_{10}; and

c) harm to ecological receptors.

10.3.20 Following determination of these risks, proportionate mitigation is recommended, whereby through effective application, residual effects are considered to be 'Not Significant'.

10.3.21 Refer to the IAQM construction dust guidance for further details on the applied assessment methodology.

Operational Phase Road Traffic Screening Assessment

10.3.22 In order to appropriately assess road traffic impacts associated with the operation of the Proposed Development, screening thresholds provided within the EPUK & IAQM guidance (EPUK & IAQM, 2017) have been applied, whereby if exceeded, should consequently require a detailed assessment.

10.3.23 If the Proposed Development is found not to exceed any of the relevant indicative criteria presented, then a detailed impact assessment is consequently not required.

10.3.24 The indicative screening criteria relevant for this assessment is as follows (specific to a development located outside of an AQMA):

a) a change of LDV flows of more than 500 Annual Average Daily Traffic (AADT); and/or

b) a change of Heavy-Duty Vehicle (HDV) flows of more than 100 AADT.

Site Suitability Assessment

10.3.25 Given the proximity of the Site relative to the M53 motorway, a detailed site suitability assessment has been undertaken to appropriately assess the suitability of the Site for residential purposes in relation to road traffic emissions.

10.3.26 Detailed dispersion modelling has been undertaken using the Cambridge Environmental Research Consultants (CERC) ADMS-Roads v5.0.0.1 dispersion model, focussing on concentrations of NO_2, PM_{10} and $PM_{2.5}$ for the following scenario:

a) 2023 Do Something (2023 DS) – Flows for the assumed year of opening (2023), inclusive of any relevant committed development flows (including the wider Leverhulme development sites) plus all trips associated with the Proposed Development flows for the proposed year of opening (2023), where relevant.

10.3.27 For the above future year scenario (2023), concurrent emission factors and background pollutant concentrations have been used.

10.3.28 It is widely known that construction of residential developments is undertaken in a phased manner (i.e. units per annum). To ensure potential air quality impacts that may arise throughout the construction of the development are understood, 2023 has been adopted as the full development opening year for the purposes of dispersion modelling (i.e. earliest date of potential occupation). This assumes that the Proposed Development will be fully occupied by 2023, and therefore brings forward the date of likely exposure for all new residents – to determine the suitability of the whole Site. This approach is believed to be conservative, given the forecasted reductions in vehicle emission factors and background pollutant concentrations, generating a potential greater resultant concentration relative to what may occur in reality.

10.3.29 The traffic flows used for the future assessment years (consistent with analysis presented in ES Chapter 6: Transport) includes vehicle movements associated with:

a) relevant committed developments in the assessment area; and

b) the remaining seven residential development applications associated with the Leverhulme development sites across the Wirral (which are yet to receive planning consent), where relevant to the model domain of focus e.g. roads effected by the Proposed Development.

10.3.30 As such, the dispersion modelling exercise is inherently cumulative in nature, and on reflection represents a worst-case approach in terms of cumulative development sites.

10.3.31 Full details of the applied assessment methodology/ inputs are provided within Appendix 10.1.

Significance of Effects

<u>Construction Dust Assessment</u>

10.3.32 Significance is only assigned to the effect after considering the construction activity with mitigation. This is because for construction activities, the aim is to prevent significant effects on receptors through the use of effective mitigation.

10.3.33 The IAQM guidance (IAQM, 2016) therefore does not provide a framework to determine the significance of unmitigated effects, as is not considered appropriate nor relevant in this context. For these reasons, the significance of unmitigated effect of construction dust cannot be defined.

Operational Phase Road Traffic Screening Assessment

10.3.34 If the Proposed Development is found not to exceed any of the relevant indicative criteria presented within the EPUK & IAQM guidance (EPUK & IAQM, 2017), then a detailed impact assessment is consequently not required. Effects are therefore believed to be insignificant.

Site Suitability Assessment

10.3.35 To determine the significance of predicted air quality impacts based upon a site-suitability assessment, the EPUK & IAQM guidance states:

"Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."

10.3.36 As such, comparison of modelled pollutant concentrations at new exposure locations on-Site have been compared with the relevant AQALs to determine suitability and significance.

10.4. Existing Baseline Conditions

Sources of Baseline Information

10.4.1 Monitoring data collected prior to the COVID-19 pandemic (i.e. pre-2020) has been used to characterise the baseline environment, as pollutant concentrations monitored during 2020 and 2021 are expected to be atypical, and not representative of the local environment and have therefore not been considered.

LAQM Review and Assessment

10.4.2 WBC, in fulfilment of statutory requirements, has conducted an on-going exercise to review and assess air quality within their administrative area. The latest publicly available LAQM report for WBC (not impacted by the COVID-19 pandemic) at the time of writing is the 2020 Annual Status Report (ASR) (WBC, 2020).

10.4.3 WBC do not presently have any declared AQMAs within their administrative area.

Baseline Assessment

Automatic Air Quality Monitoring

10.4.4 WBC operate two automatic monitors, both affiliated with Defra's Automatic Urban and Rural Network (AURN). However, these monitors are both located >5km from the Site and therefore given the separation distance and anticipated differences in local environments, have therefore not been considered relevant to this assessment.

Passive Diffusion Tube Monitoring

10.4.5 Passive NO_2 diffusion tube monitoring is currently undertaken by WBC within the development locale, at numerous locations, in fulfilment of their statutory LAQM obligations.

10.4.6 The details and results of the monitoring locations of relevance to the Site (i.e. within 3km of the Site) are presented in Table 10.3 and Table 10.4 respectively, whilst their locations are illustrated in Appendix 10.4. All monitoring data presented has been ratified by WBC.

Table 10.3 - Local LAQM NO_2 Passive Diffusion Tube Monitoring Sites: Details

Site ID	Site Type	NGR (m)		Height (m)	Within AQMA	Distance to Site (km)
		X	Y			
W2	Roadside	335887	379797	2.0	No	2.9
W26/19	Roadside	335053	381295	2.0	No	2.1
W28	Roadside	333223	383277	2.1	No	2.7

Table 10.4 - Local LAQM NO_2 Passive Diffusion Tube Monitoring Sites: Results

Site ID	2019 Data Capture %	Annual Mean NO_2 Concentration (µg/m^3)				
		2015	2016	2017	2018	2019
W2	100.0	20	22	18	20	18
W26/19	91.7	-	-	-	-	19
W28	100.0	-	-	-	27	25

10.4.7 As shown in Table 10.4, annual mean NO_2 concentrations recorded at the monitors closest to Site have remained 'well below' (i.e. <75%) the AQAL (40µg/m^3) for the period presented. The closest monitor to Site, W26/19, recorded an annual mean NO_2 concentration of 19µg/m^3 in 2019. The setting of this monitor is fairly comparable to the Site locale, i.e. within a residential area and not adjacent to any major road links, and therefore similar concentrations may be expected.

10.4.8 The empirical relationship given in LAQM.TG(16) states that exceedences of the 1 hour mean AQAL for NO_2 is unlikely to occur where annual mean concentrations are <60µg/m^3. This indicates that an exceedence of the 1-hour mean AQAL was unlikely to have occurred at the above locations for the period assessed.

Defra Mapped Background Concentrations

10.4.9 Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution which is routinely used to support LAQM requirements and air quality assessments (Defra, 2022). The data sets include annual average concentration estimates for oxides of nitrogen (NOx), NO_2, PM_{10} and $PM_{2.5}$ using a base year of 2018 (the year in which comparisons between modelled and monitoring are made).

10.4.10 The Defra mapped annual mean background concentrations of NOx, NO_2, PM_{10} and $PM_{2.5}$ for a base year of 2019 and the predicted opening year of the development (2023) across the modelled domain are presented in Table 10.5.

10.4.11 All of the mapped background concentrations presented are well below the respective annual mean AQALs.

Table 10.5 - Defra Mapped Background Pollutant Concentrations

Grid Square (X, Y)	Year	Annual Mean Background Concentration (µg/m3)			
		NOx	**NO_2**	**PM_{10}**	**$PM_{2.5}$**
332500, 380500	2019	15.3	11.6	10.8	7.0
	2023	12.7	9.7	10.2	6.6
333500, 380500	2019	13.3	10.1	10.3	6.9
	2023	11.3	8.7	9.8	6.5
AQAL			**-**	**40**	**40**

10.5. Assessment of Potential Effects

Construction Phase Impacts

10.5.1 Where figures relating to area of the Site, volume of the Site, approximate number of construction vehicles or distances to receptors (e.g. 20m, 50m) are given, these relate to thresholds as defined in the IAQM guidance (IAQM, 2016) to guide the assessor to define the dust emissions magnitude and sensitivity of the area.

Assessment Screening

10.5.2 As illustrated in Appendix 10.4, there are human receptors within 350m of the Site and a designated habitat site within 50m of the Site boundary. Therefore, an assessment considering both receptors is required.

Potential Dust Emissions Magnitude

Demolition

10.5.3 The Site currently comprises of agricultural fields with no structures that require demolition. As such, consideration of impacts associated with demolition activities has been scoped out of the assessment.

Earthworks

10.5.4 Earthworks are required over an area of approximately 18,000m^2, which equates to the residential areas of the Site. However, due to the typical phased nature of construction of residential schemes, the total construction area requiring earthworks at any given time is not expected to be greater than 10,000m^2. Given the size of the Site, it is considered that <10 heavy moving earth vehicles are likely to be active at any one time. The dust emission magnitude for earthworks is therefore considered to be 'medium'.

Construction

10.5.5 The total building volume requiring construction is predicted to be 25,000m^3 – 100,000m^3. The dust emission magnitude for construction is therefore considered to be 'medium'.

Trackout

10.5.6 Construction vehicles are assumed to access the Site via the new purpose-built entrance off Raby Hall Road. Given the scale of the development and size of Site, it is considered unlikely that the unpaved road length will exceed 100m. Furthermore, <50 outward HDV movements are predicted in a worst-case day. The dust emission magnitude for trackout is therefore considered to be 'medium'.

Summary

10.5.7 A summary of the dust emission magnitude for the four activities is detailed in Table 10.6.

Table 10.6 - Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Earthworks	Medium
Construction	Medium
Trackout	Medium

Sensitivity of the Area

Dust Soiling Impacts

10.5.8 There are <10 high sensitivity receptors within 20m of the Site, and <100 high sensitivity receptors within 50m of the Site. Furthermore, only low sensitivity receptors exist within 20m of the access routes up to 200m from the Site entrance (assuming that vehicles may travel in both directions on Raby Hall Road when leaving the Site) – commensurate of a medium site. In addition, there are <10 high sensitivity receptors within 50m of the identified trackout routes.

10.5.9 The sensitivity of the area with respect to dust soiling effects on people and property in relation to earthworks, construction is therefore considered to be 'medium', and in relation to trackout is therefore considered to be 'low'.

Human Health Impacts

10.5.10 The maximum 2019 mapped background PM_{10} concentration (2018 reference year) for the 1km grid square centred on the Site is estimated to be 10.8µg/m³ (i.e. falls into the <24µg/m^3 class). No local background automatic monitoring exists within the development locale.

10.5.11 Given the above information regarding the number of residential receptors within 20m and 50m of the Site boundary and within 20m of the identified trackout routes, the sensitivity of the area with respect to human health impacts in relation to earthworks, construction, and trackout is therefore considered to be 'low'.

Ecological Impacts

10.5.12 The Raby Mere Site of Biological Importance (SoBI) is located adjacent to the north-west corner of the Site, within 20m. However, it is not located within 50m of the identified trackout routes. The SoBI is considered a low sensitivity receptor in line with IAQM guidance. The sensitivity of the area with respect to ecological impacts in relation to earthworks and construction is therefore considered to be 'low'.

Summary

10.5.13 A summary of the sensitivity of the surrounding area is detailed in Table 10.7, whilst the spatial density of nearby receptors is illustrated in Appendix 10.4.

Table 10.7 - Sensitivity of the Area

Potential Impact	Sensitivity of Surrounding Area		
	Earthworks	**Construction**	**Trackout**
Dust Soiling	Medium	Medium	Low
Human Health	Low	Low	Low
Ecological	Low	Low	n/a

Risk of Impacts (Unmitigated)

10.5.14 The outcome of the assessment of the potential 'magnitude of dust emissions', and the 'sensitivity of the area' are combined in Table 10.8 below to determine the risk of impact (unmitigated) which is used to inform the selection of appropriate mitigation.

Table 10.8 - Risk of Dust Impacts (Unmitigated)

Potential Impact	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	Medium Risk	Low Risk
Human Health	Low Risk	Low Risk	Low Risk

Potential Impact	Earthworks	Construction	Trackout
Ecological	Low Risk	Low Risk	n/a

Mitigation

10.5.15 Following the construction dust assessment, the Site is found to be at worst 'Medium Risk' in relation to dust soiling effects on people and property, and 'Low Risk' in relation to human health and ecological impacts (Table 10.8). However, potential dust effects during the construction phase are considered to be temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

10.5.16 Nonetheless, commensurate with the above designation of dust risk, mitigation measures, as identified by IAQM guidance are required to ensure that any potential impacts arising from the construction phase of the Proposed Development are reduced and, where possible, completely removed.

10.5.17 In accordance with IAQM guidance, providing effective mitigation measures are implemented, as detailed in Appendix 10.3, it is considered that the overall effect at all receptors will be 'Not Significant'. These are considered within the Residual Effects section later in this chapter.

Operational Phase Impacts

Operational Phase Road Traffic Screening Assessment

10.5.18 Table 10.9 details the maximum road traffic flows generated by the Proposed Development (assumed to be LDVs) upon the local road network for screening.

Table 10.9 - Sensitivity of the Area

Road Link Name	AADT	
	All	LDVs
Raby Hall Road	189	189
EPUK/IAQM Screening Criteria		***500***

10.5.19 Maximum road traffic flows generated by the Proposed Development on the local road network are found to be below the relevant EPUK & IAQM screening thresholds. These flows are expected to reduce with distance from the Site via means of distribution. As such, road traffic impacts associated with the operation of the Site can be considered as having an insignificant effect on local air quality.

Site Suitability Assessment

10.5.20 Exhaustive results tables are displayed in Appendix 10.2.

NO_2 Modelling Results

10.5.21 The maximum annual mean NO_2 concentration predicted across the Site was 16.4µg/m^3 (2023 DS); this represents 41.0% of the AQAL. The maximum annual mean NO_2 concentration predicted at the proposed residential properties closest to the M53 motorway was 10.7µg/m^3 (2023 DS); this represents 26.8% of the AQAL. All predicted concentrations are therefore 'well below' the annual mean AQAL (i.e. <75%).

10.5.22 The empirical relationship given in LAQM.TG(16) states that exceedences of the 1-hour mean NO_2 AQAL are unlikely to occur where annual mean concentrations are <60µg/m^3. Annual mean NO_2 concentrations predicted at all receptor locations are well below this limit. Therefore, it is unlikely that an exceedance of the 1 hour mean objective will occur. Effects associated with likely 1-hour mean NO_2 concentrations at all assessed receptor locations (including those on Site) are therefore considered to be 'Not Significant'.

PM_{10} Modelling Results

10.5.23 The maximum annual mean PM_{10} concentration predicted across the Site was 11.3µg/m^3 (2023 DS); this represents 28.3% of the AQAL. The maximum annual mean PM_{10} concentration predicted at the proposed residential properties closest to the M53 motorway was 10.6µg/m^3 (2023 DS); this represents 26.5% of the AQAL. All predicted concentrations are therefore 'well below' the annual mean AQAL (i.e. <75%).

10.5.24 Based upon the maximum predicted annual mean PM_{10} concentration of 11.3µg/m^3, this equates to less than 1 day where 24-hour mean PM_{10} concentrations are predicted to be greater than 50µg/m^3. This is well below the 35 permitted exceedences, and therefore the number of maximum exceedences is in compliance with the 24-hour mean AQAL. Effects associated with likely 24-hour mean PM_{10} concentrations at all assessed Site receptor locations are therefore considered to be 'Not Significant'.

$PM_{2.5}$ Modelling Results

10.5.25 The maximum annual mean $PM_{2.5}$ concentration predicted across the Site was 7.2µg/m^3 (2023 DS); this represents 28.8% of the AQAL. The maximum annual mean $PM_{2.5}$ concentration predicted at the proposed residential properties closest to the M53 motorway was 6.8µg/m^3 (2023 DS); this represents 27.2% of the AQAL. All predicted concentrations are therefore 'well below' the annual mean AQAL (i.e. <75%).

Mitigation

10.5.26 In accordance with EPUK & IAQM guidance (EPUK & IAQM, 2017), road traffic impacts associated with the operation of the Site can be considered as having an insignificant effect on local air quality.

10.2.19 Furthermore, the predicted concentrations of NO_2, PM_{10} and $PM_{2.5}$ within the Site at new receptor locations are considered to be 'well below' both the long and short term AQALs. Effects associated with likely exposure of future occupants are therefore considered to be 'Not Significant', despite the overly worst-case assessment approach i.e. assuming the development will be approved and fully operational in 2023, in terms of the traffic flows considered within the 2023 DS scenario. This approach is believed to be conservative,

given the forecasted reductions in vehicle emission factors and background pollutant concentrations, generating a potential greater resultant concentration relative to what may occur (see paragraph 10.3.28).

10.5.27 As such, long-term scheme-specific mitigation measures in relation to operational effects arising from road traffic emissions are therefore not considered to be necessary.

10.6. Residual and Cumulative Effects

Residual Effects

Construction Phase

10.6.1 With the effective application of the dust mitigation measures, as detailed in Appendix 10.3, it is considered that the overall effect at all receptors will be 'Not Significant'.

Operational Phase

10.6.2 Given the outcomes of the assessment, long-term scheme-specific mitigation measures in relation to operational effects arising from road traffic emissions are not considered to be necessary. No mitigation is therefore proposed, and residual effects are not applicable in this instance, but can otherwise be assumed to be 'Not Significant' in the absence of mitigation.

Cumulative Effects

Inter-project Effects

Construction Phase

10.6.3 Cumulative dust effects arising from construction activities could be experienced where construction activities from more than one scheme overlaps at an affected receptor, dependent on the impact (e.g. dust soiling, human health and ecological). However, all schemes which are considered to pose a risk of cumulative effects will have had to undertake a construction dust assessment separately relating to their own site activities and associated risks, with the recommendation of best practice mitigation to remedy residual effects 'Not Significant'. These measures would be integrated into a Construction Environmental Management Plan (CEMP) or similar, to be adhered to during construction, as part of their own environmental responsibilities and commitment.

10.6.4 In accordance with IAQM guidance (IAQM, 2016), following the implementation of the recommended mitigation, effects will be 'Not Significant'. As such, it is not anticipated that there would be significant cumulative effects associated with construction phase dust emissions.

Operational Phase

10.6.5 Consistent with applied guidance prescribed by the EPUK & IAQM (EPUK & IAQM, 2017), screening of projected road traffic vehicle movements associated with the Proposed Development has been undertaken in isolation and are considered insignificant.

10.6.6 In relation to the detailed Site suitability assessment, consideration has been given to the potential maximum traffic flows that are likely to occur in the future assessment year (i.e. 2023 DS) should the Proposed Development become fully operational.

10.6.7 The traffic flows used for the detailed Site suitability assessment includes vehicle movements associated with:

a) relevant committed developments in the assessment area; and
b) the remaining seven residential development applications associated with the Leverhulme Phase 1 Development sites across the Wirral (which are yet to receive planning consent), where relevant to the model domain of focus e.g. roads effected by the proposed development. This assumes that all the Leverhulme Development sites will be approved and fully operational in 2023, in terms of the traffic flows considered which is conservative.

10.6.8 The cumulative operational effect of the Proposed Development is therefore considered to be 'Not Significant'.

Intra-project Effects

10.6.9 The operational phase dispersion modelling assessment is based on traffic flows presented in ES Chapter 6: Transport.

10.6.10 It is acknowledged that noise, visual effects and air quality effects could overlap at a sensitive human receptor location. Furthermore, ecological designations could experience noise and air quality effects, in-combination.

10.6.11 However, given that all air quality effects established as part of this assessment are considered to be 'Not Significant', the likelihood of a cumulative intra-project effect occurring as a result of air quality is low. No further assessment is therefore required.

10.7. List of Abbreviations

Table 10.10 - List of Abbreviations

Abbreviations	
AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AQSR	Air Quality Standards Regulations
ASR	Annual Status Report
AURN	Automatic Urban and Rural Network
CAS	Clean Air Strategy
CERC	Cambridge Environmental Research Consultants
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EIA	Environmental Impact Assessment
EPUK	Environmental Protection UK
ES	Environmental Statement
HDV	Heavy-Duty Vehicle
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LAQM.TG(16)	LAQM Technical Guidance 16
LDV	Light Duty Vehicle
NO_2	Nitrogen Dioxide
NPPF	National Planning Policy Framework
NRMM	Non-Road Mobile Machinery
PM_{10}	Particulate Matter (≤10 µG)
$PM_{2.5}$	Particulate Matter (≤2.5 µG)
PPG	Planning Practice Guidance
SoBI	Site of Biological Importance
TA	Transport Assessment
UDP	Unitary Development Plan
WBC	Wirral Borough Council

10.8. List of References

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Environmental Impact Assessment
Chapter 11: Agricultural Land Quality

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

March 2022

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Statement of Competency

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11 Agricultural Land Quality

11.1 Introduction

11.1.1 This Agricultural Land Quality chapter assesses the likely significant effects associated with the Proposed Development on agricultural land and soil resources.

11.1.2 The chapter explains the method of assessment; describes the baseline surveys and data; establishes the baseline conditions; provides an assessment of likely significant effects during construction and operation, including a cumulative assessment; identifies measures to mitigate significant adverse effects; and describes the significant residual effects from the Proposed Development after these measures have been adopted.

11.1.3 The chapter is supported by an Agricultural Land Classification (ALC) report provided at **Appendix 11.1**.

11.2 Policy and Legislative Context

National Planning Policy Framework (2021)

11.2.1 Paragraph 174 of the National Planning Policy Framework[1] (NPPF) identifies that planning policies and decisions should contribute to and enhance the natural and local environment by, amongst other matters, protecting and enhancing soils (in a manner commensurate with their statutory status or identified quality in the development plan). It also advises that the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services should be recognised in policies and decisions, including the economic and other benefits of best and most versatile (BMV) agricultural land.

11.2.2 Paragraph 175 indicates that plans should allocate land with the least environmental or amenity value, where consistent with other policies in the NPPF, with footnote 58 advising that where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

[1] Ministry of Housing, Communities and Local Government (2021) National Planning Policy Framework https://www.gov.uk/government/publications/national-planning-policy-framework--2

Planning Practice Guidance

11.2.3 National Planning Practice Guidance[2] (NPPG) is a live online resource that explains how planning can take account of the quality of agricultural land and safeguard soils. Reference is made to the ALC system which assesses the quality of farmland to enable informed choices to be made about its future use within the planning system. Planning policies and decisions should take account of the economic and other benefits of the BMV agricultural land. The guidance also confirms that Natural England has a statutory role in advising local planning authorities about agricultural land quality issues.

11.2.4 The NPPG highlights that soil is an essential natural capital asset that provides important ecosystem services such as a growing medium for food, timber and other crops, a store for carbon and water, a reservoir of biodiversity and a buffer against pollution. Reference is made to Defra's Construction Code of Practice[3] which provides advice on the use and protection of soil in construction projects, including the movement and management of soil resources at all stages of the construction process. The sustainable use and management of soil resources during construction can help with the re-establishment of soil functions following their storage or movement, including food production, habitat provision and support, and natural cycling of elements such as carbon and nitrogen.

Unitary Development Plan for Wirral (2000)

11.2.5 The Unitary Development Plan[4] for the Wirral includes Policy AGR1 which encourages the local planning authority to prevent the loss of Wirral's best and most versatile agricultural land, but where avoidance of development on such land is unavoidable then the lowest possible grade should be used.

11.2.6 Policy AG2 indicates that proposals involving the non-agricultural use of BMV land must "*demonstrate the extent to which it would be practicable to return the land to its former quality if the development took place*" and that "*particular regard will be paid to:*

[2] Ministry of Housing, Communities and Local Government (2019). Planning Practice Guidance. https://www.gov.uk/guidance/natural-environment#agricultural-land-soil-and-brownfield-land-of-environmental-value.
[3] Department for Environment, Food and Rural Affairs (Defra) (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites.
[4] Metropolitan Borough of Wirral (2000). Wirral Unitary Development Plan (Including Minerals and Waste Policies), Written Statement, Adopted February 2000.

(i) The siting and extent of hard development proposed; and

(ii) The extent and depth of disturbance to soil structure."

Other Guidance

11.2.7 Defra's Soil Strategy for England[5] seeks to encourage the sustainable management of soil resources. The Strategy sets out Defra's vision that by 2030 all of England's soils will be managed sustainably and degradation threats will be tackled successfully in order to improve soil quality and safeguard the ability to provide essential services for future generations. The Strategy sets out priorities for the better protection of agricultural soils; enhancing stores of soil carbon; building the resilience of soils to a changing climate; preventing soil pollution; protecting soils during construction and development; and dealing with the legacy of contaminated land.

11.3 Methodology and Assessment Criteria

Scope of the Assessment

11.3.1 The assessment of potential significant effects of the Proposed Development on agricultural land quality considers all of the agricultural land and soils within the Site boundaries.

Method of Baseline Data Collection

11.3.2 A detailed soil and Agricultural Land Classification (ALC) survey was undertaken at the Site in April 2021. This is included at Appendix 11.1.

11.3.3 The survey methodology followed the well-established guidelines and criteria for classifying the quality of agricultural land[6], issued by the former Ministry of Agriculture, Fisheries and Food (MAFF) in 1988. A detailed ALC survey has been carried out across the Site and involved an interpretation of published geological, topographical, soil and agro-

[5] Department for Environment, Food and Rural Affairs (Defra) (2009). Safeguarding our soils: A strategy for England. https://www.gov.uk/government/publications/safeguarding-our-soils-a-strategy-for-england.

[6] Ministry of Agriculture, Fisheries and Food (MAFF) (1988). Agricultural Land Classification of England and Wales - Revised guidelines and criteria for the grading of the quality of agricultural land. http://publications.naturalengland.org.uk/file/5526580165083136

climatic information, followed by the site surveys examining soil profiles using hand-held augers and spades at the recommended density of one observation per hectare.

11.3.4 The following characteristics were assessed for each soil horizon up to a maximum depth of 120cm or any impenetrable layer:

- soil texture;
- stone content;
- soil colour (including local gley and mottle colours);
- consistency;
- structural condition;
- free carbonate; and
- depth.

11.3.5 One topsoil sample was also submitted for laboratory analysis of particle size distribution, pH, organic matter content and nutrient content.

11.3.6 The soil characteristics were then described and analysed in terms of the ALC guidelines to establish the grade of agricultural land within the Site.

Identification of Sensitive Receptors

11.3.7 The ALC survey provides a statement of the quantity and quality of agricultural land on the Site. Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use.

11.3.8 Grade 1 land is excellent quality agricultural land with very minor or no limitations to its use. Grade 2 is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting. Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield, and is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land). Grade 4 land is poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields. Grade 5 is very poor quality land, with severe limitations which restrict use to permanent pasture or rough grazing.

11.3.9 BMV agricultural land comprises Grades 1, 2 and 3a.

Assessment Criteria

11.3.10 The sensitivity of agricultural land is assessed according to its grade within the ALC, as set out in **Table 11.1**.

11.3.11 The impact on the soil resource is assessed according to the degree to which disturbed soil resources are re-used in a manner that enables the resource to fulfil one or more of the primary soil functions of:

- The production of food and biomass, and the provision of raw materials;
- The storage, filtration and cycling of water, carbon and nitrogen in the biosphere;
- The support of ecological habitats and biodiversity;
- Support for the landscape;
- The protection of cultural heritage; and
- The provision of a platform for human activities, such as construction and recreation.

11.3.12 The sensitivity of the soil resource reflects its textural characteristics and its susceptibility to the effects of handling during construction and the re-instatement of land as shown in **Table 11.1.**

Table 11.1 - Sensitivity of Agricultural Land and Soil Resources

Sensitivity	Agricultural Land	Soil Resources
High	Grade 1 and Grade 2	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams)
Medium	Subgrade 3a and Subgrade 3b	Silty loams, medium silty clay loams, medium clay loams and sandy clay loams
Low	Grade 4 and Grade 5	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams)

11.3.13 The magnitude of change is determined using the criteria in **Table 11.2**. The thresholds for determining the magnitude of change have been derived taking into account the statutory consultation procedures with Natural England for development involving agricultural land. The magnitude of change on soil resources considers the continued ability of soils to fulfil their primary functions.

Table 11.2 – Magnitude of Change on Agricultural Land and Soil Resources

Magnitude	Agricultural Land	Soil Resources
High	Development would directly lead to the loss of over 50ha of agricultural land	The soil displaced from development is unable to fulfil one or more of the primary soils functions
Medium	Development would directly lead to the loss of between 20ha and 50ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions off-site or has a reduced capacity to fulfil the primary functions on site
Low	Development would directly lead to the loss of between 5ha and 20ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions on-site
Negligible	Development would directly lead to the loss of less than 5ha of agricultural land	The soil retains its existing functions on-site

Significance of Effects

11.3.14 The overall significance of effect is then determined by combining the magnitude of change with the sensitivity of the receptor, as shown in **Table 11.3**. Major and Moderate effects are considered to be the 'likely significant effects' within the meaning of the EIA Regulations.

Table 11.3 – Significance Matrix

Magnitude	Sensitivity		
	High	Medium	Low
High	Major Adverse/Beneficial	Major – Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial
Medium	Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial
Low	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

11.4 Existing Baseline Conditions

Sources of Baseline Information

11.4.1 The agricultural land quality and soils context of the Site was first determined through the consideration of published information on site, soil and climatic conditions. The assessment of effects has primarily relied upon data obtained in the detailed ALC and soil survey undertaken in April 2021.

Baseline Assessment

11.4.2 The Site extends to 3.3ha, of which approximately 3.1ha is agricultural land in arable use. The topography is gently sloping between altitudes of around 35m above Ordnance Datum (AOD) in the east and 25m AOD in the west.

11.4.3 The climate of the Site is moderately warm and moist. The number of days at which the land is at field capacity is larger than is typical for lowland England and is unfavourable for providing opportunities for agricultural field work.

11.4.4 The Site is underlain by sandstone of the Wilmslow Sandstone Formation. Superficial deposits of glacial till are mapped in the west of the Site and may include clay, sand, gravel and cobbles.

11.4.5 The mapped soil information shows the Bridgnorth association at the site, but which forms a narrow band within a wider swathe of the Clifton association. The main soils of the Bridgnorth association include reddish brown loamy sand upper horizons, passing to sand and sandstone at moderate depth. The contrasting Clifton soils are characterised by textures of clay loam and sandy clay loam throughout. The subsoils are usually dense and slowly permeable, resulting in poor drainage.

11.4.6 The ALC survey identified two main soil types which correspond with the mapped types. The main soils across the west of the Site include medium clay loam or sandy clay loam upper horizons and mainly overlie clay at depth. The profiles are in Wetness Class (WC) III and are limited by wetness to Subgrade 3a.

11.4.7 In the east of the Site the topsoil and upper subsoil horizons are sandy loam. The lower subsoil is loamy medium sand. The soils are well drained (WC I). Under the climatic conditions of the Site, there are adequate reserves of moisture in the profile to support crop growth. There is little to no limitation to the agricultural use of this soil type, which is classified as Grade 1.

11.5 Assessment of Potential Effects

Construction Phase Impacts

11.5.1 Effects primarily relate to the permanent loss of the agricultural land resource within the Site. The Proposed Development would result in the loss of approximately 3.1ha of BMV quality agricultural land, a majority of which is in Subgrade 3a and a small portion in Grade 1.

11.5.2 Land in Grade 1 is a resource of high sensitivity and Subgrade 3a is a resource of medium sensitivity in **Table 11.1**. The magnitude of change in **Table 11.2** is negligible. Therefore, the Proposed Development would result in a **Direct, Permanent, Long-term, Negligible Adverse Local Scale** effect on agricultural land.

11.5.3 Soil is a finite resource that fulfils many important functions and services for society in addition to the production of food and fibre, and it is recognised in paragraph 174 of the NPPF that soil resources should be conserved and enhanced. During the demolition and construction phase, damage to, and loss of, topsoil could occur if other dissimilar materials such as subsoil or other materials were stockpiled directly on it without a separating layer or possibly by poor work causing mixing of topsoil subsoil and other materials during stockpile placement or removal.

11.5.4 There is also a risk of long-term damage to soil structure, and the loss of potentially valuable soil, if there is uncontrolled trafficking of land and soil by heavy machinery, especially wheeled machinery.

11.5.5 Biodegradation of topsoil would occur if it is compacted in storage, stockpiled when wet, if stockpiled in the medium-to-long-term, or covered by soil stores for significant periods. Permanent, direct, adverse impacts may arise, therefore, from disposing of soil or re-using it for inappropriate purposes that do not meet the many beneficial functions of soil; by mixing incompatible soil resources; and by poor management of the soil resource.

11.5.6 A majority of the topsoil at the Site is sandy clay loam or medium clay loam which is a resource of medium sensitivity in **Table 11.1**. There is the potential that it will be unable to fulfil one or more of the primary soil functions on the Site which would be a high magnitude of change in **Table 11.2**. Prior to mitigation measures, the Proposed Development would

have an overall **Direct, Permanent, Long-term, Major-Moderate Adverse Local Scale** effect on soil resources.

Mitigation

11.5.7 There are no universally applicable measures available to mitigate the direct loss of agricultural land. However, measures to mitigate the impacts on soil resources will ensure that the soil will be able to fulfil its various functions.

11.5.8 The primary measures to mitigate the impacts on soil resources would be set out in a Soil Resource Management Plan (SRMP), to be prepared at the detailed design stage and secured by a planning condition. The plan would confirm the different soil types (based on the soil surveys already undertaken); the most appropriate re-use for the different types of soils; and the proposed methods for handling, storing and replacing soils on-site.

11.5.9 The aim of the SRMP will be to re-use displaced soil resources on-site in the detailed design of open spaces and green infrastructure. The quality of soils retained on-site would be maintained by following good practice guidance on soils handling and storage, particularly to avoid compaction and biodegradation of soils.

11.5.10 With the adoption of appropriate mitigation for the handling and restoration of soils, as part of a Construction Environment Management Plan (CEMP), most soils will be able to continue their various ecosystem functions on the Site, principally as a medium for producing biomass; for storage and cycling of water and carbon; and for supporting habitats, biodiversity and landscape planting.

Operational Phase Impacts

11.5.11 As the permanent removal of land from agriculture, and all soil handling operations, would occur during the construction phase of the Proposed Development, it is not considered that any further effects would occur following the completion of construction.

11.6 Residual and Cumulative Effects

Residual Effects

11.6.1 As no mitigation is available for the direct loss of agricultural land, the Proposed Development would have a **Direct, Permanent, Long-term, Negligible Adverse Local Scale** effect on agricultural land, which is not significant.

11.6.2 Following best practice guidance on soil handling and storage and reusing the soils in an appropriate manner will enable the displaced soil to fulfil its primary functions and services on-site and reduce the magnitude of change to low. Following implementation of mitigation measures, the Proposed Development would have a **Direct, Permanent, Long-term, Minor Adverse Local Scale** effect on soil resources, which is not significant.

Cumulative Effects

Inter-project Effects

11.6.3 Eleven schemes in the locality have been identified as potentially giving rise to cumulative effects on agricultural land quality. Effects on soil resources do not occur cumulatively. The schemes are summarised in **Table 11.4**.

Table 11.4 – List of Cumulative Schemes

Scheme	Area of Agricultural Land	ALC
Land East of Raby Hall, Raby Hall Road, Raby Mere	3.7ha	Grade 1 – 1.9ha* Grade 2 – 1.0ha Subgrade 3a – 0.8ha
Land at Milner Road and Barnston Road, Heswall	7.8ha	Grade 2 – 3.0ha Subgrade 3a – 4.8ha
Land West of Barnston Road, North of Gills Lane, Barnston	7.0ha	Subgrade 3a – 2.8ha Subgrade 3b – 4.2ha
Land East of Thorncroft Drive, North of Gills Lane, Pensby	0.82ha	Subgrade 3a
Land East of Dale View Close, North of Gills Lane, Pensby	3.7ha	Subgrade 3a – 2.8ha Subgrade 3b – 0.9ha
Fishers Lane, Pensby	None–Construction complete	N/A
Land East of Glenwood Drive, Irby	16.2ha	Subgrade 3a – 9.4ha Subgrade 3b – 6.8ha

Land East of Rigby Drive, Greasby	10.0ha	Grade 2 – 3.2ha Subgrade 3a - 6.8ha
Wirral Business Park, Arrowe Brook Road, Upton	None–non-agricultural	N/A
Girtrell Court, Woodpecker Close, Upton	None- Construction complete	N/A
Land at Acre Lane and Meadowside Road, Bromborough	None–non-agricultural	N/A

*There is some overlap in the scheme boundaries at Raby Hall: the Grade 1 at Land West of Raby Hall is within the same unit identified at Land East of Raby Hall.

11.6.4 Of the seven schemes that would require agricultural land, all but one (Land East of Thorncroft Drive, North of Gills Lane, Pensby) would individually result in a larger magnitude of change to agricultural land as the cumulative loss of agricultural land would be between 5ha and 20ha, and a majority would be of BMV quality. If all seven schemes affecting agricultural land were to proceed alongside the Proposed Development, the cumulative loss of agricultural land would marginally exceed 50ha, which would be a high magnitude of change to agricultural land. The Proposed Development in combination with the cumulative development projects would have a **Direct, Permanent, Long-term, Major-Moderate Adverse District Scale** effect on agricultural land.

Intra-project Effects

11.6.5 No intra-project/in-combination effects with other environmental disciplines on individual receptors have been identified.

11.7 List of Abbreviations

Abbreviations	
ALC	Agricultural Land Classification
BMV	Best and Most Versatile
EIA	Environmental Impact Assessment
ES	Environmental Statement
WC	Wetness Class

11.8 List of References

Ministry of Housing, Communities and Local Government (2021) National Planning Policy Framework https://www.gov.uk/government/publications/national-planning-policy-framework--2

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Environmental Statement
Chapter 12: Summary of Mitigation and Enhancement Measures

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

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Statement of Competency

This chapter of this Environmental Statement (ES) has been prepared by John Cutler at Strutt & Parker, who has both practical experience of preparing such statements. John is a chartered town planner (MRTPI) and is an accredited Practitioner member of the Institute of Environmental Management and Assessment (PIEMA).

12. Summary of Mitigation and Enhancement Measures

12.1. Introduction

12.1.1 This chapter sets out the mitigation measures designed to address significant adverse effects of the Proposed Development on the surrounding environment, and enhancement measures to maximise beneficial effects where possible.

12.1.2 In accordance with this approach, this ES set out a range of appropriate mitigation measures to address the specific effects predicted to occur. In all instances, care has been taken to ensure that the mitigation measures proposed are both deliverable (in terms of practical, logistical, financial and planning parameters), and acceptable in terms of stakeholder agreement.

12.1.3 As set out in Chapter 2, the topic chapters take into account all measures that form part of the Proposed Development, including:

- Measures incorporated within the project design (sometimes referred to as primary or embedded mitigation);
- Measures to be adopted during construction to avoid and minimise environmental effects (such as pollution control measures); and
- Measures required to fulfil legislative requirements.

12.1.4 It is possible that further mitigation measures may be identified within topic chapters. That is, measures not embedded within the design, but that could further prevent, reduce and, where possible, offset any potential residual adverse effects on the environment. For example, in some instances financial contributions may be required to by way of planning obligations to off-set the impact on certain infrastructure, or monitoring measures may potentially be appropriate to ensure that proposed planting becomes established.

12.1.5 The specific measures applicable to each environmental topic are set out in detail in Table 12.1, which includes the delivery method to ensure the mitigation measures are implemented. More detail of the measures are provided within each of the topic chapters.

Table 12.1 – Summary of Mitigation and Enhancement Measures

Development Phase	Proposed Mitigation Measure	ES reference	To be secured by
Socio-Economics			
Operational Phase	Contributions to mitigate effects on	Paragraphs 5.5.37 and 5.5.50	S106

	primary school, secondary school and sixth form capacity as required.		
Operational Phase	Contributions to mitigate effects on healthcare facilities as required.	Paragraphs 5.5.40 and 5.5.51	S106
Operational Phase	Contributions to mitigate/enhance effects on social/community infrastructure as required.	Paragraphs 5.5.43 and 5.5.52	S106
Transport			
Construction Phase	Construction Environment Management Plan	Paragraphs 6.5.5 to 6.5.7	Condition
Operational Phase	B5138 Pensby Road/Thingwall Road East junction improvements	Paragraphs 6.6.13 to 6.6.17	S106/S278
Operational Phase	Travel Planning (Interim Travel Plan)	Paragraphs 6.6.13 to 6.6.17	Condition
Operational Phase	Arrowe Road/Arrowe Brook Lane junction improvements	Paragraphs 6.6.13 to 6.6.17	S106/S278, in the event Site H comes forward
Operational Phase	A551/A552 Corridor installation of SCOOT at five junctions on the corridor	Paragraphs 6.6.13 to 6.6.17	S106/S278, in the event any two or more of Sites H, A (the Proposed Development Site) and D come forward or any three or more of Sites H, A (the Proposed Development Site), B, D and E come forward
Operational Phase	Arrowe Park Road/Thingwall Road Roundabout junction improvements	Paragraphs 6.6.13 to 6.6.17	S106/S278, in the event Site A (the Proposed Development Site) comes forward plus any two or more of Sites H, B, D and E come forward
Operational Phase	B5138 Pensby Road/Thingwall Road East junction improvements	Paragraphs 6.6.13 to 6.6.17	S106/S278
Operational Phase	A551 Barnston Road/Storeton Lane junction improvements	Paragraphs 6.6.13 to 6.6.17	S106/S278, in the event any one or more of Sites B, D or E come forward

Landscape and Visual Amenity			
Construction Phase	Construction Phase landscape and visual mitigation to be established through Construction Environmental Management Plan	Paragraph 7.5.10	Condition
Ecology			
Construction Phase	CEMP (habitat and species protection and pollution control measures)	Paragraphs 8.5.30, 8.5.47, 8.5.55, 8.5.56, 8.5.65, 8.5.71, 8.5.76	Condition
Construction Phase	Ecological Method Statement	Paragraphs 8.5.40, 8.5.65	Condition
Construction Phase	Habitat and species enhancement	Paragraphs 8.5.29, 8.5.42, 8.5.57, 8.5.66, 8.5.67, 8.5.77, 8.5.84	Condition
Operational Phase	Species protection and enhancement	Paragraphs 8.5.41, 8.5.56, 8.5.66, 8.5.77, 8.5.82	Condition
Acoustics			
Construction Phase	Noise Mitigation measures, the majority of which can be incorporated within a suitable CEMP.	Paragraph 9.5.16, Appendix 9.2	Condition
Air Quality			
Construction Phase	An extensive list of mitigation measures to ensure that any potential impacts arising from the construction phase of the Proposed Development are reduced and, where possible, completely removed is provided in Appendix 10.4.	Section 10.5 and Appendix 10.4 - Construction Dust Mitigation Measures	CEMP (Construction Emission Management Plan) Condition
Agricultural Land Quality			
Construction Phase	Soil Resource Management Plan	Paragraphs 11.5.8 to 11.5.10	Condition

Environmental Statement
Chapter 13: Summary of Residual and Cumulative Effects

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

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Statement of Competency

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13. Summary of Residual and Cumulative Effects

13.1. Introduction

13.1.1 This chapter summarises the significance of residual effects and likely cumulative effects on local features or receptors within the environment that are likely to be affected by the Proposed Development.

13.1.2 Residual effects are the effects of the Proposed Development assuming implementation of proposed further mitigation measures (i.e. mitigation measures not embedded within the scheme). The residual effects therefore represent the overall likely significant environmental effects, having taken account of practicable/available mitigation measures.

13.1.3 The Institute of Environmental Management and Assessment (IEMA) guidance identifies two types of cumulative effects:

- inter-project effects (incremental changes caused by other development schemes occurring together with the Proposed Development that may potentially worsen certain impacts): and
- intra-project effects (effects that occur as a result of impact interaction between different environmental topics within the same project), also known as in-combination effects or effect interactions.

13.1.4 This chapter draws together the findings from the individual inputs from the technical chapters in the ES. For each of the technical disciplines it:

- reports the residual effects of the Proposed Development;
- defines inter-relationships between the other identified cumulative developments; and
- assesses whether there may be any other cumulative effects on the identified sensitive receptors.

13.1.5 The methodology for the assessment of residual and cumulative effects follows the overall EIA methodology as reported at Chapter 2. The cumulative development sites identified are set out at Table 13.1 below.

Table 13.1 – Cumulative Development Sites

Scheme	Description of Development	Distance from Site (km)	Status
G. Land East of Raby Hall, Raby Hall Road, Raby Mere	Residential development for up to 80 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new open green space and play area, wildlife habitats and green corridors; and off-site environmental, biodiversity and accessibility enhancements.	c. 0.1	Planning application (submission May 2022)
Land at Acre Lane and Meadowside Road, Bromborough	Detailed application for the erection of 217 dwellings, with associated access (off Acre Lane and Meadowside Road) and landscaping and other ancillary works.	c. 1.6	Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295). In construction.
E. Land at Milner Road and Barnston Road, Heswall	Residential development for up to 120 dwellings (Use Class C3), including 30% affordable housing and 10% self-build/custom build properties; delivery of part of the Borough's cycle supergreenway; green infrastructure including a new public park and play area, community orchard, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	c. 5.0	Planning application (submission May 2022)
D. Land West of Barnston Road, North of Gills Lane, Barnston	Residential development for up to 153 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new public park and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	c. 5.9	Planning application (submission May 2022)
C. Land East of Thorncroft Drive, North of Gills Lane, Pensby	Residential development for up to 15 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a green space, wildlife habitats and wetland; and off-site environmental, biodiversity and accessibility enhancements.	c. 6.2	Planning application (submission May 2022)

B. Land East of Dale View Close, North of Gills Lane, Pensby	Residential development for up to 92 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new public open space and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	c. 6.2	Planning application (submission May 2022)
Fishers Lane, Pensby	The proposed development looks to introduce 35No. affordable new build dwellings onto land currently allocated to the Pensby Children's Centre, located on Fishers Lane. (100% affordable housing).	c. 7.2	Full planning permission granted March 2019 (LPA ref: APP/18/01266)
A. Land East of Glenwood Drive, Irby	Residential development for up to 290 dwellings (Use Class C3), including 30% affordable housing and 10% self- build/custom build properties; delivery of part of the Borough's cycle supergreenway; green infrastructure including sports pitches, play areas and parkland, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	c. 7.5	Planning application (submission May 2022)
H. Land East of Rigby Drive, Greasby	Residential development for up to 250 dwellings (Use Class C3), including 30% affordable housing and 10% self-build/custom build properties; delivery of green infrastructure; and off-site environmental, biodiversity and accessibility enhancements.	c. 9.1	Upcoming planning application (2022)
Wirral Business Park, Arrowe Brook Road, Upton	Demolition of existing buildings and erection of 127 dwellings with associated landscaping and access.	c. 9.1	Full planning permission granted March 2020 (LPA ref: APP/19/00315) Under construction.
Girtrell Court, Woodpecker Close, Upton	Three-storey Extra Care development (Use Class C3) comprising of 78no. one and two	c.10.8	Full planning permission granted October 2018 (LPA

	bed affordable apartments, 195m2 office space, 59no. car parking spaces to the east of the site, and landscaped areas to the south.		ref: APP/18/01002). Constructed (known as 'Poppyfields').

13.1.6 Residual and cumulative effects arising from the Proposed Development (and cumulative developments) referred to in Table 13.1 above are considered on a topic by topic basis below. Where no cumulative effects are identified then this is also stated. The cumulative assessment has been based upon the information publicly available on WBC planning website. Where cumulative developments have been considered as part of the baseline, this is set out below.

13.1.7 Abbreviations are provided within each of the technical chapters as relevant. Minor (negligible) differences may occur in the distances between the sites depending on the method of measurement by each of the technical chapter authors.

13.2 Chapter 5 - Socio-Economics

Residual Effects

13.2.1 The assessment has found that the effects of the Proposed Development on housing needs is considered to be **Minor Beneficial in EIA terms** (Not Significant). Additionally, the impact on the local economy will be **Minor Beneficial in EIA terms** (Not Significant).

13.2.2 The majority of socio-economic infrastructure within the locality could accommodate, or (in the case of access to open space) would be improved by, the Proposed Development. Whilst there was found to be capacity within education and healthcare infrastructure, the new population generated from the Proposed Development would also use capacity within these resources, and so would potentially result in minimal adverse effects. However, it is considered that there are appropriate measures in place within the planning application procedure for any adverse effects to be appropriately mitigated if required, through development contributions to both education and healthcare infrastructure.

13.2.3 In summary, there are a number of potential positive effects of the Proposed Development. Before mitigation, the Proposed Development would have negative effects on education and healthcare facilities. Following mitigation, these effects would be **Negligible in EIA terms** (Not Significant).

Cumulative Effects

Inter-project Effects

Construction Phase

13.2.4 During the construction process, the main implication of new housing development is in respect of employment opportunities and the wider local economy.

13.2.5 Using the multiplier of 1.5 direct jobs and 1 indirect jobs being supported by the construction of each new dwelling built, it can be estimated that, cumulatively, the development of 1,495 new homes could support 2,243 direct jobs and 1,495 indirect jobs during the course of the construction periods. The House Builders Federation Housing Calculator (2018) also indicates that the construction of 1,495 new homes within Wirral would generate 50 'apprentices, graduates, trainees'.

13.2.6 Cumulatively, the effects are considered to **be Temporary, Short Term, Indirect, Major - Moderate Beneficial and of Local Scale** (Significant). No socio-economic mitigation measures are required.

Operational Phase

i. Population and Housing Needs

13.2.7 Table 13.2 below calculates the total new population to be generated in the event that all of these cumulative development projects are delivered. The existing average household size for each local area surrounding each site have been utilised.

Table 13.2 – Population Generation of Development Projects

Site Name	Application Type and Status	Distance From Site (km)	Assessment Area	Assessment Area Average Household	Proposed Number of Homes	Approximate Population Generation
F. Land West of Raby Hall, Raby Hall Road, Raby Mere	Subject planning application	N/A	Clatterbridge ward	2.38	up to 38	90
G. Land East of Raby Hall, Raby	Planning application	c. 0.1	Clatterbridge ward	2.38	up to 80	190

Hall Road, Raby Mere	(submission May 2022)					
Land at Acre Lane and Meadowside Road, Bromborough	Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295). In construction.	c. 1.6	Eastham Ward	2.27	217	493
E. Land at Milner Road and Barnston Road, Heswall	Planning application (submission May 2022)	c. 5.0	Heswall and Pensby & Thingwall Wards	2.21	Up to 120	265
D. Land West of Barnston Road, North of Gills Lane, Barnston	Planning application (submission May 2022)	c. 5.9	Pensby & Thingwall Ward	2.19	up to 153	335
C. Land East of Thorncroft Drive, North of Gills Lane, Pensby	Planning application (submission May 2022)	c. 6.2	Pensby & Thingwall Wards	2.19	up to 15	33
B. Land East of Dale View Close, North of Gills Lane, Pensby	Planning application (submission May 2022)	c.6.2	Pensby & Thingwall Ward	2.19	up to 92	210
Fishers Lane, Pensby	Full planning permission granted March 2019 (LPA ref: APP/18/01266). Constructed (known as 'The Willows')	c. 7.2	Pensby & Thingwall Ward	2.24	35	78
A. Land East of Glenwood Drive, Irby	Planning application (submission May 2022)	c.7.5	Greasby, Franky & Irby, and Pensby & Thingwall Wards	2.24	up to 290	650
H. Land East of Rigby Drive, Greasby	Upcoming planning application (2022)	c. 9.1	Greasby, Franky & Irby Ward	2.29	up to 250	573
Wirral Business Park, Arrowe Brook Road, Upton	Full planning permission granted March 2020 (LPA ref: APP/19/00315). Under construction.	c. 9.1	Greasby, Franky & Irby Ward	2.29	127	291

Girtrell Court, Woodpecker Close, Upton	Full planning permission granted October 2018 (LPA ref: APP/18/01002). Constructed (known as 'Poppyfields').	c. 10.8	Moreton West and Saughall Massie Ward	2.21	78	172
Total					**1,495**	**3,372**

13.2.8 As set out in Table 13.2 above, the Proposed Development together with the cumulative development sites would increase the current housing stock by a maximum total of 1,495 new C3 dwellings. This represents an increase of 1.03% of the existing housing stock of WMB (145,693 as existing to 147,230). 30% of the new homes on the Leverhulme sites (up to 311 homes) would comprise affordable housing tenures. Additionally, up to 66 homes would comprise self/custom build homes.

13.2.9 On this basis, the effects of the Proposed Development on housing needs are considered to be **Permanent, Long Term, Direct, of District Scale and Major- Moderate Beneficial in EIA terms** (Significant).

i. Local Economy

13.2.10 The provision of the maximum 1,495 new C3 dwellings in the borough is considered to have a limited positive impact in providing housing for current employees and future employment growth in the locality.

13.2.11 Indirectly, jobs would be supported as a result of increased local spend generated from residents and employees. Using the same methodology as set out previously, it can be assumed that the Proposed Development could equate to an annual contribution of £9,041,162 to the local recreation and leisure economy, and £8,893,456 to the local convenience goods and services economy annually.

13.2.12 Residents of the Proposed Development would also generate demand for a range of public services, including health, education and a range of public administration functions which in turn is likely to generate the need for additional staff.

13.2.13 The contribution of the new housing will also generate local Council Tax revenues, which fund local authority services. Table 13.3 shows the distribution of likely Council Tax bands based on a conservative estimate for the purposes of this assessment (based on a greater

proportion of lower value properties than may be the case), and the annual Council Tax revenue generated from that, based on WBC 2022 Council Tax charges.

Table 13.3 - Indicative Council Tax Generation

Band	Proportion (%)	Indicative No dwellings	WBC Annual Council Tax Charge for 2022	Indicative Council Tax Generated
Band B	35	523.25	£1,596.45	£835,342.46
Band C	40	448.5	£1,824.51	£818,292.74
Band D	20	448.5	£2,052.58	£920,582.13
Band E	5	74.75	£2,508.71	£187,526.07
Total				£2,761,743.40

13.2.14 Overall, it is considered that the effects of the Proposed Development in terms of the local economy will be **Permanent, Long-Term, Direct, of Local Scale and Moderate Beneficial in EIA terms** (Significant).

ii. Education Facilities

13.2.15 Using the methodology applied previously in this assessment, it is held that the maximum 1,495 new C3 dwellings would generate a need for following number of school places as shown at Table 13.4 below:

Table 13.4 – Pupil Generation of Development Projects

Stage of Education	School Year	No Pupils
Primary	Reception	59.8
	1	59.8
	2	59.8
	3	59.8
	4	59.8
	5	59.8
	6	59.8
	Total	419
Secondary	7	59.8
	8	59.8

Stage of Education	School Year	No Pupils
	9	59.8
	10	59.8
	11	59.8
	Total	299
Sixth Form/College	12	59.8
	13	59.8
	Total	119.6
All years - Total		837.2

13.2.16 Overall, it is considered that the additional population increase generated by the cumulative development proposals on educational facilities before mitigation would have a **Permanent, Long-term, Direct, Moderate Adverse effect of District Scale in EIA terms** (Significant).

13.2.17 However, there are provisions for such major developments to make a contribution to education infrastructure through Section 106 contributions (which is calculated based on site specific effects on infrastructure) as relevant.

13.2.18 Consequently, it is held that the cumulative effects of the Proposed Development with the other cumulative development sites on education facilities, following mitigation, would be **Negligible in EIA terms** (Not Significant).

v. Healthcare Facilities

13.2.19 The cumulative development proposals would together generate an additional indicative 3,372 'new' residents which will require healthcare. As a result, there would be an impact of the cumulative developments on existing healthcare facilities. Given that the residential development from these cumulative development sites would be spread out across the borough it is not possible to accurately identify the impact on any specific healthcare practices. Overall, the additional population increase generated by the cumulative development proposals on educational facilities before mitigation would have a **Permanent, Long Term, Direct, Moderate Adverse effect of District Scale in EIA terms** (Significant).

13.2.20 However, there are provisions for such major developments to make a contribution to healthcare infrastructure through Section 106 contributions (which is calculated based on site specific effects on infrastructure) as relevant.

13.2.21 Consequently, it is held that the cumulative effects of the Proposed Development with the other cumulative development sites on healthcare facilities, following mitigation, would be **Negligible in EIA terms** (Not Significant).

vi. Social/Community Facilities

13.2.22 The cumulative development proposals will generate a new population of 3,372 'new' residents which will use the existing social/community facilities within the area.

13.2.23 Overall, it is considered that the additional population increase from the cumulative development projects would have a **Negligible effect in EIA terms** on social/community facilities (Not Significant). Notwithstanding, there is also potential for the cumulative development proposals to provide financial contributions to ensure that the Proposed Development contributes to social/community infrastructure, as appropriate.

vii. Open Space, Sports and Recreational Facilities

13.2.24 The increase in the level of population as a consequence of the cumulative development projects will lead to an additional demand for both formal and informal open space which, without mitigation, would result in long term major adverse effects. However, each of the proposals include the provision of open spaces as appropriate, cognisant of Local Plan requirements (and the scale of development).

Overall, it is considered that the cumulative development projects in respect of existing and new open space, sports and recreational facilities would have a **Permanent, Long Term and Direct Moderate Beneficial effect of District Scale in EIA terms** (Significant).

Intra-Project Effects

13.2.25 Socio-economics represents a distinct environmental issue, where the receptors assessed are unique and not related to any of the other technical disciplines considered as part of the EIA.

13.3 Chapter 6 – Transport

Residual Effects

13.3.1 For all of the junctions and links considered, the residual effects would be **Negligible** as a result of the proposed development.

Cumulative Effects

Inter-project Effects

13.3.2 The individual committed development sites (with planning permission) have not been considered individually as they comprise a collection of sites that are relatively minor in nature, and are spread out across Wirral.

13.3.3 However, in order to recognise an overall increase in traffic as a result of these developments and any others that may come forward as part of future development in Wirral, a blanket TEMPro traffic growth factor across all links to 2026 (i.e. the year of opening) has been applied. This is a significantly more robust way of representing the additional trips associated with committed developments as it applies growth in the region of 5% to all links considered.

13.3.4 Additionally, as the Proposed Development Site is one of up to eight sites being brought forward across the Leverhulme Estate, it has been deemed appropriate to consider the cumulative impact of all proposed Leverhulme Estate development sites.

13.3.5 On that basis, the following Table 13.6 provides a percentage impact assessment of all links affected by the cumulative development traffic total of all eight proposed Leverhulme sites. The assessment compares the 2021 C-Factor base with the 2026 C-Factor + Cumulative Development scenarios.

Table 13.6 – Cumulative Development Impact

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
SRN	1	M53 Junction 3	M53 (NB on slip)	8,263	9,138	10.59%
			M53 (SB off slip)	8,417	9,250	9.90%
			A552 (east)	22,010	23,103	4.97%
			Prenton Way	11,345	11,906	4.95%
			M53 (SB on slip)	8,978	9,839	9.59%
			M53 (NB off slip)	9,527	10,372	8.87%
			A552 (west)	29,996	32,659	8.88%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
	2	M53 Junction 4	M53 (NB on slip)	8,397	8,970	6.82%
			M53 (SB off slip)	6,629	7,065	6.58%
			B5151 Mount Road	15,906	16,731	5.18%
			B5137 Brimstage Road (east)	17,943	19,058	6.21%
			M53 (SB on slip)	6,629	7,065	6.58%
			M53 (NB off slip)	7,433	7,897	6.24%
			Clatterbridge Road	7,805	8,300	6.34%
			B5137 Brimstage Road (west)	3,999	4,542	13.59%
Greasby	3A	Site H Access/Arrowe Rd - Eastern Access	Arrowe Road (east)	6,985	8,156	16.76%
			Eastern Site Access	-	375	-
			Arrowe Road (west)	6,985	7,820	11.96%
	3B	Site H Access/Arrowe Rd - Western Access	Arrowe Road (east)	6,985	7,837	12.20%
			Western Site Access	-	375	-
			Arrowe Road (west)	6,985	7,744	10.87%
	4	Greasby Rd/Arrowe Rd	Greasby Road (north)	5,570	6,251	12.23%
			Arrowe Road (east)	7,572	8,490	12.12%
			MacDonald Drive	1,770	1,858	4.99%
			Arrowe Road (west)	8,812	9,388	6.53%
	5	B5139/Greasby Rd	B5139 Frankby Road (north)	15,995	16,788	4.96%
			Greasby Road	5,480	5,787	5.61%
			B5139 Frankby Road (south)	11,721	12,337	5.26%
	6	Arrowe Rd/Arrowe Brook Lane	Arrowe Brook Road	11,935	13,452	12.71%
			Arrowe Brook Lane	5,486	5,776	5.28%
			Arrowe Road	7,183	8,482	18.08%
Upton	7	Upton By-Pass/B5139/Old Greasby Rd	Upton By-pass (north)	19,789	21,245	7.36%
			Old Greasby Road	8,697	9,188	5.65%
			Upton By-pass (south)	17,806	18,750	5.30%
			B5139 Greasby Road	18,823	20,225	7.45%
	8	Upton By-Pass/A551/A5027/Upton Retail Park Rbt	A551 Arrowe Park Road (north)	9,377	10,045	7.12%
			A5027 Upton Road	15,182	16,203	6.72%
			A551 Arrowe Park Road (south)	20,288	21,745	7.18%
			Upton Retail Park	11,366	12,058	6.09%
			Upton By-pass	17,682	18,598	5.18%
	9	Upton By-Pass/M53 Moreton Spur Rbt	Spur to Moreton Road (north)	1,671	1,772	6.05%
			M53	14,813	15,712	6.07%
			Spur from Moreton Road (south)	1,368	1,452	6.16%
			Upton By-pass	11,275	12,034	6.73%
	10	B5192 Saughall Massie Road/Upton By-pass	Upton By-pass (north)	23,398	24,928	6.54%
			B5192 Saughall Massie Road	18,745	19,701	5.10%
			Upton By-pass (south)	15,313	16,455	7.46%
Woodchurch (Arrowe Park)	11	Arrowe Park Rd/Arrowe Brook Rd	A551 Arrowe Park Road (north)	19,359	20,772	7.30%
			Arrowe Brook Road	13,791	15,590	13.05%
			A551 Arrowe Park Road (south)	21,341	23,581	10.50%
	12A	Arrowe Park Rd/Arrowe Park Hospital (Northern Junction)	A551 Arrowe Park Road (north)	21,977	24,351	10.80%
			Hospital (Northern Access)	5,455	5,817	6.63%
			A551 Arrowe Park Road (south)	19,053	21,191	11.22%
	12B		A551 Arrowe Park Road (north)	18,954	21,087	11.25%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
		Arrowe Park Rd/Arrowe Park Hospital (Southern Junction)	Hospital (Southern Access)	11,110	11,950	7.56%
			A551 Arrowe Park Road (south)	24,353	27,040	11.03%
	13	A552/Arrowe Park Rd/Church Lane	Church Lane	4,801	5,039	4.96%
			A552	30,028	33,817	12.62%
			A551 Arrowe Park Road (south)	22,794	26,445	16.02%
			A551 Arrowe Park Road (west)	22,906	25,371	10.76%
	14	A552/Ackers Rd	Ackers Road	11,412	11,979	4.97%
			A552 (east)	40,453	44,759	10.64%
			A552 (west)	29,346	33,101	12.80%
	15	A552/ASDA	ASDA	5,618	5,894	4.91%
			A552 (east)	40,700	45,018	10.61%
			A552 (west)	40,406	44,710	10.65%
Irby/ Thurstaston	16A	Site A Access/Thingwall Rd (Eastern Junction)	Eastern Site Access	-	889	-
			Thingwall Road (east)	7,139	9,125	27.81%
			Thingwall Road (west)	7,139	8,382	17.41%
	16B	Site A Access/Thingwall Rd (Western Junction)	Western Site Access	-	889	-
			Thingwall Road (east)	7,139	8,382	17.41%
			Thingwall Road (west)	7,139	7,628	6.85%
	17	Thingwall Rd/Whaley Ln	Thingwall Road (east)	6,978	8,866	27.06%
			Whalley Road	2,874	3,186	10.85%
			Thingwall Road (west)	7,684	9,697	26.19%
Thingwall	18	Arrowe Park Rd/Landican Cemetery	Arrowe Park Road (north)	22,877	26,532	15.97%
			Landican Cemetery	852	894	4.90%
			A551 Arrowe Park Road (south)	22,412	26,045	16.21%
	19	Arrowe Park Rd/Thingwall Rd Rbt	A551 Arrowe Park Road (north)	22,583	26,223	16.12%
			A551 Barnston Road	9,320	11,121	19.33%
			B5138 Thingwall Road East	17,435	20,011	14.77%
	20	B5138 Pensby Rd/Thingwall Rd	B5138 Thingwall Road East	16,496	18,887	14.49%
			B5138 Pensby Road	11,159	11,822	5.94%
			Thingwall Road	5,927	7,683	29.64%
	21	B5138 Pensby Rd/Whaley Lane	B5138 Pensby Road (north)	12,321	13,042	5.85%
			Whalley Road	12,421	13,316	7.20%
			B5138 Pensby Road (south)	2,491	2,783	11.73%
Pensby/Barnston	22A	Site B Access/Gills Lane	Site Access	-	558	-
			Gills Lane (east)	3,755	4,579	21.95%
			Gills Lane (west)	3,755	4,202	11.90%
	22B	Site C Access/Gills Lane	Site Access	-	84	-
			Gills Lane (east)	3,755	4,573	21.78%
			Gills Lane (west)	3,755	4,573	21.78%
	22C	Site D Northern Access/Barnston Road	Northern Site Access	-	374	-
			Barnston Road (north)	8,137	9,396	15.48%
			Barnston Road (south)	8,137	9,359	15.02%
	22D	Site D Southern Access/Barnston Road	Southern Site Access	-	198	-
			Barnston Road (north)	8,137	9,325	14.60%
			Barnston Road (south)	8,137	9,325	14.60%
	23	A551 Barnston Rd/Gills Lane	Barnston Road (north)	9,019	10,524	16.69%
			Gills Lane	3,669	4,401	19.95%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
			Barnston Road (south)	11,791	13,332	13.07%
	24	B5138 Pensby Rd/Fishers Lane/Gills Lane	B5138 Pensby Road (north)	11,371	12,187	7.18%
			Gills Lane	3,424	3,854	12.57%
			B5138 Pensby Road (south)	9,914	10,776	8.69%
			Fishers Lane	3,934	4,245	7.90%
	25	A551 Barnston Rd/Storeton Lane	A551 Barnston Road (north)	11,385	12,905	13.35%
			Storeton Lane	6,797	7,228	6.34%
			A551 Barnston Road (south)	12,414	13,904	12.00%
	26	B5138 Pensby Rd/Downham Rd	B5138 Pensby Road (north)	8,867	9,664	8.99%
			Downham Road	2,910	3,054	4.95%
			B5138 Pensby Road (south)	7,142	7,853	9.96%
Heswall	27A	Site E Northern Access/A551 Barnston	A551 Barnston Road (north)	11,685	12,265	4.97%
			Northern Site Access	-	0	-
			A551 Barnston Road (south)	11,685	12,265	4.97%
	27B	Site E Southern Access/A551 Barnston	A551 Barnston Road (north)	12,830	13,934	8.61%
			Southern Site Access	-	291	-
			A551 Barnston Road (south)	12,830	13,584	5.88%
	27C	Site E Access/Milner Road	Site Access	-	62	-
			Milner Road (east)	5,831	6,194	6.23%
			Milner Road (west)	5,831	6,217	6.61%
	28	A551 Barnston/Milner Rd	A551 Barnston Road (north)	13,399	14,375	7.28%
			Milner Road	6,285	6,619	5.32%
			A551 Barnston Road (south)	9,908	10,733	8.33%
	29	B5138 Pensby Rd/Irby Rd	B5138 Pensby Road (north)	7,056	7,763	10.02%
			B5138 Pensby Road (south)	9,408	10,277	9.23%
			Irby Road	5,285	5,592	5.80%
	30	B5138 Pensby Rd/Grange Rd/Whitfield Lane	B5138 Pensby Road (north)	9,408	10,282	9.29%
			Whitfield Lane	3,841	4,094	6.58%
			B5138 Pensby Road (south)	7,252	7,974	9.96%
			Grange Road	1,087	1,146	5.46%
	31	A551 Barnston Rd/Whitehouse Lane	A551 Barnston Road (north)	12,789	14,300	11.81%
			Whitehouse Lane	4,089	5,018	22.73%
			A551 Barnston Road (south)	12,830	14,153	10.31%
	32	A5137 Brimstage Rd/Whitehouse Lane	A5137 Brimstage Road (east)	9,427	10,553	11.94%
			A5137 Brimstage Road (south)	5,264	5,524	4.94%
			Whitehouse Lane	4,197	5,064	20.65%
	33	A540 Telegraph/B5138 Pensby Rd/The Mount	B5138 Pensby Road	5,372	6,008	11.84%
			Telegraph Road (east)	13,734	14,551	5.95%
			The Mount	3,427	3,724	8.67%
			Telegraph Road (west)	12,567	13,316	5.96%
	34	A5137 Brimstage Rd/A551 Barnston Rd	A551 Barnston Road (north)	10,426	11,278	8.17%
			A5137 Brimstage Road	6,786	7,123	4.97%
			A551 Barnston Road (south)	16,864	18,035	6.94%
	35	A540 Telegraph Rd/A540 Chester Rd	A551 Barnston Road	16,864	18,035	6.94%
			A540 Chester Road	19,793	21,126	6.73%
			Shell Garage	1,550	1,626	4.93%
			A540 Telegraph Road	19,793	20,790	5.04%

Junction			Link	Calculated C-Factor 24hr AADT 2021	C-Factor + Cumulative Dev 24hr AADT 2026	Percentage Increase
Birkenhead	36	A552 Borough Rd/Singleton Avenue	Borough Road (north)	14,251	15,363	7.80%
			Borough Road (south)	8,563	8,989	4.98%
			Singleton Avenue	8,407	9,229	9.78%
	37	A552/Storeton Rd/Singleton Avenue	Storeton Road (north)	12,945	13,685	5.72%
			Singleton Avenue	14,699	15,833	7.72%
			Storeton Road (south)	15,330	16,177	5.52%
			A552 Woodchurch Road	15,092	16,404	8.69%
	38	A552/Holmlands Drive/Prenton Hall Road	Holmlands Drive	3,345	3,527	5.43%
			A552 Woodchurch Road (east)	20,353	21,922	7.71%
			Prenton Hall Road	7,592	7,982	5.14%
			A552 Woodchurch Road (west)	26,823	28,742	7.15%
Bebington	39	A5137 Brimstage Rd/Spital Rd/Poulton Rd/B5136 Church Rd	B5136 Church Road	11,495	12,205	6.17%
			B5137 Spital Road	11,903	12,597	5.83%
			Poulton Road	11,640	12,357	6.16%
			B5137 Brimstage Road	20,475	21,696	5.96%
Bromborough	40	Allport Rd/Greenfield Ave/Plymyard Ave	Greenfield Avenue	1,895	1,989	4.97%
			Allport Road (east)	9,065	9,923	9.47%
			Plymyard Avenue	5,225	5,505	5.36%
			Alport Road (west)	9,476	10,376	9.50%
	41	Allport Rd/Allport Ln/Bridle Ln	Allport Lane	5,809	6,145	5.78%
			Allport Road (east)	6,566	7,050	7.36%
			Bridle Lane	6,017	6,517	8.31%
			Allport Road (west)	8,397	9,222	9.82%

13.3.6 Table 13.6 demonstrates that all links are within the 30% assessment threshold. In consideration of this and in accordance with the EIA Guidance, all links can be considered to be subject to a **Not Significant** environmental impact, unless they are considered particularly sensitive links. In these such cases, further assessment should be considered.

13.3.7 Table 13.6 above demonstrates the following links breach the 10% threshold impact threshold, and therefore should be considered for additional assessment if they are deemed particularly sensitive:

- M53 Junction 3 (northbound on-slip);
- B5137 Brimstage Road at its junctions with the M53 J4 and Whitehouse Lane;
- Arrowe Road adjacent to the potential Site H access points, to the east of its junction with Greasby Road and to the west of its junction with Arrowe Brook Lane;
- Greasby Road, north of its junction with Arrowe Road;
- Arrowe Brook Road east of its junction with Arrowe Brook Lane and west of its junction with Arrowe Park Road;

- A551 Arrowe Park Road at its junctions with Arrowe Brook Road, Arrowe Park Hospital access points, Church Lane, Landican Cemetery;
- A552 to the east of its junction with Church Lane, Ackers Road and ASDA;
- Thingwall Road adjacent to the proposed Site A access points and at its junctions with Whalley Road and B5138 Pensby Road;
- Whalley Road south of its junction with Thingwall Road;
- A551 Barnston Road south of its junction with A551 Arrowe Park Road;
- B5138 Thingwall Road East at its junctions with A551 Arrowe Park Road and B5138 Pensby Road;
- B5138 Pensby Road at its junctions with Whalley Road, Irby Road and Telegraph Road;
- Gills Lane adjacent to the proposed Site B, C and D access points and at its junctions with A551 Barnston Road and Fishers Lane;
- A551 Barnston Road adjacent to the proposed Site D access points and at its junctions with Gills Lane, Storeton Lane and Whitehouse Lane; and
- Whitehouse Lane at its junctions with A551 Barnston Road and A551 Barnston Road.

13.3.8 Following a thorough review of the above links, there is nothing to suggest any specific link should be considered sensitive in the context of the EIA guidance. On this basis, it considered all links would be subject to a **Negligible** effect, and do not require further assessment.

13.3.9 Furthermore, it has been demonstrated throughout the accompanying Transport Assessment, document reference 078244-CUR-00-XX-RP-TP-001-V05, that the Site is situated in an accessible location with suitable access to existing public transport provisions (WBC Local Plan Policy TR1). The Proposed Development includes a pedestrian/cycle link to Blakeley Road through Site G.

13.3.10 Leverhulme owns much of the land along the centre of the Wirral peninsula between its more urban areas in the east and west, and are keen to leave a positive legacy on the Wirral. Leverhulme is in an excellent position to assist the region with the development of transport infrastructure improvements (WBC Local Plan Policy TR2).

13.3.11 It has been demonstrated throughout the accompanying Cumulative Transport Assessment, document reference 077829-CUR-00-XX-RP-TP-002-V05, that the residual cumulative impacts of the Proposed Development and other proposed Leverhulme Estate

Cumulative Development Projects would not be 'severe' from a highways and transportation perspective (WBC Local Plan Policy TR3).

13.3.12 Inter-project Effects - Cumulative Mitigation

13.3.13 Notwithstanding the conclusion that all links considered within this chapter would be subject to a **Negligible** effect and do not require further assessment, the accompanying Cumulative Transport Assessment provides additional performance analysis of the affected highway network.

13.3.14 As a result of this analysis, mitigation is proposed as per the following schemes A – E. Full details are provided within the accompanying Cumulative Transport Assessment, document reference 077829-CUR-00-XX-RP-TP-001-V05. However, in summary, the improvements above ensures the cumulative impact of the eight proposed development sites have the following impacts on capacity and junction operation:

- A: Arrowe Road/Arrowe Brook Lane
- B: A551/A552 Corridor
- C: Arrowe Park Road/Thingwall Road Roundabout
- D: B5138 Pensby Road/Thingwall Road East
- E: A551 Barnston Road/Storeton Lane

13.3.15 These schemes are further discussed in Table 13.7. Initial triggers for the mitigation schemes have also been included for information, although these are subject to change. Drawings referred to within the improvement description are presented within the Cumulative Transport Assessment, and reproduced in Appendix 6.3.

Table 13.7 – Proposed Cumulative Development Mitigation/Improvements

Proposed Mitigation		Improvement Description	Trigger
A:	Arrowe Road/Arrowe Brook Lane	**Drawing 77829-CUR-00-XX-DR-TP-75006** Segregated left and right turn lanes along Arrowe Brook Lane using land under the ownership of Leverhulme. A central island to channel traffic. Retention of the existing lay-by through kerb amendments and hatching.	Site H is approved. Mitigation should be in place before 50% of dwellings are constructed and occupied.

Proposed Mitigation		Improvement Description	Trigger
B:	A551/A552 Corridor	SCOOT signal timings technology at the following junctions along the A551/A552 corridor: Arrowe Park Rd/Arrowe Park Hospital (northern junction) Arrowe Park Rd/Arrowe Park Hospital (southern junction) A552/Arrowe Park Rd/Church Lane Arrowe Park Rd/Landican Cemetery Arrowe Park Rd/Golf Club and Toby Carvery To include any detector loops and signalling technology as required.	Any two or more of the following are approved: • Site H • Site A • Site D Mitigation should be in place before 50% of the total dwellings across the first two sites are constructed and occupied. - - - Or - - - Any three or more of the following are approved: • Site H • Site A • Site B • Site D • Site E Mitigation should be in place before 50% of the total dwellings across the first three sites are constructed and occupied.
C:	Arrowe Park Road/Thingwall Road Roundabout	**Drawing 77829-CUR-00-XX-DR-TP-75004** Segregated straight-ahead lane from Arrowe Park Road to Barnston Road so that southbound movements can by-pass the roundabout; New or improved pedestrian crossing facilities. New or improved bus stop facilities. Retention of the existing access arrangement into Torrington Drive. Retention of the existing off-road cycleway along the eastern side of the junction.	Site A plus any two or more of the following are approved: • Site H • Site B • Site D • Site E Mitigation should be in place before 50% of the total dwellings across the first three sites (which will include Site A) are constructed and occupied.
D:	B5138 Pensby Road/Thingwall Road East	**Drawing 77829-CUR-00-XX-DR-TP-75005** New dedicated left and right turn lanes along Thingwall Road East. Realigned and improved pedestrian refuge island across Thingwall Road East. Ghost Island Right Turn pocket along the B5138.	Site A is approved. Mitigation should be in place before 50% of dwellings are constructed and occupied.
E:	A551 Barnston Road/Storeton Lane	**Drawing 77843-CUR-00-XX-DR-TP-75006** Widening of Storeton Lane using land under the ownership of Leverhulme to ensure two-way traffic movement is maintained along Storeton Lane.	Any one or more of the following are approved: • Site B • Site D • Site E Mitigation should be in place before 50% of the total dwellings across the one or more sites are constructed and occupied.

13.3.16 In summary, the improvements above ensures the cumulative impact of the eight proposed development sites have the following impacts on capacity and junction operation:

- A: Arrowe Road/Arrowe Brook Lane – **Minor Beneficial, Permanent, Direct (Not Significant)**
- B: A551/A552 Corridor – **Minor Beneficial, Permanent, Direct (Not Significant)**
- C: Arrowe Park Road/Thingwall Road Roundabout – **Major Beneficial, Permanent, Direct (Significant)**
- D: B5138 Pensby Road/Thingwall Road East – **Minor Adverse/Negligible, Permanent, Direct (Not Significant)**
- E: A551 Barnston Road/Storeton Lane – **Minor Beneficial, Permanent, Direct (Not Significant)**

13.3.17 The overall assessment of the proposed cumulative development mitigation schemes (assuming that all are delivered) is considered to be **Minor Beneficial, Permanent, Direct (Not Significant)**.

Intra-project Effects

13.3.18 The additional vehicular traffic and proposed mitigation/improvements associated with the construction and operation phases will have temporary and permanent impacts respectively on emissions; air quality (air pollution) and noise.

13.3.19 As demonstrated and discussed throughout this Technical Chapter, it is not considered that any of the effected links would experience an increase in traffic in excess of 30%. In consideration of this and in accordance with the EIA Guidance, all links can be considered to be subject to an insignificant environmental impact, unless they experience an increase in traffic in excess of 30% and are considered particularly sensitive links. For those links there is nothing to suggest any specific link should be considered sensitive in the context of the EIA guidance.

13.3.20 Therefore, no further transport assessment is required. On this basis, such impact is considered **Not Significant** from a transport technical perspective.

13.3.21 Impacts on emissions and air quality is considered further in the Air Quality Chapter, completed by SLR at Chapter 10. The overall assessment of the Proposed Development Site is considered by SLR to be **Negligible** and therefore considered to be **Not Significant** in terms of EIA.

13.3.22 Impacts on noise/acoustics is considered further in the Acoustics Chapter, also completed by SLR at Chapter 9. The overall assessment of the eight proposed Leverhulme sites (assuming that all are delivered) is considered to be **Negligible** and therefore considered to be **Not Significant** in terms of EIA.

13.4 Chapter 7 – Landscape and Visual Amenity

Residual Effects

13.4.1 Text to be inserted from technical chapter

13.4.2 The Illustrative Landscape Framework and Parameter Plan indicate landscape buffers and structural planting, and this embedded or primary mitigation has been taken account of when considering the operational effects upon completion. Additional planting and enhancement of the proposed open spaces, green corridors and landscape buffers would be a condition of any planning consent.

13.4.3 Secondary mitigation (further mitigation) measures are those designed to address any adverse effects remaining after primary measures and standard construction practices have been incorporated. No secondary mitigation is proposed, and the assessment therefore does not assess the effects of any further mitigation measures (secondary mitigation) above and beyond those in the design of the development.

13.4.4 The operational phase, residual effects assessment takes account of the planting and enhancement of the open spaces, green corridors, and buffers 15 years after planting when the vegetation has matured. This represents the residual landscape and visual effects.

Landscape Effects (Year 15)

13.4.5 Table 13.8 sets out the significance of effect on the landscape upon maturity of the proposals.

Table 13.8: Operational Phase - Residual Landscape Effects (Year 15)

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
NCA 58 Mersey Conurbation	Low - Medium	The proposed residential development would result in the loss of a single field but would be in keeping with the dense settlement areas of the NCA. There is	Negligible-Low adverse	**Minor adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		some association with the existing settlement edge to the east of the Site as it would be connected to it via a footpath within a corridor of green infrastructure. The development would be located to the east of the M53 within the wooded, urban fringe section of this large NCA. There would be some reduction in openness due to the loss of the field and the development would introduce elements which are broadly consistent with the area and locally appropriate. The proposals allow for the retention of the majority of the boundary trees and hedgerows, which would help assimilate the built form into its surroundings. The proposals would introduce the acoustic fence, which could be considered to be inconsistent and somewhat incongruous, however this would be screened by established trees and hedgerows. The enhancements to the existing features would include the introduction of natural elements such as trees, hedgerows and wildflower grassland which are broadly consistent with the area and these proposals would have become established and effective by Year 15, thus helping ameliorate Year 1 adverse effects. The effects would be localised within a small area, given the size of the NCA. Effects would be long term (over 15 years) and permanent.		

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
NCA 59 Wirral	Low-Medium	The introduction of the development would not directly affect the NCA as the Site is physically and visually separated from it by the M53 motorway, intervening tree cover and a distance of circa 70m+. As a result, the development would not be expected to discernibly exert itself upon this adjacent NCA. Effects would be long term (over 15 years) and permanent.	Negligible	**Negligible**
LCT 4 – Lowland Farmland and Estates, specifically LCA 4c Clatterbrook and Dibbin Valley Lowland	Medium	The development would result in the loss of a single field and through the introduction of new residential properties, would result in some loss of openness. Also, the location of the development would form an area of residential built form in relative isolation from the main settlement area to the east, however it would be located adjacent to the built form of the school and the proposals include a direct pedestrian link to the settlement edge on Blakeley Road. The development would directly affect a small proportion of this character area which is closely associated with the buildings at Raby Hall School and to a lesser extent, the nearby existing settlement edge of Raby Mere. The introduction of the proposed houses, highway network and associated green infrastructure would constitute a change in character upon the Site itself, however its location within the more enclosed, wooded parts	Medium adverse	**Moderate adverse**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		of the LCA to the east of the M53 corridor, the contained nature of the Site and the retention of most of the boundary landscape features is considered to help the development's assimilation into this part of the wider LCA 4c, moderating levels of adverse landscape effect. There would be a loss of farmland, some short sections of hedgerow and the semi-rural character of Raby Hall Road would be diminished but no other key characteristics or valued landscape attributes would be affected. There would be the introduction of an unnatural element in the form of the acoustic fence, however natural elements such as trees, hedgerows, and wildflower grassland which are broadly consistent with the area, would have become established. The proposals accord with the landscape guidelines set out for LCA 4c including the conservation of existing landscape features and increases in native planting. Given the nature of the Site, the scale of the works and the scale of the LCA, the landscape effects generated by the development would be contained and localised within a relatively small area. Effects would be long term (over 15 years) and permanent.		
LCT 4 – Lowland	Low-Medium	The introduction of the development would not directly affect the LCA as the	Negligible	**Negligible**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
Farmland and Estates, specifically LCA 4d Raby Lowland Farmland and Estates		Site is physically and visually separated from it by the M53 motorway, intervening tree cover and a distance of circa 70m+. As a result, the development would not be expected to discernibly exert itself upon this adjacent LCA. Effects would be long term (over 15 years) and permanent.		
The landscape character of the Site and its immediate setting	Low-Medium	Upon maturity of the proposals, the development would sit comfortably in its setting although the location of the development would form an area of residential built form in relative isolation from the main settlement area to the east. The housing would be located adjacent to the built form of the school and the proposals include a direct pedestrian link to the settlement edge on Blakeley Road. The enclosure provided by the mature surrounding trees and woodland along the M53 corridor and the retention of most of the boundary landscape features would restrict the visibility of the proposals. Retained and proposed trees and hedgerows would have matured to help assimilate the built form into its surroundings. Effects would be long term (over 15 years) and permanent.	Medium adverse	**Minor-Moderate adverse**
Landscape features within the Site	Low-Medium	The existing boundary hedgerows and trees would be substantially retained and enhancements would have become established. The new tree planting within the public open spaces	Low beneficial	**Minor beneficial**

Receptor	Sensitivity (Table 7.3)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		and street trees along the access roads would have become established as would the new pond with wetland areas and wildflower grassland. The landscape proposals would help to soften the appearance of the proposed built form and would improve its assimilation into the landscape alongside tangible enhancements to the biodiversity of the Site.		

Summary of Residual Landscape Effects (Year 15)

13.4.6 The Proposed Development would result in a **Minor Adverse** landscape effect at Year 15, upon NCA 58 Mersey Conurbation. There would be **Negligible** effects upon NCA 59 Wirral.

13.4.7 The residential development of the Site would directly affect a small proportion of the eastern part of LCA 4c Clatterbrook and Dibbin Valley Lowland, resulting in a **Moderate Adverse** landscape effect at Year 15.

13.4.8 The residential development of the Site would not directly affect LCA 4d Lowland Farmland and Estates, resulting in a **Negligible** landscape effect at Year 15.

13.4.9 The effects on the landscape character of the Site and its immediate setting upon maturity of the landscape would be **Minor-Moderate Adverse** given that the Proposed Development would be well enclosed by mature surrounding trees and woodland along the M53 corridor and existing built form associated with Raby Hall School.

13.4.10 The proposals include the introduction of new trees, hedgerows, a pond with wetland, wildflower and amenity grassland and these proposals would have become established. As a result, the Year 15 landscape effect upon the landscape features of the Site is expected to be **Minor Beneficial**.

<u>Visual Effects (Year 15)</u>

13.4.11 Table 13.9 below sets out the anticipated significance of visual effects upon maturity of the proposals.

Table 13.9: Operational Phase - Residual Visual Effects (Year 15)

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
RG1 – Motorists, cyclists and pedestrians using Raby Hall Road	Low - Medium	Motorists, cyclists and pedestrians using Raby Hall Road would experience a sequence of clear and partial views of the development, primarily being the new houses set back into the Site behind a landscape buffer and the new vehicular entrance on Raby Hall Road. Views of the Site generally extend over the low boundary hedge and in places, are filtered by the boundary trees that are located within or just behind the hedgerow. Views are oblique and intermittent. Views would be experienced only when approaching and passing the Site in both westerly and easterly directions along the route. Effects would be long term (over 15 years) and permanent.		
		VP1 – Road users approaching the Site from the east are likely to experience filtered views of the development due to gaps between the retained roadside boundary trees and proposed established trees within the landscape buffer adjacent to the road. The level of change would be increased by the close proximity of the works, the rural aspects of the existing view, a reduction in openness, a diminished sense of being beyond the settlement edge and a sense of disconnect with the main settlement area. The level of change would be	VP1 – Low adverse	**VP1 – Minor-Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		moderated by the partial nature of the view due to the development of existing intervening hedgerow/trees and the establishment of proposed trees, particularly those located within the landscape buffer behind the Site's boundary with Raby Hall Road, the urbanising presence of the road and the existing structures/agricultural built form within the Raby Hall School Site and at Raby Hall Farm to the west, and seasonal variations in the clarity of the views. VP2 – Partial views of the new houses and clear views of the junction/entrance would be experienced from the section of Raby Hall Road that is central to the Site. The level of change would be increased by the close proximity of the development to Raby Hall Road, the rural aspects of the existing view, a reduction in openness, a sense of disconnect with the main settlement area, a diminished sense of being beyond the settlement edge, the high proportion of the view affected and an appreciation of the fuller extent of the works. The level of change would be moderated by the existing wooded backdrop to the views, the residential nature of the development, the establishment of the proposed landscape works which include tree and hedgerow planting within a deep landscape buffer along the boundary with Raby Hall Road,	VP2 – Medium adverse	**VP2 – Minor-Moderate adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		the urbanising presence of the road and adjacent structures/built form within the grounds of Raby Hall School. VP3 – The development would for the most part, be screened from the view by the boundary vegetation located within the south-western corner of the Site. The view to the east along Raby Hall Road extends beyond this block of vegetation and would incorporate the established landscape buffer along Raby Hall Road with potential glimpses of the new houses located within the southern, central and eastern sections of the Site. The level of change would be increased by the absence of built form/rural aspect of the view, a diminished sense of being beyond the settlement edge and a sense of disconnect with the main settlement area. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the small proportion of the view that is affected, the residential nature of the development, the absence of an appreciation of the full extent of the development, the wooded backdrop, the urbanising presence of the road and seasonal variations in the clarity of the view.	VP3 – Negligible-Low adverse	**VP3 – Negligible-Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		VP4 – On approaching the Site from the west, when crossing the bridge over the M53, road users would experience glimpses of the new houses within a very small portion of the eastern part of the Site, set amongst established tree cover. The level of change would be increased by the absence of built form/rural aspects of the view, a diminished sense of being beyond the settlement edge, a sense of disconnect with the main settlement area and the rising ground within the eastern part of the Site. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the distance (circa 250m+), the urbanising presence of the motorway bridge and the road, the small proportion of the view affected, the residential nature of the development, the absence of an appreciation of the full extent of the development and seasonal variations in the clarity of the views.	VP4 – Negligible	**VP4 – Negligible**
		VP5 – Located further to the west along Raby Hall Road, this viewpoint looks in an easterly direction along Raby Hall Road towards the Site. Road users would experience distant glimpses of the new houses within a very small portion of the eastern part of the Site, set amongst	VP5 – Negligible	**VP5 – Negligible**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		established tree cover. These views would be fleeting and filtered through the vegetation. The level of change would be increased by the absence of built form in the view/the rural aspect of the view, a diminished sense of being beyond the settlement edge and a sense of disconnect with the main settlement area. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the small proportion of the view affected, the limited, partial nature of the view, the distance (circa 420m+), the residential nature of the development, the absence of an appreciation of the fuller scale and extent of the development and seasonal variations in the clarity of the views. VP6 – Located on Raby Hall Road to the west of the Site, this viewpoint looks in an easterly direction towards the Site from a distance of circa 480m+ (distance to the eastern boundary is circa 790m). Intervening mature trees and areas of woodland within the landscape along with established tree planting within the Site would screen views of the development.	VP6 – Negligible	**VP6 – Negligible**
RG2 – People walking	Medium	People walking in a northerly direction on PRoW FP36 experience a sequence of views which are affected to a variable		

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
PRoW FP36		extent by tree planting within the golf course. In some instances, walkers experience open and expansive views across the golf course including views towards the tree lined roadside of Raby Hall Road with filtered views of the Site beyond. Effects would be long term (over 15 years) and permanent. VP7 – Walkers would experience limited, partial views of the new houses positioned at the south-eastern corner of the Site due to the presence of containing vegetation within the golf course, intervening trees located along Raby Hall Road and the establishment of new trees located within the proposed landscape buffer along the Site's boundary with Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being located beyond the settlement edge, a sense of disconnect with the main settlement area and the relatively close proximity of the development. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the golf course context, the presence of residential built	VP7 – Negligible-Low adverse	**VP7 – Negligible-Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		form to the east on Blakeley Road, the relatively small proportion of the view affected, the residential nature of the development, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP8 – Walkers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the new houses beyond the intervening mature trees along Raby Hall Road and the establishment of new trees located within the proposed landscape buffer along the Site's boundary with Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being beyond the settlement edge, a sense of disconnect with the main settlement area and the absence of built form in the view. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the relatively small proportion of the view affected, the golf course context of the view, the absence of an appreciation of the fuller extent of	VP8 – Negligible Low adverse	**VP8 – Negligible Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		the development and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and vegetation, walkers are unlikely to experience a discernible change to their views.	VP9 – Negligible	**VP9 – Negligible**
RG3 – Golfers on Bromborough Golf Course	Low-Medium	Golfers playing holes 1, 2, 3, 4, 5, 16, and 17 may experience partial views of the new houses on the Site from distances of between circa 30m and 350m (these views would be of a similar nature to those experienced from Public Footpath FP36 Viewpoints 7, 8 and 9 however in some instances, golfers would experience views of the development from closer locations). Golfers playing the 1st, 3rd, 4th and 16th greens and the tees for the 2nd and 5th holes, would experience the clearest, partial views of the new houses due to the close proximity of these locations to Raby Hall Road and the Site beyond. In all instances, the clarity of the views experienced from the golf course is likely to be significantly reduced or completely screened when the intervening tree cover and vegetation is in leaf. Effects would be long term (over 15 years) and permanent. VP7 – Golfers would experience limited, partial views of the new houses due to		

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		the presence of the intervening trees located along Raby Hall Road and the establishment of new trees located within the proposed landscape buffer along the Site's boundary with Raby Hall Road. When the trees are in leaf, the clarity of the partial views of the new houses would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being located beyond the settlement edge, a sense of disconnect with the main settlement area and the relatively close proximity of the houses within the view. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the relatively small proportion of the view affected, the residential nature of the development, the presence of residential built form to the east on Blakeley Road, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP8 – Golfers would experience a clear view towards the Site along the alignment of the 3rd hole with limited, partial views of the new houses beyond the intervening mature trees along Raby Hall Road. When the trees are in leaf, the	VP7 – Negligible-Low adverse VP8 – Negligible Low adverse	**VP7 – Negligible Minor adverse-** **VP8 – Negligible Minor adverse**

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		clarity of the partial views of the development would be significantly reduced or possibly completely screened. The level of change would be increased by a reduced sense of being beyond the settlement edge, their relatively close proximity and the absence of built form in the view. The level of change would be moderated by the partial nature of the view due to the development of existing intervening vegetation and the establishment of the proposed landscape works which include hedgerows and trees, the residential nature of the development, the golf course context of the view, the absence of an appreciation of the fuller extent of the development and seasonal variations in the clarity of the views. VP9 – Due to the distance of the view (circa 360m to the Site) and the prevalence of intervening trees and vegetation and the establishment of the proposed landscape works which include hedgerows and trees, golfers are unlikely to experience a discernible change to their views from this location or other locations on the golf course to the south.	VP9 – Negligible	**VP9 – Negligible**
RG4 – Pupils and Staff at Raby Hall School	Low-Medium	People using the school site would experience clear views of the development from windows facing west, however the establishment of tree planting within the Site would have integrated the new built form into the		

Visual Receptor	Sensitivity (Table 7.5)	Size and scale of change/geographic extent and duration	Magnitude	Significance of Effect
		views. Views from the outdoor horticultural/agricultural activity areas to the west of the school buildings and to the immediate north of the Site would be limited by new boundary fencing located along the north boundary of the Site. Effects would be long term (over 15 years) and permanent. People would experience clear views of the development from west facing windows. Views from the main outdoor activity areas would include the boundary fencing/acoustic fencing, with the new houses projecting above. The level of change would be increased by the close proximity of the development, the clear nature of the views due to an absence of intervening vegetation, a reduction in openness, the relatively high proportion of the view affected and an appreciation of the extent of the development. The level of change would be moderated by the development of existing vegetation and the establishment of the proposed landscape works which include hedgerows and trees, by the urbanising presence of the school buildings, the residential nature of the development and the presence of Raby Hall Road.	Medium adverse	**Minor-Moderate adverse**

Summary of Residual Visual Effects (Year 15)

13.4.12 It is expected that views from locations within close proximity of the Site would be subject to higher levels of adverse effect.

13.4.13 At Year 15, there would be visual effects ranging between **Negligible** and **Minor-Moderate Adverse** upon the views experienced by those travelling past the Site on Raby Hall Road.

13.4.14 The development would be visible from locations on PRoW FP36 and there would be **Negligible** to **Negligible-Minor Adverse** to visual effects upon the views experienced by people using this public footpath.

13.4.15 Golfers on Bromborough Golf Course would experience **Negligible** to **Negligible-Minor Adverse** visual effects at Year 1.

13.4.16 The views experienced by people on the Raby Hall School (Autism Together) Site would be subject to **Minor-Moderate adverse** visual effects as a result of the development.

Cumulative Effects

Inter-project Effects

13.4.17 In accordance with the methodology the focus of the cumulative assessment relates to the effects of the development in question in conjunction with other developments of the same type. Housing developments proposed by Leverhulme which lie within reasonably close proximity of the Site and within overlapping ZTVs have been considered as well as of a number of other major development sites recently consented in the borough which could potentially cumulatively result in significant environmental effects.

13.4.18 The following Table 13.10 lists the cumulative development sites and provides justification as to whether they have been considered within this assessment.

Table 13.10: Cumulative Development Sites

Scheme	Description of Development/Status	Distance from Site	Scoped in/out Justification
Land East of Raby Hall, Raby Hall Road, Raby Mere	Up to 80 dwellings Draft planning application	c.70m	**Scoped in** Located close to the Site within the same Wirral LCA. Sequential views from Raby Hall Road and potential intervisibility between the Sites and viewpoints from FP36
Land West of Barnston Road, North of Gills Lane, Barnston	Up to 153 dwellings Draft planning application	c.6km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible.

Land East of Thorncroft Drive, North of Gills Lane, Pensby	Up to 15 dwellings Draft planning application	c. 6km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible
Land at Milner Road and Barnston Road, Heswall	Up to 120 dwellings Draft planning application	c. 5km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible
Fishers Lane, Pensby	35 dwellings Full planning permission granted March 2019 (LPA ref: APP/18/01266)	c. 7km	**Scoped out** Distant from the Site and surrounded by urban development of Pensby. No intervisibility between the Sites or viewpoints from which both Sites would be visible.
Land East of Glenwood Drive, Irby	Up to 290 dwellings Draft planning application	c. 7.6km	**Scoped out** Lies outside the study area and within a different Wirral LCA. Significant areas of intervening built form mean that there is no intervisibility between the Sites or viewpoints from which both Sites would be visible.
Land East of Rigby Drive, Greasby	Up to 250 dwellings Draft planning application	c. 9km	**Scoped out** Distant from the Site. Lies outside the study area and within a different Wirral LCA. No intervisibility between the Sites or viewpoints from which both Sites would be visible.
Wirral Business Park, Arrowe Brook Road, Upton	127 dwellings Full planning permission granted March 2020 (LPA ref: APP/19/00315)	c. 9km	**Scoped out** Distant from the Site. Lies outside the study area and within a different Wirral LCA. No intervisibility between the Sites or viewpoints from which both Sites would be visible.
Girtrell Court, Woodpecker Close, Upton	78 extra care (C3) dwellings Full planning permission granted October 2018 (LPA ref: APP/18/01002)	c. 10km	**Scoped out** Distant from the Site. Lies outside the study area and within a different Wirral LCA. No intervisibility between the Sites or viewpoints from which both Sites would be visible.

Land at Acre Lane and Meadowside Road, Bromborough	217 dwellings Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295)	c. 1km	**Scoped out** Sites physically and visually separated by intervening built development. No intervisibility between the Sites or viewpoints from which both Sites would be visible.

Assessment of Cumulative Landscape Effects

13.4.19 Should both Sites along Raby Hall Road be developed at the same time, there would be a slight increase in the effects on the landscape during the construction phase. These effects would be temporary and would affect a minor proportion of a wider national and local character area. The cumulative effects would not be significantly higher than those assessed for the Proposed Development and are not considered to elevate the levels of landscape effect above those ascertained for the individual sites. As a result, the cumulative landscape effects during the construction phase are considered to be **Moderate Adverse** (NCA58), **Negligible** (NCA59), **Moderate-Major Adverse** (LCA 4C Clatterbrook and Dibbin Valley Lowland), **Negligible** (LCA4d Raby Lowland Farmland and Estates), **Moderate Adverse** (Site and immediate setting) and **Minor Adverse** (landscape features).

13.4.20 The operational effects on the landscape as a result of the development of both of the Sites located on Raby Hall Road, would similarly affect a minor proportion of the wider national and local character areas. The proposed housing developments relate well to the existing settlement pattern in that they would be located to the east of the M53 corridor within the wooded, urban fringe landscape and would sit comfortably in their setting. The Raby West Site is considered to generate slightly higher levels of adverse landscape effect at Year 1 upon LCA4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse** for Raby West and **Minor-Moderate Adverse** for Raby East) in part due to its relative disconnect with the main settlement edge to the east. Cumulatively there would be a slight increase in adverse landscape effects at Year 1, over and above the levels of landscape effect ascertained for the individual sites, however the level of increased adverse effect would not elevate the ascertained levels of Year 1 landscape effect to the next level in the range. As a result, the cumulative landscape effects at Year 1 are considered to be **Minor Adverse** (NCA58), **Negligible** (NCA 59), **Moderate Adverse** (LCA 4C Clatterbrook and Dibbin Valley Lowland), **Negligible** (LCA4d Raby Lowland Farmland and Estates), **Moderate Adverse** (Site and immediate setting) and **Negligible-Minor Beneficial** (landscape features).

13.4.21 The Year 15 (residual) effects on the landscape resulting from the development of both of the Sites located on Raby Hall Road would similarly affect a minor proportion of the wider

national and local character areas. The proposed housing developments relate well to the existing settlement pattern in that they would be located to the east of the M53 corridor within the wooded, urban fringe landscape and would sit comfortably in their setting, particularly upon maturity of the landscape proposals. The Raby West Site is considered to generate slightly higher levels of adverse landscape effect at Year 15 upon NC58 (**Minor Adverse** for Raby West and **Negligible-Minor Adverse** for Raby East), LCA4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse** for Raby West and **Minor Adverse** for Raby East) and the Site and immediate setting (**Minor-Moderate Adverse** for Raby West and **Minor Adverse** for Raby East). This is in part due to the Raby West Site's relative disconnect with the main settlement edge to the east. Cumulatively there would be a slight increase in adverse landscape effects at Year 15, over and above the levels of landscape effect ascertained for the individual sites. That said, the cumulative residual landscape effects are not considered to be of a higher adverse level than those ascertained individually for the Raby West Site. As a result, the cumulative landscape effects at Year 15 are considered to be **Minor Adverse** (NCA58), **Negligible** (NCA 59), **Moderate Adverse** (LCA 4C Clatterbrook and Dibbin Valley Lowland), **Negligible** (LCA4d Raby Lowland Farmland and Estates), **Minor-Moderate Adverse** for the Site and immediate setting and **Minor Beneficial** (landscape features).

13.4.22 Perceptual changes to the overall landscape character would be limited minimal as there are a limited number of public locations from which both Proposed Developments would be visible at the same time (from Public Footpath FP36), or visible as a series of sequential views (from Raby Hall Road). Development of both of the Sites would mean that there would be a greater amount of development within the relevant national character area (NCA 58) and the local character area (LCA 4c Clatterbrook and Dibbin Valley Lowland), however the increase in residential development relative to the size of these character areas and their existing settlement area/edge of settlement context, would be insignificant.

13.4.23 In addition, the green infrastructure associated with these new housing developments would have beneficial effects in terms of biodiversity, visual amenity and recreational value.

13.4.24 As a result, with the exception of LCA 4c Clatterbrook and Dibbin Valley Lowland, it is not anticipated that the cumulative residual landscape effects of the Proposed Development of the Site and land to the west of Raby Hall, would be significant.

Assessment of Cumulative Visual Effects

13.4.25 The Sites located to the east and west of Raby Hall School are both well contained both visually and physically, by woodland to the north, the motorway corridor to the west and trees and hedgerows located along their boundaries and along adjacent road corridors.

13.4.26 Cumulative visual effects would only be experienced from Public Footpath FP36, which crosses the golf course to the south side of Raby Hall Road, from Bromborough Golf Course itself and from Raby Hall Road.

13.4.27 Views from the most northerly section of Public Footpath FP36 (Receptor Group 2 or RG2 - Viewpoint 7) and northern sections of the golf course (RG3 - Viewpoint 7), may include partial views of the construction activity and subsequently, the new houses on both of the Sites located to the east and west of Raby Hall School. The additional construction activity and new houses associated with the Site located to the east of Raby Hall School are expected to add to that which would be visible within the Site to the west of the school, as the views of the Site to the west are somewhat limited from this footpath and the adjacent sections of the golf course, whereas views of the Site to the east of the school are slightly clearer and more extensive. Cumulatively there would be a slight increase in adverse visual effects at the Construction Phase, Year 1 and Year 15, which would result in cumulative visual effects akin to those ascertained for the Land East of Raby Hall Site.

13.4.28 As a result, the anticipated cumulative visual effects for people walking FP36 (RG2 and golfers (RG3) are of a slightly higher level of adverse (being the next level in the range and not significant), than those ascertained within this assessment for Land West of Raby Hall.

13.4.29 People travelling along Raby Hall Road (RG1) are unlikely to see the construction activity/new houses on both Sites at the same time, within the same view. They would however, experience changes to a sequence of views as they move eastwards towards Bromborough, or westwards, away from the settlement area. Currently people travelling east on Raby Hall Road experience a gradual sense of arrival over a distance of circa 680m, beginning with the bridge over the motorway. Circa 330m beyond the motorway, traffic calming road markings and speed reduction signage (reducing the speed limit from 60mph to 30mph) are located adjacent to eastern corner of the Site located to the west of Raby Hall School. Thereafter, road users pass Raby Hall School, then the other Site to its east before arriving at the settlement edge at the junction between Raby Hall Road and Blakeley Road.

13.4.30 The development of both Sites would generate changes to a longer sequence of views experienced by road users on Raby Hall Lane, that cumulatively, would increase anticipated levels of visual effect ascertained for the individual developments. The changes to the sequence of views is considered to affect the perceived arrival at the settlement edge and the perceived departure experience, whilst diminishing the rural aspect of the current views. That said, the developments would be located to the east side of the motorway, within spaces that are well contained by woodland and boundary hedgerows and trees.

13.4.31 Given the nature of the visual effects ascertained within the individual assessments for Land to the East of Raby Hall and Land to the West of Raby Hall, the overall cumulative visual effect of both schemes for people using Raby Hall Road, is considered to be **Moderate-Major Adverse** during the construction phase, **Moderate Adverse** at Year 1 and **Minor-Moderate Adverse** at Year 15.

13.4.32 People working at and attending Raby Hall School are expected to experience changes to the views they experience from the individual sites located to the east and west of the school. Although the school is located between the two Sites, the position and nature of the Site's buildings and its screening tree cover and vegetation, is likely to ensure that in general, the construction activities and the subsequent development upon both Sites would not be seen within the same view from the grounds of the school. Cumulatively there would be a slight increase in adverse visual effects at the Construction Phase, Year 1 and Year 15, over and above the levels of visual effect ascertained for the individual sites, however the level of additional adverse effect generated by the Site to the east of Raby Hall is not considered to elevate the ascertained levels of the Construction Phase, Year 1 and Year 15 visual effects to the next level in the range.

Intra-project Effects

13.4.33 This LVIA provides an understanding of the landscape character and visual environment associated with the Site and the wider study area. With reference to the layout, materiality and the landscape strategy for the site, this understanding has played an important role in the design of the Proposed Development. Working in conjunction with the Project Ecologist, the assessment has informed the preparation of an Illustrative Landscape Framework Plan in order to provide a coordinated landscape and ecological approach to achieving appropriate levels of assimilation into the landscape, whilst enhancing biodiversity and opportunities to provide new habitats. In addition, the transport assessment considers the impact upon pedestrian movement, whilst the LVIA considers the effect upon publicly accessible views, which include both PRoW and the road network.

Conclusion

13.4.34 Tables 7.13 and 7.14 included within Appendix 7.4 provide a summary of the landscape and visual effects within the different timeframes.

Construction Landscape and Visual Effects

13.4.35 During the construction phase there would be **Moderate Adverse** effects on the landscape character of the Site and its immediate area and the landscape within the study area which

lies within NCA 58 Mersey Conurbation. There would be **Negligible** effects upon NCA59 Wirral. There would be **Moderate-Major Adverse** effects upon LCA 4c Clatterbrook and Dibbin Valley Lowland, which are in part due to the uncharacteristic nature of the construction activity/works and the Site's relative disconnect with the main settlement area. Construction activity would result in the loss of the agricultural land within the Site, a section of existing hedgerow with all other existing features retained. As a result, the landscape features of the Site are considered to be affected to a **Minor Adverse** level.

13.4.36 The Site is visually well contained, however generally partially filtered views of the construction activity would be experienced from Raby Hall Road, the Public Footpath on the golf course (FP36), the golf course itself and from Raby Hall School, resulting in visual effects ranging between **Negligible** and **Moderate-Major Adverse**.

13.4.37 The construction phase is expected to generate some significant adverse landscape and visual effects however, the effects would be confined to the immediate local area and would be temporary and short term.

Year 1 Operational Landscape and Visual Effects

13.4.38 Upon completion (at Year 1) there would be **Minor Adverse** effects on the landscape within the study area which lies within NCA 58 Mersey Conurbation and **Negligible** effects upon NC 59 Wirral. There would be **Moderate Adverse** effects upon LCA 4c Clatterbrook and Dibbin Valley Lowland and on the landscape character of the Site and its immediate setting. Given the proposed retention and management of the majority of the existing trees and hedgerows, and the pond, as well as the proposed planting, the development of the Site would have **Negligible-Minor Beneficial** effect upon the Site's landscape features.

13.4.39 The only clear views of the proposals would be experienced from locations close/ adjacent to the Site from Raby Hall Road. Other views would be experienced from the Public Footpath on the golf course (FP36), the golf course itself and from Raby Hall School. The retention of the bulk of the existing boundary hedgerows and trees and new tree planting within the landscape buffers along the boundary with the road would filter views of the development resulting in Year 1, Operational visual effects of between **Negligible** and **Moderate Adverse**.

13.4.40 The Year 1 Operational landscape and visual effects include some significant adverse levels of effect however all effects would be localised and would be temporary until the landscape matures.

Year 15 Operational (Residual) Landscape and Visual Effects

13.4.41 Residual landscape effects upon NCA 58 Mersey Conurbation would be **Minor Adverse** and there would be **Negligible** effects upon NCA 59 Wirral. The residual landscape effect upon LCA 4c Clatterbrook and Dibbin Valley Lowland would be **Moderate Adverse**. There would be **Minor-Moderate Adverse** effects on the landscape character of the Site and its immediate setting. The incorporation of areas of open space, green corridors, new footpaths, sustainable drainage solutions, established tree and hedgerow planting, new grasslands and wetland would enhance the landscape features within the Site whilst improving its biodiversity and recreational value, thus resulting in a residual landscape effect of **Minor Beneficial** upon the landscape features of the Site.

13.4.42 The residual landscape effect of **Moderate Adverse** (significant) upon LCA4c Clatterbrook and Dibbin Valley Lowland is in part due to the Site's relative disconnect with the nearby urban edge, however the Site is located to the east of the M53 corridor within the wooded fringes that occur between the motorway and the built-up area and effects would be localised.

13.4.43 In visual terms, at Year 15 users of the local highway network would experience levels of residual visual effect of between **Negligible** and **Minor-Moderate Adverse**, people walking public footpath FP36 would experience residual visual effects of between **Negligible** and **Negligible-Minor Adverse,** golfers on Bromborough Golf Course would experience residual visual effects of between **Negligible** and **Negligible-Minor Adverse**, whereas people using the Raby Hall School Site would experience a residual visual effect **Minor-Moderate Adverse**.

Cumulative Landscape and Visual Effects

13.4.44 With the exception of the assessed Year 15 landscape effect upon LCA 4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse**), it is not anticipated that the residual landscape and visual effects of the Proposed Development of the Site to the west of Raby Hall, would be significant.

13.4.45 When considered cumulatively with the Site to the east of Raby Hall, a cumulative landscape effect of **Moderate Adverse** upon LCA4a Clatterbrook and Dibbin Valley Lowland is considered to prevail, however the concurrent development of the two Sites would to some extent ameliorate levels of isolation associated with the Site to the west of Raby Hall, by creating improved levels of connectivity with the settlement edge to the east.

13.4.46 With the exception of LCA 4c Clatterbrook and Dibbin Valley Lowland (**Moderate Adverse**), it is not anticipated that the cumulative residual landscape and visual effects of

the Proposed Development of the Site and land to the west of Raby Hall, would be significant.

13.5 Chapter 8 – Ecology

Residual Effects

13.5.1 The habitats present on-Site are widespread, in both a local and national context. Those habitats with the greatest ecological value (i.e. pond, hedgerows and broad leaved woodland) are to be retained within the development, where possible. Whilst there is likely to be a temporal delay in achieving the biodiversity objectives for the Site (i.e. whilst new habitats become established), it is anticipated that in the long term there will be no significant residual effects on habitats or protected species resulting from the Proposed Development.

Cumulative Effects

Inter-project Effects

13.5.2 The Proposed Development makes up one of a series of Phase 1 development proposals being advanced by the Client as part of the 'Leverhulme Vision' and whilst each have been considered for their potential to cause ecological effects, an assessment of their potential to have a cumulative ecological impact must also be considered. In addition, the Environmental Impact Assessment (EIA) Combined Screening and Scoping Report for the Site agreed with WBC identified a further study area which included the wards of Clatterbridge, Heswall, Pensby and Thingwall, Greasby, Frankby and Irby and a 2.5 km buffer area around each of the Sites which is considered both robust and proportionate. With regards to ecology a 7 km zone of influence around the development is considered sufficient to assess any cumulative effects on local species and habitats. Table 13.11 provides an assessment of the potential for cumulative effects of these developments in combination with the Proposed Development.

13.5.3 There is potential for inter-project effects as a result of increased recreational pressure on the internationally designated sites. However, given the location of the protected sites, the limited access and the further suitable recreational areas within proximity to the Site, the provision of POS within the Site with further recreational enhancements, such as enhanced footpath networks and a cycle superhighway in the local area planned as part of the Leverhulme Vison, no cumulative impacts are expected.

Table 13.11 – Inter-Project Cumulative Effects Assessment

Scheme	Description of Development	Distance from Site (km)	Status	Predicted Impacts	Inter-Project Effects
G Land East of Raby Hall, Raby Hall Road, Raby Mere	Residential development for up to 80 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new open green space and play area, wildlife habitats and green corridors; and off-site environmental, biodiversity and accessibility enhancements.	0.1	Potential planning application	No significant impacts were identified as a result of the proposed development, however, a minor adverse non-significant effect on light averse species was identified post development.	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.
Land at Acre Lane and Meadowside Road, Bromborough	Detailed application for the erection of 217 dwellings, with associated access (off Acre Lane and Meadowside Road) and landscaping and other ancillary works.	1.5	Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295)	No significant impacts were identified as a result of the proposed development	No significant impacts were identified in combination with the Proposed Development. Given the distance of the site from the Proposed Development and the mitigation measures proposed any residual impacts from the Proposed Development in-combination are considered negligible and neutral.
E Land at Milner Road and Barnston Road, Heswall	Residential development for up to 120 dwellings (Use Class C3), including 30% affordable housing and 10% self-build/custom build properties; delivery of part of the Borough's cycle supergreenway; green infrastructure	5.1	Potential planning application	No significant impacts were identified as a result of the proposed development, however, a minor adverse non-significant effect on light averse species was identified	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this

	including a new public park and play area, community orchard, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.				development are considered to be minor adverse which is considered non-significant.
D Land West of Barnston Road, North of Gills Lane, Barnston	Residential development for up to 153 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a new public park and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.	5.9	Potential planning application	No significant impacts were identified as a result of the Proposed development, however, a minor adverse non-significant effect on light averse species was identified	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.
C Land East of Thorncroft Drive, North of Gills Lane, Pensby	Residential development for up to 15 dwellings (Use Class C3), including 30% affordable housing; delivery of green infrastructure including a green space, wildlife habitats and wetland; and off-site environmental, biodiversity and accessibility enhancements.	6.2	Potential planning application	No significant impacts were identified as a result of the Proposed development, however, a minor adverse non-significant effect on light averse species was identified	Given the low numbers of light averse bats recorded at both Sites, and application of the proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.
B Land East of Dale View Close, North of Gills Lane, Pensby	Residential development for up to 92 dwellings (Use Class C3), including 30%	6.3	Potential planning application	No significant impacts were identified as a result of the Proposed	Given the low numbers of light averse bats recorded at both Sites, and application of the

	affordable housing; delivery of green infrastructure including a new public open space and play area, wildlife habitats and green corridors; and off-site highway, environmental, biodiversity and accessibility enhancements.			development, however, a minor adverse non-significant effect on light averse species was identified	proposed mitigation measures, the potential residual impacts of the Proposed Development on light averse bat species in combination with this development are considered to be minor adverse which is considered non-significant.

Intra-project Effects

13.5.4 Potential intra-project effects such as impacts from increased noise and vibration have been included within each of the ecological receptor sections. In addition, ecological input has been provided within other discipline Chapters such as Landscape and Visual Assessment, where required. No further intra project effects are expected as a result of the development.

13.6 Chapter 9 – Acoustics

Residual Effects

Construction Phase Impacts (Assessment One)

13.6.1 Whilst the mitigated limits are expected to be met, it is suggested that the applicant would undertake attended short term monitoring at nearby noise sensitive receptors to validate the predicted construction noise levels in this Chapter.

13.6.2 It is anticipated that short term noise monitoring may be completed on a minimum of four occasions to coincide with the beginning of each phase of construction. If the limit is exceeded, SLR would recommend that further provision is made for additional monitoring.

Operational Phase Impacts Environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed residential accommodation (Assessment Two)

External

13.6.3 The **Impact** remains at **Negligible** to **Low** without the need for mitigation measures. The **Significance of the Effect** is **Negligible** to **Minor.**

13.6.4 At the Reserved Matters Stage, should the layout be changed, and amenity areas be placed in areas of medium or high impact, it is expected that noise mitigation in the form of additional acoustic fences would provide sufficient mitigation.

Internal

13.6.5 From an analysis of the data, it has been determined that the highest glazing specification is determined by the daytime internal level of 35dB(A). The glazing required to meet the BS8233:2014 limits is presented for each plot in Appendix 9.3.

13.6.6 With the glazing recommended installed, SLR anticipate that the **Impact** would be at worst Negligible. The long-term level of **Effect** would be **Negligible.** This is **Not Significant**

Cumulative Effects

Inter-project Effects

13.6.7 With regards to cumulative effects this assessment has included all traffic flows from the following Sites in the with "With Scheme" assessments.

i. Land East of Glenwood Drive
ii. Land East of Dale View Close, North of Gills Lane Pensby
iii. Land East of Thorncroft Drive, North of Gills Lane, Pensby
iv. Land West of Barnston Road, North of Gills Lane, Pensby
v. Land at Milner Road and Barnston Road, Heswell
vi. Land West of Raby Hall Road, Raby Mere
vii. Land east of Raby Hall, Raby Mere
viii. And all other committed development for which traffic data was available

Intra-project Effects

13.6.8 Intra Project Effects have been accounted for in the assessment of the impact of increased traffic on the surrounding road network, as the traffic data provided included all committed developments and the traffic anticipated from the eight development sites being proposed by Leverhulme.

13.7 Chapter 10 - Air Quality

Residual Effects

Construction Phase

13.7.1 With the effective application of the dust mitigation measures, as detailed in Appendix 10.3, it is considered that the overall effect at all receptors will be 'Not Significant'.

Operational Phase

13.7.2 Given the outcomes of the assessment, long-term scheme-specific mitigation measures in relation to operational effects arising from road traffic emissions are not considered to be necessary. No mitigation is therefore proposed, and residual effects are not applicable in this instance, but can otherwise be assumed to be 'Not Significant' in the absence of mitigation.

Cumulative Effects

Inter-project Effects

Construction Phase

13.7.3 Cumulative dust effects arising from construction activities could be experienced where construction activities from more than one scheme overlaps at an affected receptor, dependent on the impact (e.g. dust soiling, human health and ecological). However, all schemes which are considered to pose a risk of cumulative effects will have had to undertake a construction dust assessment separately relating to their own site activities and associated risks, with the recommendation of best practice mitigation to remedy residual effects 'Not Significant'. These measures would be integrated into a Construction Environmental Management Plan (CEMP) or similar, to be adhered to during construction, as part of their own environmental responsibilities and commitment.

13.7.4 In accordance with IAQM guidance (IAQM, 2016), following the implementation of the recommended mitigation, effects will be 'Not Significant'. As such, it is not anticipated that there would be significant cumulative effects associated with construction phase dust emissions.

Operational Phase

13.7.5 Consistent with applied guidance prescribed by the EPUK & IAQM (EPUK & IAQM, 2017), screening of projected road traffic vehicle movements associated with the Proposed Development has been undertaken in isolation and are considered insignificant.

13.7.6 In relation to the detailed Site suitability assessment, consideration has been given to the potential maximum traffic flows that are likely to occur in the future assessment year (i.e. 2023 DS) should the Proposed Development become fully operational.

13.7.7 The traffic flows used for the detailed Site suitability assessment includes vehicle movements associated with:

a) relevant committed developments in the assessment area; and
b) the remaining seven residential development applications associated with the Leverhulme Phase 1 Development sites across the Wirral (which are yet to receive planning consent), where relevant to the model domain of focus e.g. roads effected by the proposed development. This assumes that all the Leverhulme Development sites will be approved and fully operational in 2023, in terms of the traffic flows considered which is conservative.

13.7.8 The cumulative operational effect of the Proposed Development is therefore considered to be 'Not Significant'.

13.8 Chapter 11 – Agricultural Land Quality

Residual Effects

13.8.1 As no mitigation is available for the direct loss of agricultural land, the Proposed Development would have a **Direct, Permanent, Long-term, Negligible Adverse Local Scale** effect on agricultural land, which is not significant.

13.8.2 Following best practice guidance on soil handling and storage and reusing the soils in an appropriate manner will enable the displaced soil to fulfil its primary functions and services on-site and reduce the magnitude of change to low. Following implementation of mitigation measures, the Proposed Development would have a **Direct, Permanent, Long-term, Minor Adverse Local Scale** effect on soil resources, which is not significant.

Cumulative Effects

Inter-project Effects

13.8.3 Eleven schemes in the locality have been identified as potentially giving rise to cumulative effects on agricultural land quality. Effects on soil resources do not occur cumulatively. The schemes are summarised in Table 13.12.

Table 13.12 – List of Cumulative Schemes

Scheme	Area of Agricultural Land	ALC
Land East of Raby Hall, Raby Hall Road, Raby Mere	3.7ha	Grade 1 – 1.9ha* Grade 2 – 1.0ha Subgrade 3a – 0.8ha
Land at Milner Road and Barnston Road, Heswall	7.8ha	Grade 2 – 3.0ha Subgrade 3a – 4.8ha
Land West of Barnston Road, North of Gills Lane, Barnston	7.0ha	Subgrade 3a – 2.8ha Subgrade 3b – 4.2ha
Land East of Thorncroft Drive, North of Gills Lane, Pensby	0.82ha	Subgrade 3a
Land East of Dale View Close, North of Gills Lane, Pensby	3.7ha	Subgrade 3a – 2.8ha Subgrade 3b – 0.9ha
Fishers Lane, Pensby	None–Construction complete	N/A
Land East of Glenwood Drive, Irby	16.2ha	Subgrade 3a – 9.4ha Subgrade 3b – 6.8ha
Land East of Rigby Drive, Greasby	10.0ha	Grade 2 – 3.2ha Subgrade 3a - 6.8ha
Wirral Business Park, Arrowe Brook Road, Upton	None–non-agricultural	N/A
Girtrell Court, Woodpecker Close, Upton	None- Construction complete	N/A
Land at Acre Lane and Meadowside Road, Bromborough	None–non-agricultural	N/A

*There is some overlap in the scheme boundaries at Raby Hall: the Grade 1 at Land West of Raby Hall is within the same unit identified at Land East of Raby Hall.

13.8.4 Of the seven schemes that would require agricultural land, all but one (Land East of Thorncroft Drive, North of Gills Lane, Pensby) would individually result in a larger magnitude of change to agricultural land as the cumulative loss of agricultural land would be between 5ha and 20ha, and a majority would be of BMV quality. If all seven schemes affecting agricultural land were to proceed alongside the Proposed Development, the cumulative loss of agricultural land would marginally exceed 50ha, which would be a high magnitude of change to agricultural land. The Proposed Development in combination with

the cumulative development projects would have a **Direct, Permanent, Long-term, Major-Moderate Adverse District Scale** effect on agricultural land.

Intra-project Effects

13.8.5 No intra-project/in-combination effects with other environmental disciplines on individual receptors have been identified.

13.9 Summary

13.9.1 This EIA has assessed the effects of the Proposed Development on a number of different receptors within the vicinity of the Site. The scope of the EIA includes the following environmental disciplines and assessments:

- Socio-Economics
- Transport
- Landscape and Visual Amenity
- Ecology
- Acoustics
- Air Quality
- Agricultural Land Quality

13.9.2 The site selection process, and masterplanning and design process has sought to minimise any adverse environmental effects and enhance any beneficial effects where possible. In particular, the landscape-led approach to masterplanning has sought to incorporate Leverhulme's ten commitments to high quality placemaking, which derive from the characteristics of well-designed places identified in the National Design Guide[1] and National Model Design Code[2].

Construction Phase

13.9.3 Effects at the construction stage on agricultural land resource are assessed as Negligible Adverse (loss of Best and Most Versatile Agricultural Land) and Minor Adverse (loss or damage to soil resources).

[1] The ten characteristics of well designed places, National Design Guide, Ministry of Housing, Communities and Local Government, 2021
[2] National Model Design Code, Ministry of Housing, Communities and Local Government, 2021

13.9.4 Effects on landscape and visual amenity are judged to range from Negligible to Major - Moderate Adverse.

13.9.5 Effects on air quality (assessed following the implementation of mitigation) are assessed to be Negligible.

13.9.6 Acoustic effects are assessed as Negligible.

13.9.7 Transport impacts are assessed as Negligible in EIA terms.

13.9.8 Ecological effects are assessed as Neutral or Minor Beneficial.

13.9.9 In respect of socio-economics, the effect on the local economy is considered to be Minor Beneficial, with other effects considered to be Negligible.

Operational Phase

13.9.10 No additional effects are associated with the operational phase of development in respect of agricultural land.

13.9.11 A range of residual (Year 15) landscape and visual amenity effects are identified ranging from Moderate Adverse to Minor Beneficial.

13.9.12 Effects on air quality are assessed as Negligible, and effects on acoustics are assessed as Negligible to Minor (Not Significant).

13.9.13 Ecological effects are assessed as mainly Negligible or Minor Beneficial, though a Minor Adverse effect is identified for the disturbance of light averse bats through increased lighting.

13.9.14 Transport impacts are assessed as Negligible in EIA terms.

13.9.15 Socio-economic effects are assessed as Minor Beneficial in respect of housing needs, the local economy, and open space, sports and recreational facilities. Otherwise, the effects on socio-economic infrastructure are assessed as Negligible.

Cumulative Effects

Inter-project Effects

13.9.16 In respect of agricultural land, the Proposed Development would have a Major-Moderate Adverse effect.

13.9.17 The main assessment of acoustic and air quality effects included all traffic flows from the identified cumulative development sites. It is not anticipated that there would be significant cumulative effects in respect of air quality associated with construction phase dust emissions.

13.9.18 The landscape and visual amenity assessment highlights that when considered cumulatively with the Site to the east of Raby Hall (Site G), a cumulative landscape effect of **Moderate Adverse** upon certain receptors is considered to prevail at Year 15, however the concurrent development of the two Sites would to some extent ameliorate levels of isolation associated with the Site to the west of Raby Hall, by creating improved levels of connectivity with the settlement edge to the east. Otherwise, it is not anticipated that the cumulative residual landscape and visual effects of the Proposed Development of the Site and land to the west of Raby Hall, would be significant. All other cumulative development sites were scoped out of the assessment.

13.9.19 The transport assessment identifies that the overall assessment of the proposed cumulative development mitigation schemes (assuming that all are delivered) is considered to be Minor Beneficial, Permanent, Direct (Not Significant).

13.9.20 The ecology assessment identifies the potential for inter-project effects as a result of increased recreational pressure on the internationally designated sites, but also identifies a suitable package of mitigation measures will be implemented both on-site and as part of the Leverhulme Vison. This will include the provision of greenspace (SANG), new footpaths and a new cycle superhighway.

13.9.21 The cumulative socio-economic effects are judged to be Major – Moderate Beneficial in respect of housing needs, and Moderate Beneficial in respect of the local economy and open space, sports and recreational facilities. Otherwise, the cumulative effects on socio-economic infrastructure following any necessary mitigation is assessed as Negligible.

Intra-project Effects

13.9.22 Consideration of intra-project effects is set out within Chapters 5 to 11 of this ES as relevant.

Environmental Statement
VOLUME 2 – TECHNICAL APPENDICES

F. Land West of Raby Hall, Raby Hall Road, Raby Mere

May 2022

Site Name:	**F. Land West of Raby Hall, Raby Hall Road, Raby Mere**
Client Name:	**Leverhulme Estates Ltd**
Type of Report:	**Environmental Statement**
Prepared by:	**John Cutler**
Checked by:	**Jeff Field**
Date:	**May 2022**

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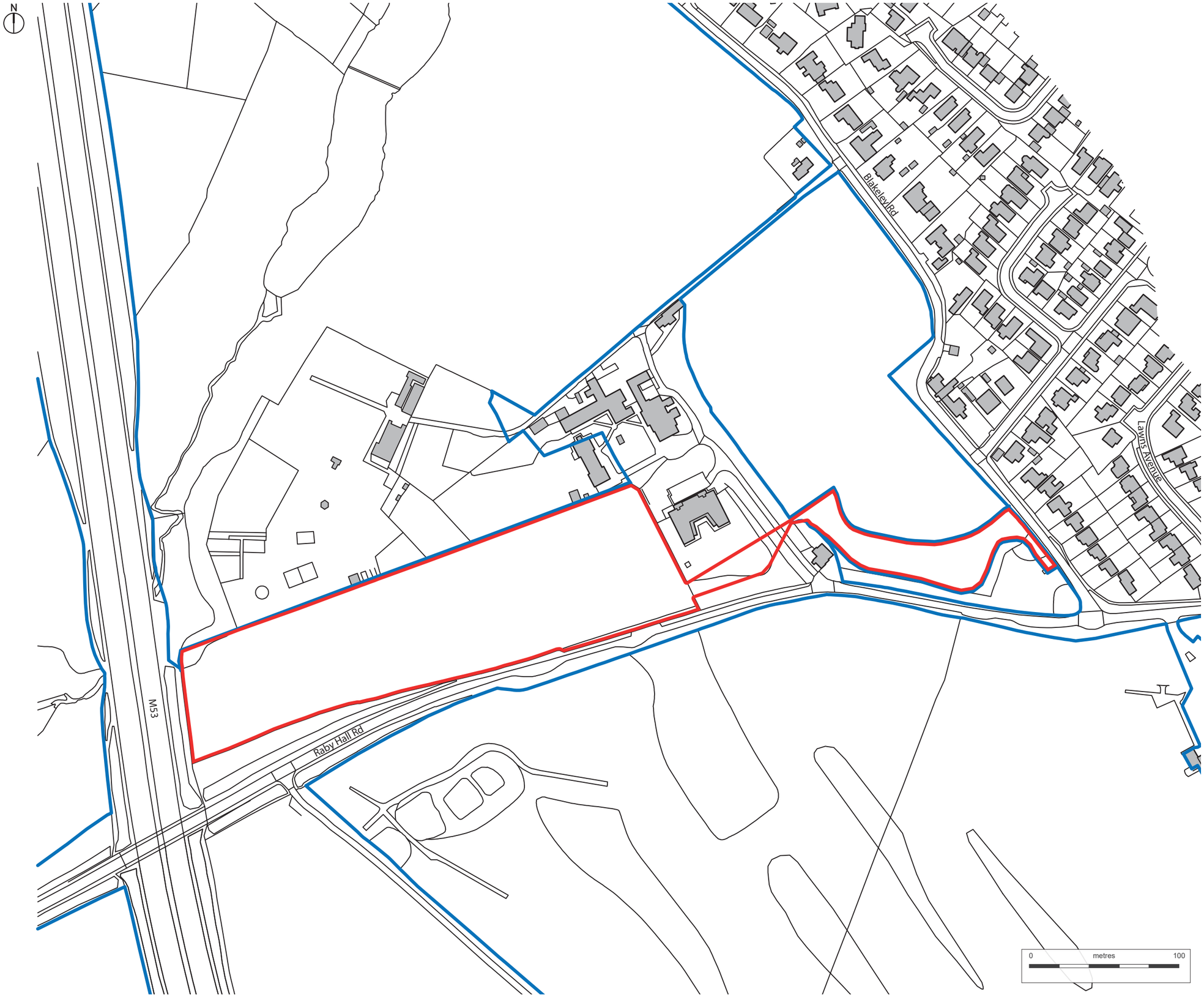
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Appendix 1.1 – Site Location Plan



Site boundary (3.30 ha)

Other land owned by Leverhulme Estates Limited

Based on Ordnance Survey 1:2,500 mapping with the permission of the Controller of HMSO ©Crown Copywrite Licence No. VA 100033416

LEVERHULME ESTATES LIMITED
LAND WEST OF RABY HALL, RABY HALL ROAD, RABY MERE

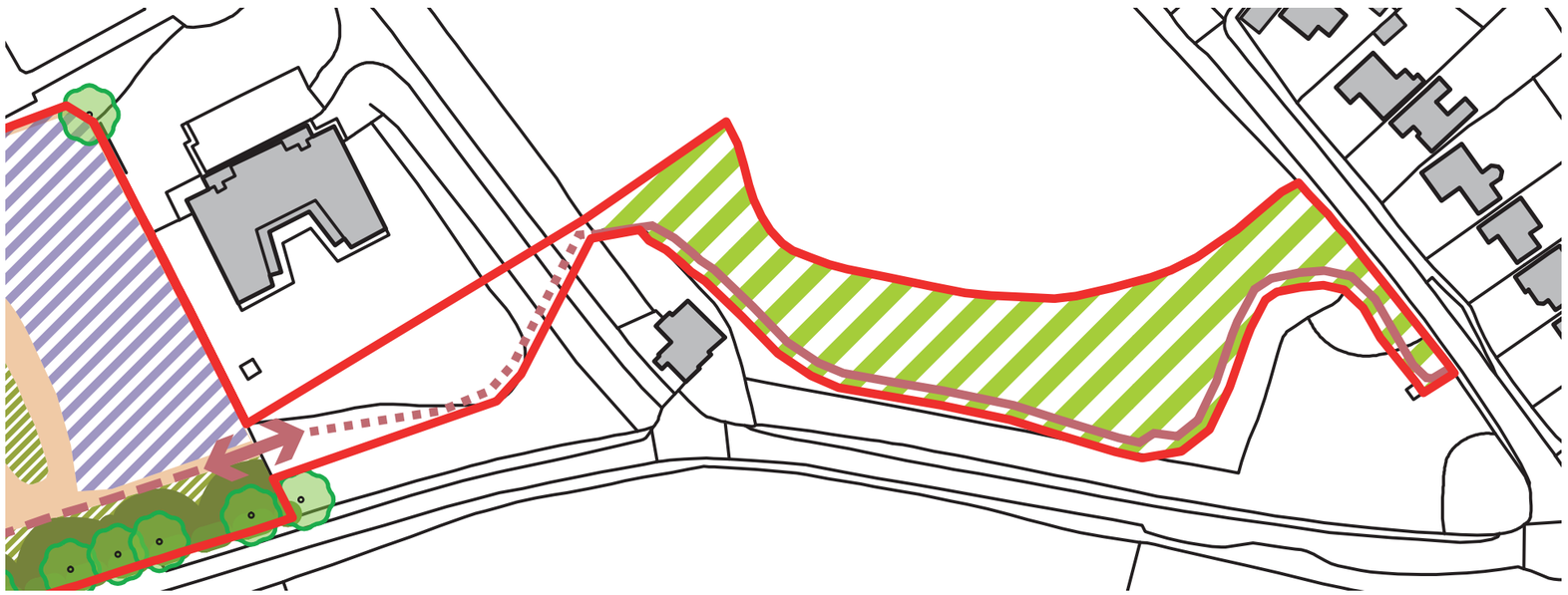
LOCATION PLAN

1815/01/802 Rev C	1:2500 @ A3
MAY 2022	Alan Baxter

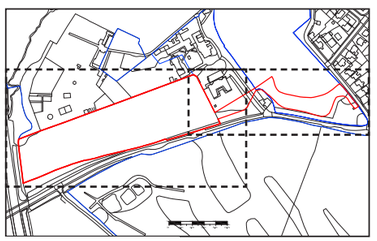
Appendix 1.2 – Parameter Plan



Western section: development site



Eastern section: footpath to Blakeley Road



Key plan

Based on Ordnance Survey 1:2,500 mapping with the permission of the Controller of HMSO ©Crown Copywrite Licence No. VA 100033416

- Site boundary
- Residential development
- Protected green and blue infrastructure - habitat buffer zones and root protection areas
- Proposed green and blue infrastructure (indicative location) - woodland, grassland and wetland habitat, LAP play area, amenity green space and drainage attenuation features
- Area safeguarded for future use by Autism Together
- Retained high quality trees
- Retained moderate quality trees
- Retained existing hedgerows
- Vehicular access point
- Pedestrian/cycle access points (indicative location)
- Drainage attenuation basin (indicative location)
- Play area - LAP (100sqm) (indicative location)
- Acoustic barrier and planted screening
- Off road footpath connecting to Blakeley Road within development site (indicative alignment)
- Off road footpath connecting to Blakely Road crossing Autism Together site (indicative alignment)
- Improved permissive footpath providing off road footpath connecting to Blakeley Road (indicative alignment)
- Retained green infrastructure adjacent to off road footpath

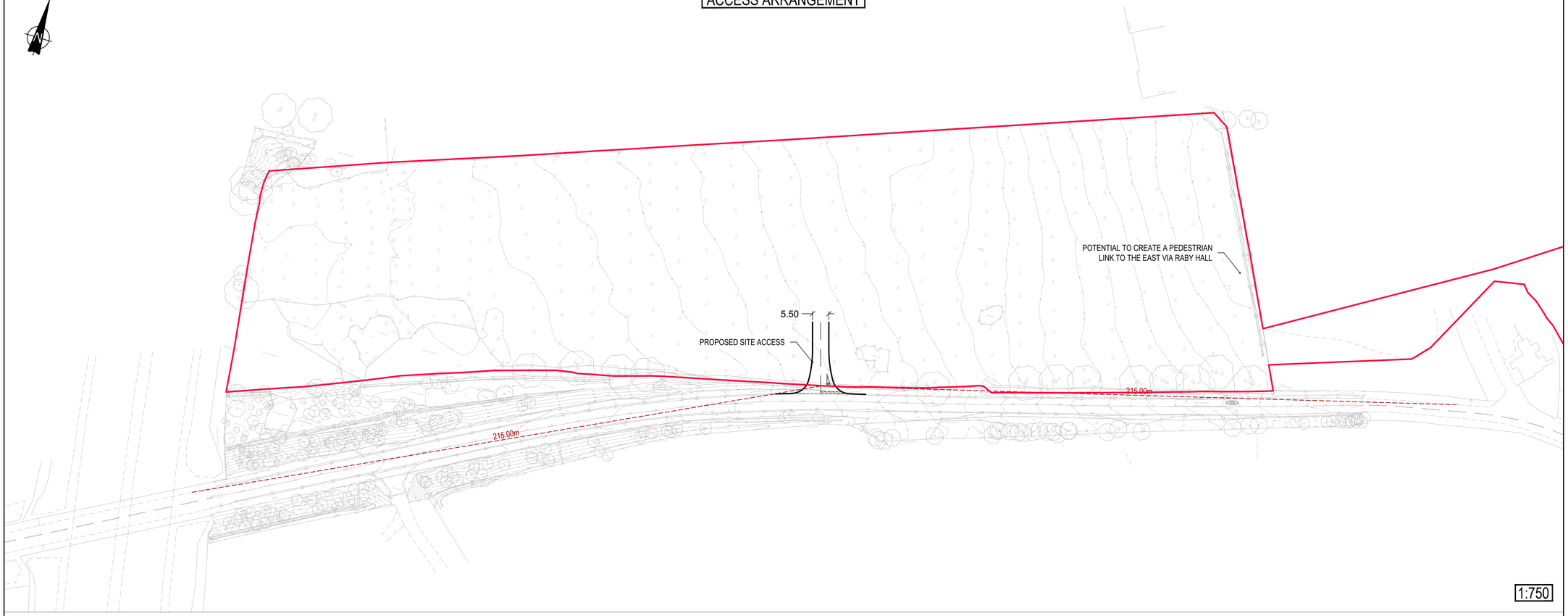
LEVERHULME ESTATES LIMITED
LAND WEST OF RABY HALL, RABY HALL ROAD, RABY MERE

PARAMETER PLAN

1815/01/809 REV C	1:1250 @ A3
NOV 2021	Alan Baxter

Appendix 1.3 – Proposed Access Arrangement Drawing

ACCESS ARRANGEMENT



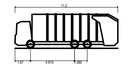
1:750

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.
5. THE CONTENT OF THIS DRAWING IS FOR INDICATIVE INFORMATION ONLY AND NOT SUITABLE FOR CONSTRUCTION PURPOSES

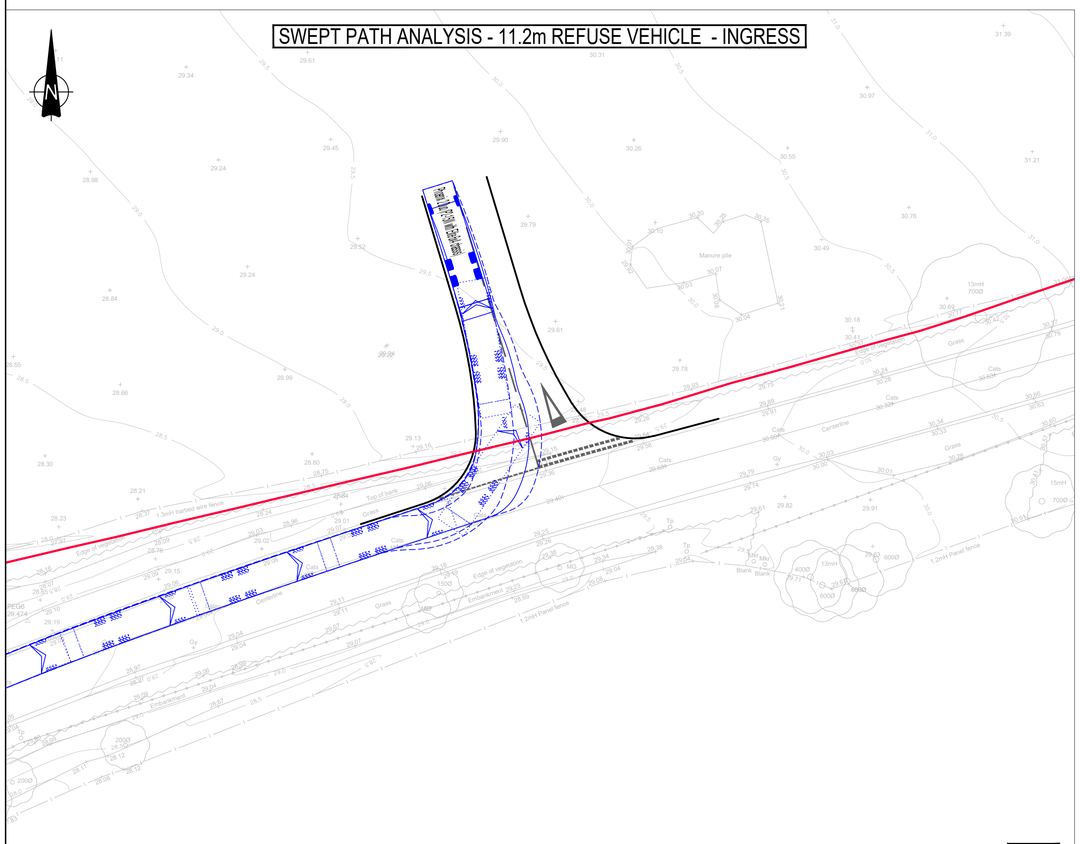
KEY:
- RED LINE
- PROPOSED KERB LINE
- PROPOSED ROAD MARKINGS
- 2.40 x 210.00m PROPOSED VISIBILITY SPLAYS (60mph)

VEHICLE PROFILE:



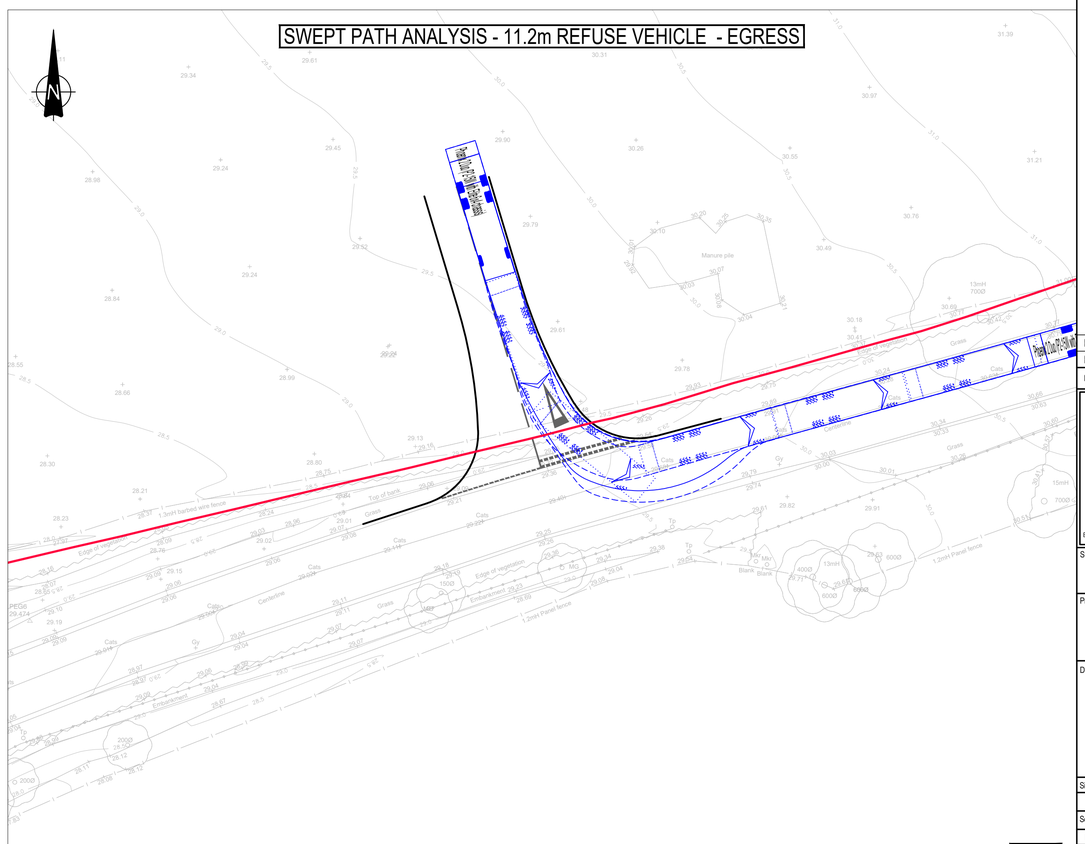
Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)	
Overall Length	11.200m
Overall Width	2.500m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

SWEPT PATH ANALYSIS - 11.2m REFUSE VEHICLE - INGRESS



1:250

SWEPT PATH ANALYSIS - 11.2m REFUSE VEHICLE - EGRESS



1:250

Rev:	Description:	Date:	By:	Chkd:
P03	Updated red line boundary	10/05/22	HD	DJ
P02	Access arrangement updated	13/07/21	DD	DJ

curtins

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Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status:
PRELIMINARY

Project:
LEVERHULME SITE 7

Drg Title:
PROPOSED ACCESS ARRANGEMENT

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	29/03/21	DD	DD	DJ
Scale: AS INDICATED				

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
78244	- CUR -	00	- XX -	DR	- TP -	75001	- P03

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Appendix 2.1 – Combined Screening/Scoping Request Report

Land West of Raby Hall, North of Raby Hall Road, Raby Mere

Request for EIA Screening and Scoping Opinion (Combined Report)

December 2021

Contents		Page
1	Introduction	2
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5	Scope of EIA Assessment	22
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Appendices	
1	Site Location Plan
2	Indicative Parameter Plan
3	Plan Showing Locations of Cumulative Development Projects
4	Landscape and Visual Impact Assessment Scoping Report

1. Introduction

1.1. This Environmental Impact Assessment ('EIA') Combined Screening and Scoping Report has been prepared on behalf of the majority landowner the Leverhulme Estate (hereafter referred to as the 'Applicant'). It sets out the proposed scope of the EIA and associated Environmental Statement ('ES') to support an application for planning permission for a proposed development of the subject Site ('the Site') at land north of Raby Hall Road (west of Raby Hall), Raby Mere. Part of the Site is also owned by Autism Together, which supports the planning application. The proposal is to provide a residential development of up to 40 C3 dwellings (the 'Proposed Development'). The Applicant intends to submit an outline planning application to Wirral Metropolitan Borough Council ('WMBC') in early 2022.

1.2. The EIA will be undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the 'EIA Regulations').

1.3. The Site (see Site Location Plan at **Appendix 1**) is located within the WMBC administrative boundary, to the west of the settlement of Raby Mere. A description of the Site and the characteristics of the Proposed Development are provided in Chapter 3 of this report.

1.4. The proposal does not comprise a Schedule 2 Urban Development Project, nor is it within one of the sensitive areas whereby an EIA screening opinion would normally be provided, as defined under the EIA Regulations. However, it is the professional view of the technical project team that this project together with potential other developments (explored in detail later in this report) would likely result in significant environmental effects. Accordingly, this report has been prepared on the basis that an EIA will be required for the Proposed Development, and therefore it comprises a combined Screening and Scoping request.

1.5. As required by Regulation 10(1) of the EIA Regulations, this report provides a plan sufficient to identify the land (**Appendix 1**), a description of the Site and the Proposed Development, an explanation of the likely significant effects of the development on the environment, and other information which is considered informative to the EIA scoping process.

1.6. The objectives of this report are to:

- Set out the proposed scope of the EIA (i.e. identifying which environmental topics are to be 'scoped in' or 'out'), taking into account what is currently known about the Site and the Proposed Development;

- Set out what additional information needs to be collected (i.e. through desk-based studies or field survey work) to characterise the baseline environment of the Site and surrounding area;
- Define the assessment methods to be used to determine the likely significant environmental effects of the Proposed Development;
- Identify potential effects and opportunities for mitigation;
- Facilitate consultation with the LPA and other relevant statutory bodies on the environmental issues to be addressed as part of the EIA and design development process;
- Support a request for a Scoping Opinion from WMBC under Regulation 15 of the EIA Regulations; and
- Set out the proposed structure of the subsequent ES.

1.7. WMBC will be required to adopt a Scoping Opinion following receipt of this combined Screening and Scoping report request in accordance with Regulation 15(4) of the EIA Regulations.

Statement of Competency

1.8. This report has been prepared by John Cutler of Strutt & Parker. John has practical experience of preparing such statements, and is an accredited Practitioner Member of the Institute of Environmental Management and Assessment (PIEMA). Expert input has also been provided by accredited technical consultants as set out at Table 1 below:

Table 1 - Technical Project Team

Discipline	Consultant
Masterplanning	Alan Baxter Ltd
Planning	Strutt & Parker
Socio-economics	Strutt & Parker
Highways and Transportation	Curtins
Ecology	Environment Bank
Landscape and Visual Impact	Barnes Walker
Arboriculture	Tyler Grange
Heritage	SLR
Noise	SLR
Air Quality	SLR
Flood Risk and Drainage	SLR

Ground Conditions	SLR
Agricultural Land Quality	Reading Agricultural Consultants

2. Site Description and Development Proposal

Site Context

2.1. The subject Site comprises greenfield land positioned to the west of the settlement of Raby Mere, and beyond that Bromborough.

2.2. The Site has reasonable access to a range of local services within walking distance, including shops and local services, schools, and medical facilities. There is a cluster of shops and services at Allport Road, around 1.3km to the east within Bromborough.

2.3. The Site has access to public transport, with the nearest bus service accessed as a hail & ride at Blakeley Road around 0.4km to the east, which provides bus services to Clatterbridge Hospital, Prenton and Moreton. There are also services provided from Bromborough Station around 1.3km to the east. Bromborough Station itself provides railway services to Birkenhead, Liverpool, Chester and Ellesmere Port.

Site Characteristics

2.4. The subject Site is approximately 3.30 hectares in size. It comprises undeveloped agricultural land which is currently used for arable farming, and land associated with Raby Hall (Autism Together).

2.5. The main part of the Site comprises a broadly rectangular agricultural field. There are a number of trees within the southern and western parts of the Site, but it otherwise comprises a featureless arable field. The Site slopes gently from east to west.

2.6. To the east, the red line extends linearly to include grounds to the front of Raby Hall, which is grassed and with trees to the south, and then to a further agricultural field (also known as 'Raby Hall East'), extending to Blakeley Road to the east.

2.7. In respect of the areas surrounding the western part of the Site:

- The boundary to the south comprises trees and hedgerows onto Raby Hall Road, beyond which is a golf course;
- The boundary to the west comprises a belt of hedgerows and trees, beyond which is the M53 (set at a lower level behind a bank);

- To the east and north east are series of buildings which comprise the Autism Together premises. The eastern boundary comprises a belt of trees, though along the northern boundary some buildings are visible, together with open space associated with Autism Together.

2.8. In respect of the areas surrounding the eastern part of the Site:

- The boundary to the south comprises trees and hedgerows onto Raby Hall Road, beyond which is a golf course;
- To the north is Raby Hall, and undeveloped agricultural land; and
- To the east is Blakeley Road, beyond which is residential development.

Planning History

2.9. The Site comprises greenfield agricultural land. There is no planning history relating to the Site which would be of relevance to this EIA screening and scoping process.

Legal Framework and Guidance for the Environmental Impact Assessment

2.10. The EIA Regulations define the circumstances, and establishes the procedures, for carrying out EIA for projects that require planning permission. There are also further resources which provide guidance for the preparation of EIAs, including:

- The National Planning Practice Guidance ('NPPG') online resource
- The National Planning Policy Framework (2021)
- Institute of Environmental Management and Assessment's ('IEMA') Guidelines for Environmental Impact Assessment, 2004 (as amended 2006)
- IEMA Environmental Impact Assessment Guide to: Delivering Quality Development', July 2016

2.11. There are other technical discipline-specific guidance, which is highlighted within this report and will be highlighted in the ES as relevant.

Local Planning Policy and Statutory Designations

2.12. The current adopted local development plan for this area comprises the Wirral Unitary Development Plan (UDP) adopted in 2000 (as saved 2007).

2.13. WMBC is in the process of preparing a new Local Plan. A revised Local Development Scheme published by the Council 3 October 2020 envisages Publication draft Local Plan (Regulation 19) consultation commencing February 2021, shortly followed by submission in June 2021, with adoption expected in Mid-2022. No Regulation 19 consultation has been published to date.

2.14. There are a number of approved Neighbourhood Plan Areas within the district, none of which affect the Subject Site.

2.15. The UDP Proposals Map shows that the Site comprises Green Belt land.

2.16. To the north west of the Site is a Site of Local Biological Importance, which is also covered by Tree Preservation Order (ref: BB0009W021). Part of the southern boundary along Raby Hall Road is also covered by Tree Preservation Order (ref: BB0008G049).

2.17. The online EA Flood Map for Planning indicates that the Site is located outside the 0.1% annual probability (1 in 1,000 year) floodplain and therefore defined as Flood Zone 1.

Proposed Development

2.18. The planning application will be submitted in outline. The intention is to submit the application in early 2022. The baseline year for the assessment is 2021, being the year during which the majority of the various EIA technical assessment survey work was undertaken. It is expected that development would commence in 2023, and that the development would be fully operational by 2025/26. Whilst the proposals are being finalised presently, this EIA screening and scoping opinion request is submitted on the basis that the proposals will be for a maximum 40 new C3 dwellings.

2.19. An indicative parameter plan in relation to land use, landscaping and green infrastructure, and access and movement are provided at **Appendix 2**. This is subject to alteration but provides an indication of the scale and broad layout and design features of the scheme. The indicative proposals show the provision of public open space positioned around the south, north, and western boundaries. In particular, a generous area of open space is provided to the west of the Site incorporating a drainage attenuation feature. Noise constraints associated with the M53 to the west would be mitigated through the provision of acoustic barrier and planting screening (which will be fixed in location on the Parameter Plan). The residential built form is focussed within the central and eastern parts of the main (western) part of the Site, with an inclusive local play area provided toward the eastern part of the Site

(indicative location). The indicative Parameter Plan also shows the easternmost part of the site safeguarded for future use by Autism Together.

2.20. The linear eastern part of the Site provides an off road footpath, connecting the Site with the Blakeley Road to the east, enhancing connectivity to future residents of the development as well as Autism Together.

2.21. With the exception of proposed drainage features, no significant alterations to the existing ground levels are proposed. The heights of the new buildings will comprise typically two storey and two storey with dormers, with occasional three storey buildings, with a maximum height of 12 metres in height above ground level.

2.22. A housing mix has not yet been formulated at this stage (noting that the application is in outline form).

3. Assessment of Likely Environmental Effects

Requirement for Environmental Impact Assessment

3.1. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 define the circumstances, and establishes the procedures, for carrying out EIA for projects that require planning permission, and the National Planning Practice Guidance (NPPG) also provides further guidance.

3.2. EIA procedures apply to applications for so called 'EIA development', which is defined by Regulation 2 as meaning development which is:

I. Schedule 1 Development; or

II. Schedule 2 Development likely to have significant effects on the environment by virtue of factors such as its nature, size, or location.

3.3. Development listed with Schedule 1 of the Regulations automatically requires an EIA. The Proposed Development does not fall within Schedule 1.

3.4. Under the Regulations, the project comprises an Urban Development Project, which includes residential and other development of an urban nature. As set out in the Regulations, Urban Development Projects which meet any of the following criteria are identified as Schedule 2 Development:

I. The development includes more than 1 hectare of urban development which is not dwellinghouse development; or

II. The development includes more than 150 dwellings; or

III. The overall area of the development exceeds 5 hectares.

3.5. Whilst it is noted that the Site does not meet the thresholds to comprise a Schedule 2 development, it is held that even if a project does not exceed the threshold set out for its category in Schedule 2, and is not in a 'sensitive area', an EIA could potentially still be required if the nature and location of the project mean it is still likely to have a significant effect on the environment (potentially including cumulative effects when considered together with other development projects).

3.6. Accordingly, consideration must be given to whether the development would be likely to result in significant environmental effects. The NPPG sets out the approach to screening Schedule 2 developments and also specifically provides indicative screening threshold

advice to help determine whether Schedule 2 development will require EIA (Paragraph 058/ reference 4-058-20150326). For Urban Development Projects the guidance states:

'Environmental Impact Assessment is unlikely to be required for the redevelopment of land unless the new development is on a significantly greater scale than the previous use, or the types of impact are of a markedly different nature or there is a high level of contamination.'

'Sites which have ***not previously been intensively developed****:*
(i) area of the scheme is ***more than 5 hectares****; or*
(ii) it would provide a total of more than 10,000 m2 of new commercial floorspace; or
(iii) the development would have ***significant urbanising effects*** *in a* ***previously non-urbanised area*** *(e.g. a new development of* ***more than 1,000 dwellings****).'* (our emphasis).

3.7. The guidance goes on to highlight the key issues to consider, which are the *'Physical scale of such developments, potential increase in traffic, emissions and noise.'*

EIA Screening

3.8. EIA Screening is the process through which it is established whether or not an EIA is required. Typically, Schedule 2 projects would undergo this process before progressing to scoping only if it is determined that EIA is required. However, the professional view of the technical project team is that this project together with potential other developments (explored in detail later in this report) would likely result in significant environmental effects.

3.9. Accordingly, the applicant has committed to undertaking an EIA and submitting an ES with the planning application voluntarily. This report therefore comprises a request for a combined Screening and Scoping Opinion under Regulations 5, 6 and 15 of the EIA Regulations. National guidance within the National Planning Practice Guidance (NPPG) at Paragraph 036 (Reference ID: 4-036-20170728) confirms that both requests may be made at the same time.

EIA Scoping

3.10. The Scoping process determines the extent of the issues to be considered in the EIA, and reported in the ES.

3.11. The applicant should request the EIA Scoping Opinion from the local planning authority, and in doing so has this opportunity to set out a proposed scope. The local planning authority is

then required to adopt its Scoping Opinion within the statutory timescales set out at Regulation 15 of the EIA Regulations.

3.12. As set out at Paragraph 036 of the NPPG, the Scoping Opinion provided by the LPA *'should be proportionate, tailored to the specific characteristics and main environmental features which are likely to be significantly affected.'*

3.13. The Scoping process also allows for the 'scoping out' of issues which are unlikely to have a significant environmental effect, and therefore do not need to be addressed within the ES. Indeed, the NPPG at Paragraph 035 (Reference ID: 4-035-20170728) confirms that when preparing an ES, *'the emphasis should be on 'main' or 'significant' effects and should not be any longer than is necessary to properly assess those effects. Where, for example, only one environmental factor is likely to be significantly affected, the assessment should focus on that issue only.'*

3.14. Accordingly, this report provides an informed judgement of the likely significance of effects of the Proposed Development on the environment, and the scope of assessment required.

3.15. As the application is being submitted for outline planning permission, a parameter plan will be submitted alongside, and referred to within the ES, to support the planning application. The parameter plan will set out the spatial parameters of the Proposed Development, in relation to land use, areas of potential built development, landscaping and green infrastructure, and access and movement. The EIA will be based on these parameters of development (together with other assumptions as and when required, which will be reported in the ES).

Consideration of Likely Significant Environmental Effects

3.16. A review of the Proposed Development by the technical project team, cognisant of the Site characteristics, has identified those aspects of the environment which it is considered could be impacted by the development, and which are likely to result in significant environmental effects. This has been informed by initial technical assessments of the Site which have been completed, and further investigation works which have consequently been recommended.

3.17. The proposed scope of the EIA as set out in this report is cognisant of the Site characteristics and environmental sensitivities, the proposed design, quantum and location of development, phasing, relevant policy and standards, technical studies, and the professional experience of the project team.

3.18. Table 2 provides a summary of the scoping exercise. Where likely significant effects are identified, these are categorised as temporary or permanent.

Table 2 – Summary of Proposed EIA Scope

Environmental Factor	Potential Construction Phase Effects	Potential Operational Phase Effects	Likely Significant Effects (Pre-Mitigation)	Scoped In/ Out
Population and Human Heath	✓ Temporary	✓ Permanent	✓	Scoped In
Transport and Access	✓ Temporary	✓ Permanent	✓	Scoped In
Landscape and Visual Impact	✓ Temporary	✓ Permanent	✓	Scoped In
Cultural Heritage	✓ Temporary	✓ Permanent	✓	Scoped In
Ecology	✓ Temporary	✓ Permanent	✓	Scoped In
Noise	✓ Temporary	✓ Permanent	✓	Scoped In
Air Quality	✓ Temporary	✓ Permanent	✓	Scoped In
Agriculture/Land	✓ Permanent	✕	✓	Scoped In
Flood Risk and Drainage	✕	✕	✕	Scoped Out
Climate Change	✕	✕	✕	Scoped Out
Wind Microclimate	✕	✕	✕	Scoped Out
Daylight, Sunlight and Overshadowing	✕	✕	✕	Scoped Out
Accidents and Disasters	✕	✕	✕	Scoped Out
Lighting	✕	✕	✕	Scoped Out
Waste	✕	✕	✕	Scoped Out

Vibration	✕	✕	✕	Scoped Out

Likely significant effect = ✓

No likely significant effect = ✕

3.19. A more detailed consideration of how these EIA factors will be addressed in the ES is provided in Chapter 5.

3.20. With reference to Regulation 4(2) and Regulation 18(3) of the EIA Regulations, it is considered that the following EIA topics/factors should be either fully or partially 'scoped out' of the EIA and ES. Justification for their exclusion is set out in Chapter 6.

- Flood Risk and Drainage
- Climate
- Soil
- Major Accidents and Disasters
- Wind Microclimate
- Daylight, Sunlight and Overshadowing
- Lighting
- Waste
- Radiation and Heat
- Vibration

4. EIA Methodology

4.1. The ES will be structured logically as follows, in order that the required information can be found easily:

- Volume 1 – this reports the findings with respect to each of the environmental disciplines assessed as part of the EIA, provided by way of separate chapters.
- Volume 2 – this will provide the figures and supporting technical appendices relating to the chapters as required.
- Non-Technical Summary – this will form a standalone document, providing a summary of the findings of the EIA in non-technical language.

4.2. Each of the technical ES chapters will use the following structure to ensure that the final document is transparent, consistent and accessible:

- Introduction
- Policy and Legislative Context
- Methodology and Assessment Criteria
- Existing Baseline Conditions
- Assessment of Potential Effects
- Residual and Cumulative Effects

Introduction

4.3. This section will provide an introduction to the assessment discipline and the purpose for which it is being undertaken.

Policy and Legislative Context

4.4. This will provide a summary of national and local planning policies and legislation of relevance to the technical assessment, as relevant. Best practise guidance will also be summarised as relevant.

Methodology and Assessment Criteria

4.5. This will describe the methods used in carrying out the technical assessment, with appropriate reference to published standards, guidelines and best practice. This section of

each technical chapter will also set out any specific assessment area as required and the application of significance criteria.

4.6. This section will also set out any assumptions made during the assessment, including potential limitations of the information used, and any difficulties encountered in compiling the required information.

Existing Baseline Conditions

4.7. This will provide a description of the baseline environmental conditions for that technical discipline. The baseline position should be taken as the current environmental conditions as existing and how these would be expected to change if the project were not to proceed (i.e. the 'do nothing scenario').

Assessment of Potential Effects

4.8. This section will provide an assessment of likely significant effects on the environment resulting from the Proposed Development, covering both construction and operational phase effects.

4.9. The significance of an environmental impact is determined by assessing both the sensitivity of the environmental receptor and magnitude of the effect. Environmental effects will be reported as positive or negative; short or long term; permanent or temporary, and direct or indirect.

4.10. For some technical disciplines, the assessments may incorporate a distinct methodology in accordance with best practice, or will incorporate modified criteria to the standard assessment approach. This will be to best reflect particular technical requirements and will be clearly set out within the individual chapters as required.

Receptor Sensitivity

4.11. Environmental receptors and their sensitivity will be set out within each technical chapter. Receptors are those aspects of the environment sensitive to changes in baseline conditions. The sensitivity of a particular receptor depends upon the extent to which it is susceptible to such changes.

Table 3 –Sensitivity of Receptor

Sensitivity	Criteria
High	The receptor / resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Medium	The receptor / resource has moderate capacity to absorb change without significantly altering its present character, or is of high and more than local (but not national or international) importance.
Low	The receptor / resource is tolerant of change without detrimental effect, is of low or local importance.

Magnitude of Change

4.12. Effect magnitude will be reported by predicting the scale of any potential change in the baseline conditions, as shown in Table 4. Where possible, magnitude will be quantified; however where this is not possible a qualitative assessment will be undertaken. The assessment of magnitude will be carried out taking account of any inherent design mitigation in the proposal that forms part of the development description.

Table 4 – Magnitude of Change

Magnitude	Criteria
High	Total loss or major/substantial alteration to elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Medium	Loss or alteration to one or more elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Low	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible / detectable but the underlying character / composition / attributes of the baseline condition will be similar to the pre-development.
Negligible	Very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable, approximating to a 'no change' situation.

Assessment of Effect Significance

4.13. Effect significance will be calculated based on the matrix in Table 5 below. This illustrates the interaction between the receptor sensitivity and the magnitude of an effect. The effects of the development will be reported as beneficial or adverse; short or long term; permanent

or temporary; and direct or indirect. Any effect of moderate or major significance is considered to represent a likely significant effect for the purposes of the EIA Regulations.

Table 5 – Assessment of Effect Significance

Magnitude	Sensitivity		
	High	Moderate	Low
High	Major Adverse/Beneficial	Major – Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial
Medium	Moderate Adverse/Beneficial	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial
Low	Moderate – Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor - Negligible
Negligible	Negligible	Negligible	Negligible

Mitigation Measures

4.14. The development of mitigation measures is part of an iterative EIA process, and the project that forms the subject of the planning application will include a range of measures designed to reduce or prevent adverse environmental effects arising, where practicable. In some instances, the incorporation of measures may result in enhancement of environmental conditions.

4.15. The topic chapters will therefore take into account all measures that form part of the Proposed Development, including:

- Measures incorporated within the project design (sometimes referred to as primary or embedded mitigation);
- Measures to be adopted during construction to avoid and minimise environmental effects (such as pollution control measures); and
- Measures required to fulfil legislative requirements.

4.16. It is possible that further mitigation measures may be identified within topic chapters. That is, measures not embedded within the design, but that could further prevent, reduce and, where possible, offset any residual adverse effects on the environment. For example, in some instances financial contributions may be required to by way of planning obligations to off-set the impact on certain infrastructure, or monitoring measures may potentially be appropriate to ensure that proposed planting becomes established. Where appropriate, monitoring measures will be set out.

Summary Tables

4.17. Summary tables will be incorporated to summarise the effects of the Proposed Development for each environmental matter.

Residual and Cumulative Effects

Residual Effects

4.18. This will present the effects of the Proposed Development assuming implementation of proposed further mitigation measures (i.e. mitigation measures not embedded within the scheme). The residual effects therefore represent the overall likely significant environmental effects, having taken account of practicable/available mitigation measures.

Cumulative Effects

4.19. The Institute of Environmental Management and Assessment (IEMA) guidance identifies two types of cumulative effects:

- inter-project effects (incremental changes caused by other development schemes occurring together with the Proposed Development that may potentially worsen certain impacts): and
- intra-project effects (effects that occur as a result of impact interaction between different environmental topics within the same project), also known as in-combination effects or effect interactions.

4.20. This section will therefore firstly assess the effects of the Proposed Development cumulatively with other development projects where these are likely to result in significant effects on the environment.

4.21. NPPG states that:

'Each application (or request for a screening opinion) should be considered on its own merits. There are occasions, however, when other existing or approved development may be relevant in determining whether significant effects are likely as a consequence of a proposed development. The local planning authorities should always have regard to the possible cumulative effects arising from any existing or approved development.'

(Paragraph 024/ reference 4-024-20170728).

4.22. Accordingly, we turn to identify any allocations or recent, pending, or upcoming planning applications in the locality which, when taken cumulatively with the development proposals, would result in significant environmental effects.

4.23. The Proposed Development makes up one of a series of development proposals which are being advanced by the Applicant as part of the 'Leverhulme Vision'. The other 'Leverhulme Vision' sites being brought forward are:

- Land East of Raby Hall, Raby Hall Road, Raby Mere
- Land East of Dale View Close, North of Gills Lane, Pensby
- Land East of Thorncroft Drive, North of Gills Lane, Pensby
- Land West of Barnston Road, North of Gills Lane, Barnston
- Land at Milner Road and Barnston Road, Heswall
- Land East of Glenwood Drive, Irby
- Land East of Rigby Drive, Greasby

4.24. Whilst each of the development sites being brought forward as part of the Leverhulme Vision are deliverable in their own right, and none are inter-dependent, there are objectives which are shared between these development proposals. Indeed, the overarching objective of the Leverhulme Vision is to deliver a series of developments which help to address the pressing need for new homes within the Borough. Notwithstanding, it is considered that together, these projects would result in significant environmental effects.

4.25. Additionally, other potential projects have been included from a study area consisting of the parishes of Clatterbridge; Heswall; Pensby & Thingwall; Greasby, Frankby & Irby under the administration of WMBC. These parishes surround the 'Leverhulme Vision' sites, and it is considered therefore that these are the areas where any significant cumulative environmental effects are likely to occur. For robustness, a 2.5 km buffer has also been applied around each of the 'Leverhulme Vision' sites. For proportionality, a threshold of 30 dwellings has been applied. This is considered to comprise a robust approach. We are not aware of any planning consents for significant non-residential development within these areas.

4.26. The adopted UDP dates to 2000, and therefore there are no recently allocated development sites. WMBC's Regulation 18 Local Plan indicates that its preferred development strategy is to focus land use allocations within previously developed land in urban areas – it is

considered that aside from consented sites already considered, none of the sites which meet the aforementioned thresholds are within the defined area or have any close spatial relationship with the subject Site.

4.27. The sites which meet the aforementioned criteria are listed below and will be considered as Cumulative Development Sites. These comprise the other aforementioned Leverhulme Vision sites, plus four other developments within the identified wards and/or within 2.5 km of any of the Leverhulme Vision sites. A plan showing the locations of the projects is included at **Appendix 3.**

Table 6 – Cumulative Development Sites

Scheme	Description of Development	Distance from Site (km)	Status
Land East of Raby Hall, Raby Hall Road, Raby Mere	85 dwellings	c. 0.1	Potential planning application
Land at Acre Lane and Meadowside Road, Bromborough	217 dwellings	c. 1.6	Full planning permission granted 21 December 2018 (LPA ref: APP/17/01295)
Land at Milner Road and Barnston Road, Heswall	Up to 120 dwellings	c. 5.0	Potential planning application
Land West of Barnston Road, North of Gills Lane, Barnston	Up to 160 dwellings	c. 5.9	Potential planning application
Land East of Thorncroft Drive, North of Gills Lane, Pensby	Up to 15 dwellings	c. 6.2	Potential planning application
Land East of Dale View Close, North of Gills Lane, Pensby	Up to 100 dwellings	c. 6.2	Potential planning application
Fishers Lane, Pensby	35 dwellings	c. 7.2	Full planning permission granted March 2019 (LPA ref: APP/18/01266)
Land East of Glenwood Drive, Irby	Up to 310 dwellings	c. 7.5	Potential planning application
Land East of Rigby Drive, Greasby	Up to 250 dwellings	c. 9.1	Potential planning application
Wirral Business Park, Arrowe Brook Road, Upton	127 dwellings	c. 9.1	Full planning permission granted March 2020 (LPA ref: APP/19/00315)

Girtrell Court, Woodpecker Close, Upton	78 extra care (C3) dwellings	c.10.8	Full planning permission granted October 2018 (LPA ref: APP/18/01002)

4.28. Comments are invited on the content of the proposed list of other developments to be considered within the cumulative assessment. This list will be reviewed and updated during the EIA process.

4.29. The approach to assessing the intra-project/in-combination effects will be to identify the potential for interactions between the residual effects of different environmental disciplines on individual receptors. Professional judgement and discussion between technical specialists will inform this process, and the assessment will be provided within each technical chapter.

5. Scope of EIA Assessment

5.1. It is intended that the following technical topic chapters will be presented within the ES.

- Socio-Economics
- Landscape and Visual Amenity
- Cultural Heritage
- Ecology
- Transport
- Noise
- Air Quality
- Flood Risk and Drainage
- Agricultural Land Quality

5.2. It is proposed that the scoped-in EIA topics be addressed within the ES as follows:

Table 7 – Provision of 'Scoped in' EIA Topics within Environmental Statement Chapters

EIA Topic	Relevant Chapter in Environmental Statement
Population	Socio-Economics
Human Health	Air Quality, Noise, Landscape and Visual, Socio-Economics, Transport
Transport and Access	Transport
Landscape	Landscape and Visual Amenity
Cultural Heritage	Heritage
Ecology	Ecology
Noise	Noise
Air Quality	Air Quality
Agriculture/Land	Agricultural Land Quality

6. Environmental Statement Structure

6.1. We now turn to each of the chapters to be provided within Volume 1 of the ES. For each of the topic chapters, a summary of the methodology and scope of assessment is given. Where relevant, the assumptions of the assessment are highlighted.

Chapter 1 – Introduction and Policy Context

6.2. This chapter will provide the introduction to the ES, including details of the application, the need for the EIA and the structure of the ES.

Chapter 2 – Environmental Statement Structure and Methodology

6.3. This chapter will set out the structure of the ES and the overall approach to EIA assessment, together with details of the scoping process and consultation undertaken. Details of topic-specific methodologies, will be provided in each topic chapter.

Chapter 3 – Summary of Existing Site

6.4. This chapter will provide a summary description of the existing Site characteristics and surroundings.

Chapter 4 – Proposed Development, Alternatives and Design Evolution

6.5. This chapter will provide a description of the Proposed Development, summarise the need for the development, and provide a description of the alternatives considered during the EIA process, including a description of the alternative design and layout options that have been considered. It will summarise the main reasons for the option chosen.

Chapter 5 - Socio-Economics

Introduction

6.6. An assessment will be undertaken to determine the likely effects of the Proposed Development on socio-economic factors during both the construction and operational (post completion) phases of the Proposed Development.

6.7. Specific impacts on human health (for instance in relation to landscape and visual impacts, noise, air quality, and construction traffic) will be considered in detail within relevant topic chapters.

Baseline Conditions

6.8. Baseline socio-economic conditions will be established through collation and analysis of nationally recognised and published research and data, including the following sources:

- 2011 Census data;
- Annual Population Survey and Annual Survey of Hours and Earnings, via Nomis;
- Department for Health data on General Practice facilities;
- Department for Education and local authority data on school capacity, rolls and forecasts; and
- WMBC planning policy evidence base and statistics.

6.9. The baseline data collection process will include the use of online sources to supplement the information from the above sources as required.

Potential Effects

6.10. The ES chapter will assess the potential effects on socio-economic receptors arising during the construction and operation phases of the Proposed Development. The sensitivity of each receptor will be identified, dependent upon a combination of data on the current position, judgement about the priority attached to it in policy terms and assessment of key economic and social challenges.

6.11. The following are considered as potentially valuable socio-economic receptors:

- Construction related employment generation;
- Employment generated through the development once operational;
- Changes in local population numbers and demographics, and housing stock once the development is operational;
- Capacity of local social infrastructure once the development is operational, including healthcare, primary and secondary education, social, and formal sports infrastructure; and
- Access to a range of public open space.

6.12. Each indicator will be assessed in turn, providing an analysis of the prevailing baseline position in the study area, and an assessment of the effects of the Proposed Development.

6.13. Where appropriate, mitigation measures will be included, and cumulative and residual effects will be reported.

Assessment Methodology

6.14. There is no overarching Government guidance that sets out a set methodology for the preparation of assessments of the likely effects of major development proposals on population. However, some established methodological guides have been published covering some elements of the assessment, and will be drawn upon as appropriate.

Chapter 6 – Transport

6.15. The proposals comprise the development of a relatively small scale in an area which is served by existing highway infrastructure, with an opportunity for direct access to Raby Hall Road to the south.

6.16. The forthcoming Transport EIA Chapter will be supported by a Transport Statement; in addition to an over-arching Cumulative Transport Assessment which considers the cumulative impact of all Leverhulme residential proposals. The Transport Statement will provide a further technical assessment of the development proposals, and along with the Transport EIA Chapter, will provide a framework for mitigation where appropriate.

6.17. The forthcoming Transport EIA Chapter will be produced in consideration of relevant local and national planning policy. Within this context, Section 9 of the NPPF is entitled Promoting Sustainable Transport and outlines the important role that transport policies have to play in facilitating sustainable development. The section states that:

"The planning system should actively manage patterns of growth …Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes."

6.18. Paragraph 109 of the NPPF states that:

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

6.19. Curtins has engaged in scoping discussions with Highways Officers at both Wirral Borough Council and Highways England in order to establish a scope of assessment. This has included meeting virtually with both organisations (Wirral Highways on 10th February 2021 and Highways England on 25th February 2021) and the subsequent issue of a scoping note on 4th March 2021. Wirral Highways provided an email response to the scoping note on 9th June 2021, and Highways England provided an email response on 6th April 2021. Both responses largely confirmed Curtins suggested approach to assessing the Proposed Development Site both on its own merits, and in the context of the Cumulative Development Sites in Table 6.

6.20. The feedback from Wirral Highways and Highways England has been used to shape this EIA scoping chapter.

Baseline Conditions

6.21. Allport Road is situated within a distance defined by Chartered Institute of Highways and Transportation (CIHT) guidance as 'acceptable' for those commuting/school trips. Various facilities complementary to residential uses are situated here including; a post office, foodstore, pharmacist and various eating/drinking establishments.

6.22. Following an initial review of freely available road collision data in the surrounding area, there is nothing to suggest an unusual safety issue from the breakdown in accidents. Notwithstanding this, a more thorough review will be undertaken as part of the forthcoming EIA Transport Chapter and Transport Statement.

6.23. As part of the related Transport Statement work, it was agreed with Wirral Council Highways by return of comments on the scoping note submitted by Curtins that baseline traffic counts at a total of 39 junctions across the Wirral could be undertaken. Subsequently, consideration of an additional two junctions in Bromborough were requested by Wirral Highways, taking the total scope for data collection to 41 junctions. This data collection exercise was undertaken with a view to providing capacity assessments at all 41 junctions to understand the cumulative impact of the proposed Cumulative Development Sites. It was agreed the scope of assessment for each individual Site would differ in appreciation of the number of dwellings and proximity to each of the junctions.

6.24. These baseline counts at the following junctions in Table 8 will be used within the various assessment work that underpins the Transport EIA Chapter.

Table 8 – Baseline Surveyed Junctions

Area	Ref.	Junction
SRN	1	M53 Junction 3
	2	M53 Junction 4
Greasby	3	Site 1 Access/Arrowe Rd
	4	Greasby Rd/Arrowe Rd
	5	B5139/Greasby Rd
	6	Arrowe Rd/Arrowe Brook Lane
Upton	7	Upton By-Pass/B5139/Old Greasby Rd
	8	Upton By-Pass/A551/A5027/Upton Retail Park Rbt
	9	Upton By-Pass/M53 Moreton Spur Rbt
	10	B5192 Saughall Massie Road/Upton By-pass
Woodchurch (Arrowe Park)	11	Arrowe Park Rd/Arrowe Brook Rd
	12	Arrowe Park Rd/Arrowe Park Hospital
	13	A552/Arrowe Park Rd/Church Lane
	14	A552/Ackers Rd
	15	A552/ASDA
Irby/Thurstaston	16	Site 2 Access/Thingwall Rd
	17	Thingwall Rd/Whaley Ln
Thingwall	18	Arrowe Park Rd/Landican Cemetery
	19	Arrowe Park Rd/Thingwall Rd Rbt
	20	B5138 Pensby Rd/Thingwall Rd
	21	B5138 Pensby Rd/Whaley Lane
Pensby/Barnston	22	Sites 3-4-5 Access/Gills Lane
	23	A551 Barnston Rd/Gills Lane
	24	B5138 Pensby Rd/Fishers Lane/Gills Lane
	25	A551 Barnston Rd/Storeton Lane
	26	B5138 Pensby Rd/Downham Rd
Heswall	27	Site 6/Milner Road & A551 Barnston
	28	A551 Barnston/Milner Rd
	29	B5138 Pensby Rd/Irby Rd
	30	B5138 Pensby Rd/Grange Rd/Whitfield Lane
	31	A551 Barnston Rd/Whitehouse Lane
	32	A5137 Brimstage Rd/Whitehouse Lane
	33	A540 Telegraph/B5138 Pensby Rd/The Mount
	34	A5137 Brimstage Rd/A551 Barnston Rd
	35	A540 Telegraph Rd/A540 Chester Rd
Bidston/Wallasey/ Birkenhead/Prenton/ Oxton	36	A552 Borough Rd/Singleton Avenue
	37	A552/Storeton Rd/Singleton Avenue
	38	A552/Holmlands Drive/Prenton Hall Road
Bebington/Clatterbridge	39	Bebington/Clatterbridge
Bromborough	40	Allport Rd/Plymyard Ave/Greenfields Ave
	41	Allport Rd/Allport Ln/Bridle Rd

6.25. As some of the junction counts were to be undertaken during a time when Covid-19 may have been influencing travel patterns, for those junctions affected and as agreed with Wirral Council Highways by return of comments on the scoping note, a total of 16 Automatic Traffic

Count (ATC) loops were also commissioned. Some of the loops were positioned in the location of historic Department for Transport (DfT) counts so that the observed traffic counts can be amended to pre-Covid levels through an adjustive factor.

6.26. The baseline counts will also be factored to 2026 and 2031 using a TEMPro growth factor. The full details of the adjusted 2021, 2026 and 2031 baseline flows will be provided within the EIA Chapter and overarching Cumulative Transport Assessment.

Assessment Methodology

6.27. As agreed through the scoping process with Wirral Highways and Highways England, vehicular trips for the Proposed Development Site and Cumulative Development Sites in Table 6 will be calculated using average trip rates derived from the TRICS database. The TRICS database provides access to a number of traffic surveys at comparable residential developments across the UK and Ireland, generating a trip rate per dwelling which will be applied to the total number of proposed units. The full details of the TRICS search will be provided within the accompanying Transport Statement.

6.28. Individual committed development sites will not be considered as there are no major developments within the vicinity of the Site, and a blanket TEMPro traffic growth factor across all arms is deemed to be a more robust methodology. To then include committed development traffic would be double counting the expected traffic growth in the area.

6.29. Guidance from the Institute of Environmental Assessment (IEA) will be used as the foundation for the forthcoming Transport EIA Chapter. The guidance document entitled "Guidelines for the Environmental Assessment of Road Traffic" has been used to inform the methodology of assessment.

6.30. The IEA 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;**
- **Fear and Intimidation;**
- **Accidents and safety;**
- Hazardous loads;
- Air pollution;
- Dust and dirt;
- Ecological impact; and
- Heritage and conservation.

6.31. Of these effects, many are considered in chapters elsewhere within this document and wider planning application due to the specialist skills required; namely noise, vibration, visual impact, air pollution, ecological effects and heritage and conservation. Those effects highlighted in bold text are assessed within the forthcoming Transport EIA Chapter.

6.32. The EIA guidance states 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 will increase by more than 30%); and*
- *"Include any other specifically sensitive areas where traffic flows have increased by 10%, or more."*

6.33. The IEA 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.

6.34. 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.

6.35. The magnitude of potential effects (both beneficial and adverse) on environmental baseline conditions will be identified through the detailed consideration of the Proposed Development, taking into account the following:

- Relevant legislation, policy or guidelines;
- The degree to which the environment is potentially affected for example, whether the quality is enhanced or impaired;

- The scale or degree of change from baseline conditions as a result of the development;
- The duration of the effect for example, whether it is temporary or permanent; and
- The reversibility of the effect.

6.36. To assess the overall significance of an effect it is necessary to establish the magnitude of the effect occurring i.e. the changes to the existing baseline conditions as a result of the Project, and the sensitivity or importance of the receiving environment or receptor.

6.37. The magnitude of effects will be assessed for the construction and operational phases using the following criteria which have been established with reference to the various guidance noted above and/or through professional experience and judgement.

6.38. For those links passing the 30% threshold or any links deems to be sufficiently sensitive for a 10% threshold, the environmental impact methodologies are set out in the following subsections:

Severance

6.39. Severance is a perceived division that occurs when a traffic link separates part of an existing community. This can occur when a road becomes too heavily trafficked (making crossing the road a problem) or when a new route divides existing land creating a physical barrier.

6.40. The Guidelines for Environmental Assessment of Road Traffic states that:

"The measurement and prediction of severance is extremely difficult. The correlation between the extent of severance and the physical barrier of a road is not clear and there are no predictive formulae which give simple relationships between traffic factors and levels of severance."

6.41. The following indicators are set out in the Guidelines:

- 30% flow increase – slight separation effects.
- 60% flow increase – moderate separation effects.
- 90% flow increase – substantial separation effects.

6.42. These indicators along with consideration of a number of factors including road width, traffic speeds, crossing facilities and existing crossing provision will be used to form the basis of the criteria against which the assessment will be carried out in the Transport EIA Chapter.

Driver Delay

6.43. Changes in delay to drivers will be considered throughout the accompanying Transport Statement using professional experience and judgement to assess the impact of the Proposed Development. The findings provided in the Transport Statement will be summarised in the Transport EIA Chapter.

Pedestrian Delay and Amenity

6.44. A change in vehicular demand affects the ability of pedestrians to cross local routes, which results in an impact on delay and on an individual's desire to make a particular walking journey. Changes in the volume, speed or composition of traffic and the physical condition at crossing points affect pedestrian amenity.

6.45. Pedestrian delay and amenity is not precisely defined within the EIA guidelines, which suggest assessment should be made with 'knowledge of local factors and conditions'.

6.46. In general, however, the Guidelines for the Assessment of Environmental Impact of Road Traffic suggest that pedestrian delay at an individual link should not exceed 40 seconds for a link without the provision of crossing facilities. This indicative threshold along with an application of professional experience and judgement will form the basis of the assessment of Pedestrian Delay and Amenity within the Transport EIA Chapter.

Fear and Intimidation

6.47. Fear and intimidation can also increase as a result of rising traffic flows. This is influenced by a number of things including the volume of traffic, HGV content, nature and frequency of cycle infrastructure, and the width of the footpath.

6.48. In addition, The Guidelines for Environmental Assessment of Road Traffic gives the following example of fear and intimidation thresholds in Table 9. These thresholds will be considered alongside the use of professional judgement within the EIA chapter:

Table 9 – Fear and Intimidation Thresholds

Degree of Hazard	Average Traffic Flow over 18 hr Day (vehicles/hour)	Total 18 hr HGV Flow	Average Speed over 18 hr day (mph)
Extreme	1,800 +	3,000 +	20 +
Great	1,200 – 1,800	2,000 – 3,000	15 – 20
Moderate	600 – 1,200	1,000 – 2,000	10 – 15

Accidents and Safety

6.49. The Proposed Development impact on accidents and safety will be assessed throughout the Transport Statement by way of reviewing local accident data on the surrounding roads. Within the forthcoming Transport EIA Chapter, professional judgement will be used in the context of:

- Any existing accident clusters exposed in the local data which could identify an area with an existing accident/safety concern; and
- The percentage increase in vehicular flows along nearby links and junctions as a result of the Proposed Development.

Potential Effects

6.50. It is expected the proposals would increase the number of vehicular, pedestrian, cycle and public transport trips in the area. This could result in potential impacts on existing users and surrounding commercial and residential properties.

6.51. Receptors will comprise the following as presented in Table 10:

Table 10 – Transport Receptors

Receptor	Impact	Potential Effect
Existing traffic on the local highway network in the vicinity of the Site	Driver delay, accidents and safety and hazardous loads	May affect the operation of existing traffic in the construction and operational phases. Mitigation may be proposed to reduce impact during both phases.
Pedestrians and cyclists on the existing highway network in the vicinity of the Site	Severance, pedestrian delay, pedestrian amenity and accidents and safety	May affect the attractiveness of walking/cycling. Mitigation may be proposed to reduce impact during both phases.

Receptor	Impact	Potential Effect
Public Transport users	Driver delay	May affect the attractiveness of public transport. Mitigation may be proposed to reduce impact during both phases.
Commercial and residential properties adjacent to the local highway network	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	May affect local stakeholders during the construction and operational phases. Mitigation may be proposed to reduce impact during both phases.

Chapter 7 – Landscape and Visual Amenity

Introduction

6.52. The Site is located close to the western edges of Bromborough and is not affected by any statutory or non-statutory landscape designations.

6.53. Bromborough's established urban area is characterised by low rise, predominantly single storey and two storey residential development. The Site itself comprises undeveloped greenfield land and occupies a single pastoral field located between Raby Hall to the east and the M53 motorway corridor to the west. To the north the Site is separated from the grounds of the Autism Together site by a steel mesh security fence, whereas to the south it is enclosed by a low hedgerow. There are a number of mature trees located within and behind the hedgerow that separates the Site from Raby Hall Road to the south. To the east the main (western) part of the Site is contained by a number of mature trees and dense vegetation that is located within the grounds of the adjacent Raby Hall.

6.54. The Wirral Landscape Character Assessment 2019 confirms the Site lies within Landscape Character Type 4: Lowland Farmland and Estates and specifically within Landscape Character area 4c Clatterbrook and Dibbin Valley Lowland.

6.55. Chapter 6 of the Wirral Environmental Sensitivity Study (WESS) ascertains that the Site and the wider study area are attributed with the lowest level of moderate sensitivity (1-2) for landscape and cultural heritage (see WESS Figure 6.5) and for comparison, the vast majority of land within Wirral shares the same sensitivity rating.

6.56. Chapter 9 of the WESS uses Landscape Sensitivity Assessment (LSA) findings to present a picture of the Borough's landscape sensitivity. In terms of landscape sensitivity, the WESS (Figure 9.1) attributes the Site and its immediate surroundings (excluding adjacent settlement areas) with a landscape sensitivity of 'Moderate'. Parts of the study area to the west of the M53 are also attributed with a landscape sensitivity of 'Moderate', whereas the woodland to the north is considered to have a 'High' sensitivity and the golf course to the south is considered to be of a 'Low-Moderate' sensitivity.

6.57. The applicant has instructed a Landscape Visual Impact Assessment which will consider the landscape impact of the proposals in terms of character and features and the visual impact through reference to a number of publicly accessible locations/viewpoints, and indeed this assessment will form an important part of the iterative design process.

6.58. The applicant's landscape consultant has submitted a Landscape and Visual Impact Assessment Scoping Report to the Council's planning department in order seek officer's comment/approval regarding the proposed methodology and study area for the assessment and the key views to be considered. This document was sent by e-mail to Wirral Council on 4th May 2021 and a subsequent response indicated that the Council was not in a position to provide feedback, given that the proposals do not form part of the Council's preferred spatial plan. To date, no further response has been received. An updated version of the Landscape and Visual Impact Assessment Scoping Report is included at **Appendix 4.**

6.59. The iterative design process will ensure that where practicable, existing landscape features such as trees and hedgerows will be retained and incorporated within the green infrastructure provision of the design for the Site. It is envisaged that as part of the landscape and green infrastructure strategy, landscape proposals such as tree planting will be provided in order to preserve and enhance landscape character and biodiversity, whilst also moderating the visual prominence of the development, by assimilating it into its landscape setting and the views experienced.

6.60. The landscape proposals will be described in general terms by the Illustrative Masterplan for the Site and will effectively form embedded mitigation that will be accounted for in the assessment of landscape and visual effects.

6.61. The Landscape and Visual Impact Assessment will be undertaken by Chartered Members of the Landscape Institute and its key objectives will be to provide an indication of the potential landscape and visual effects associated with the Proposed Development, whilst concurrently informing the design process for the Site.

Baseline Conditions

6.62. After setting out the Planning Policy and Legislative Context, the Landscape and Visual Baseline within the assessment will set out a narrative description of the Site and the wider study area, before considering the relevant landscape character assessments, the Cheshire Historic Landscape Assessment 2007, the WESS 2020/21, the Wirral Local Landscape Designations Review and heritage assets. Thereafter, the Landscape and Visual Baseline will establish the various landscape and visual receptors, before respectively ascertaining their value, susceptibility and their resulting sensitivity.

Potential Effects

6.63. Potential landscape and visual effects that may be generated by the development proposals will be ascertained for each of the landscape and visual receptors at three points in time as follows:

- Construction Phase;
- Year 1 (Operational); and
- Year 15.

6.64. Landscape and visual effects will be ascertained as Major, Moderate, Minor or Negligible and can be beneficial or adverse. Effects occurring at Year 15 will be considered to represent residual effects and effects of Moderate or Major (adverse or beneficial) are considered to be significant.

Assessment Methodology

6.65. The Landscape and Visual Assessment will be undertaken in accordance with an appropriate methodology that references the Guidelines for Landscape and Visual Impact Assessment - Third Edition 2013 (also referred to as GLVIA3), by the Landscape Institute and the Institute of Environmental Management and Assessment.

Chapter 8 – Heritage

Introduction

6.66. Cultural Heritage encompasses all aspects of the historic environment, including buried archaeological remains, archaeological earthworks, historic buildings and other above-ground structural remains, and areas of historic landscape. This chapter considers the

requirement for all/any of these aspects to be subject to EIA and sets out the proposed scope and outline methodology for their assessment.

6.67. This combined screening and scoping exercise has been informed by the results of a desk-based assessment, which has utilised a 2km study area as measured from the Site boundary.

Baseline Conditions: Archaeology

Recorded archaeological remains

6.68. No designated archaeological remains, i.e. Scheduled Monuments, are located within the 2km study area.

6.69. No recorded non-designated heritage assets are located within the Site.

Potential archaeological remains

6.70. The only identified potential heritage asset identified as possibly surviving within the Site is the remains of post-medieval field boundaries.

6.71. There are few other recorded heritage assets within material proximity to the Site. The closest HER records largely relate to post-medieval or modern assets such as the later 19th-century Raby Hall (MME2490) c.40m to the north east. The closest HER record to the Site which pre-dates the post-medieval period is a findspot of Roman coins (MME2498) c.250m to the east.

6.72. Based upon the available evidence, the probability of any archaeological remains that pre-date the post-medieval/modern period surviving within the Site is considered to be low.

Significance of known and potential archaeological remains within the Site

6.73. Remains relating to historic field boundaries or agricultural practises would retain little, if any, archaeological interest and would be of accordingly low heritage significance. The examination of such remains under archaeological conditions would contribute little further to our understanding of the agricultural practices of these periods and/or of local land-use.

Baseline Conditions: Built Heritage

Listed buildings

6.74. There are 16 listed buildings within a 2km radius of the Proposed Development, all of which are Grade II listed. The closest listed building to the Site is a 17th-century dwelling called Mill House, located c.500m to the north (NHLE 1185505). All other listed buildings are located more than 900m from the Site.

Potential Effects

Direct Effects

6.75. No designated archaeological remains, i.e. Scheduled Monuments are located within the 2km study area, therefore no designated archaeological remains would be affected by the proposals.

6.76. Depending upon the final design and construction methodology, any potential non-designated archaeological remains that might survive buried within the Site, including any related to post-medieval/modern agriculture, might be susceptible to physical impact, e.g. truncation/removal, during the construction phase of the Proposed Development.

6.77. Desiccation and/or saturation of buried archaeological remains might also result from potential changes to the water table as a result of cumulative excavations, new drainage regimes, changed land use and increased utility of water supply etc.

6.78. Any such direct effects upon the types of potential non-designated buried archaeological remains anticipated, would not be considered 'significant' for purposes of EIA.

Indirect Effects

6.79. Based upon the results of the heritage settings assessment undertaken as part of the desk-based assessment, the proposals would be anticipated to result in no harm to the significance of any designated heritage assets i.e. the listed buildings within the wider Site environs as a result of changes to their setting.

6.80. In all instances, this is due to a lack of any material inter-visibility between the Site and those designated heritage assets, the existing urban character of the Site environs, the topographic conditions and intervening vegetation, and the absence of any material non-visual historical associations between those assets and the Site.

6.81. On this basis, any further assessment of potential indirect impacts would be considered disproportionate, and it would be appropriate for this aspect to be scoped out of the Cultural Heritage EIA.

Cumulative Effects

6.82. Cumulative impact assessment has not been undertaken as part of the desk-based assessment process. However, no cumulative direct effects could plausibly result from the proposals and, given that no indirect effects have been identified, then no cumulative indirect effects would be anticipated at this stage either. This would be confirmed as part of the EIA process, if required, with reference to relevant recently-consented/major proposed schemes within the Site environs.

Assessment Methodology

6.83. The desk-based assessment used to inform this combined screening/scoping chapter involved procurement and analysis of Historic Environment Record (HER) data, and the data maintained by Historic England within the National Heritage List for England (NHLE). This data was supplemented by review of relevant archival material, publications and grey literature, historic mapping, satellite imagery, available LiDAR data, and other relevant online sources.

6.84. If required, the Cultural Heritage ES chapter would be informed by the data procured for the desk-based assessment, and the results of that assessment. The desk-based assessment itself would be included in the EIA submission as a Technical Appendix.

6.85. The chapter would set out the relevant applicable statute, policy and guidance context, summarise the heritage baseline, define the significance of any susceptible heritage assets and provide the results of a detailed impact assessment with relation to the latest version of the masterplan. The chapter would provide a determination of the level of impact upon the significance of any identified susceptible heritage assets and would provide a justified statement of the significance of any identified effects, in accordance with the EIA regulations. Any necessary mitigation measures would be proposed, and any anticipated residual effects identified. A proportionate level of cumulative impact assessment would also be included.

Chapter 9 - Ecology

Introduction

6.86. The Site does not comprise any ecological designations as set out within the UDP proposals map, nor does it contain any priority habitats as listed on the Priority Habitat Inventory. The Site lies approximately 250m south of Dibbinsdale Site of Special Scientific Interest (SSSI) and is within the impact zone for residential development of 50 or more houses outside existing settlements/urban areas. Raby Mere Local Wildlife Site (LWS) bounds the Site to the north. The Mersey Estuary Special Protection Area (SPA) and Ramsar Wetland of International Importance lies within 5km of the Site. The Site is included in the National Habitat Network Enhancement Zone 2 with respect to ancient semi-natural woodland.

6.87. The Wirral Environmental Sensitivity Study (January 2021) ('WESS') has been prepared by Land Use Consultants on behalf of WMBC to inform the emerging New Local Plan as part of the evidence base. Figure 4.2 demonstrates that the majority/all of the Site is categorised as having a moderate (1-2) sensitivity value in respect of biodiversity and geodiversity.

6.88. The scheme has a commitment to achieve a 10% biodiversity net gain, as measured by a suitable metric. In addition, a Habitats Regulations Assessment (HRA) will be undertaken with regards to coastal designated Sites. Merseyside Environmental Advice Service (MEAS) have been consulted for pre-application advice and their responses will be considered and implemented where appropriate.

6.89. Existing habitats and ecological features will be protected wherever possible and a landscaping strategy will be proposed as part of the proposal, which will include the planting of new trees and hedging, as well as appropriate ecological mitigation, compensation and enhancements.

6.90. The chapter will be produced with reference to relevant national and local planning policy, including the National Planning Policy Framework (NPPF) and the Wirral Unitary Development Plan (UDP) and the draft Wirral New Local Plan (if available).

6.91. The ecological surveys and assessment will be subject to review by statutory bodies including Natural England, and can be considered during the normal course of the planning application.

Baseline Conditions

6.92. A Preliminary Ecological Appraisal of the Site, including local record centre data request for protected and/ or notable species, has already been undertaken. This sets out the

recommendation for Habitats Regulation Assessment, Natural England Consultation, Further ecological Surveys, proposed design features, a Biodiversity Accounting Assessment, and requirement for a Construction Ecological Management Plan prior to the commencement of development.

6.93. The Site is predominantly in agricultural use with areas of neutral grassland. The western part of the Site has other semi-natural habitats including lowland mixed deciduous woodland, neutral grassland, and scrub. The Site is bounded by native hedgerows along the southern boundary.

6.94. The Mersey Estuary SPA and Ramsar lies approximately 3.57km east of the Site and are designated for their assemblages of wintering and passage birds. Dibbinsdale SSSI lies approximately 500m north of Site. Brotherton Park and Dibbinsdale Local Nature Reserve (LNR) lies approximately 1km north east of the Site. The Site is bounded to the north by Raby Mere LWS.

6.95. HRA Stage 1 Screening has been undertaken. This has identified that there are potential impacts from increased recreation as a result of the Proposed Development, and so it is not possible to discount the possibility that the Site is 'functionally' linked to the European Protected Sites. Consequently, a full Appropriate Assessment is required following wintering bird surveys.

6.96. Surveys have been undertaken, or are planned to be undertaken, for the following protected and/ or notable species:

- Great crested newt – eDNA survey of ponds within 500m. 1 pond located between 250 and 500m from the Site returned positive results.
- Bats (roosting) – Preliminary roost assessment of trees. 1 tree has high bat roosting potential, 6 moderate and 8 low
- Bats (foraging and commuting) – Activity survey. Generally low levels of bat activity have been recorded
- Wintering birds – Surveys are underway, with data still being collected
- Badgers – Survey undertaken July 2021 on Site and within 30m of the Site boundary, with no evidence recorded.

6.97. Surveys for all other species have been scoped out.

Potential Effects

6.98. Potential effects of the development in the absence of mitigation measures include:

- permanent and temporary habitat loss
- disturbance from noise and lighting during construction and operation
- increased recreational pressure on nearby designated Sites.
- predation and disturbance from cats/dogs
- air and water quality impacts during construction
- fragmentation and associated impacts (e.g. dispersal, gene flow, resilience to future climate change)

6.99. In relation to the trees that have bat roosting potential, no impact on these trees is expected as a result of the development and a sensitive lighting plan will be designed to avoid light spill onto retained habitats. However, should plans change and tree removal is required, further surveys may be required to identify presence / likely absence of roosting bats.

Assessment Methodology

6.100. The Ecological Impact Assessment chapter for inclusion in an Environmental Statement will present a detailed valuation and impact assessment of ecological features within the zone of influence, and outline any avoidance, mitigation, compensation, and enhancement measures to be included in the development, with reference to the mitigation hierarchy. The assessment will also outline any limitations to the assessment.

6.101. The Ecological Impact Assessment will be produced by a suitably experienced ecologist in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 and current best practice guidance including CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018) and guidance relevant for specific ecological receptors. Ecological receptors will be valued with reference to local, national and international lists of rare, threatened or legally protected habitats and species.

6.102. Where appropriate, the assessment will be undertaken in conjunction with other technical disciplines and will assess the cumulative effects of the Proposed Development with other consented or foreseeable developments.

Chapter 10 – Noise

Introduction

6.103. The Site is located close to existing settlement, and the Autism Together site to the east and north east, and the surrounding residential properties particularly to the east of Blakeley Road, and The Lodge on the junction of Raby Hall and Raby Hall Road will be noise receptors. However, the proposals are of a moderate scale and the operational scheme will comprise residential use.

Baseline Conditions

6.104. As shown at Figures 7.2 and 7.3 of the WESS, the western part of the Site is primarily affected by daytime and night-time road noise from the M53 to the west and to a lesser extent Raby Hall Road to the south. There is potential for noise from Autism Together to affect the Site, however, it must be noted that during the set up and collection of the sound level survey no noise from the Society was audible at the proposed Site.

6.105. As part of a Feasibility Assessment a 2021 baseline noise survey has been completed at the following locations:

- Location 1: At the boundary of the West of Raby Hall Site with the M53.
- Location 2: At the boundary of the East of Raby Hall Site with Blakeley Road.
- Location 3: At the boundary of the East of Raby Hall Site with Raby Hall Road.

6.106. A summary of the surveys completed is provided in Table 11 to 13 below.

Table 11 Location 1 Noise Survey Results

Date	Time Period	L_{Aeq}	L_{A90}	L_{A10}	L_{Amax}	$L_{Aeq,16\ hour}$	$L_{Aeq,8\ hour}$
01/03/2021	Day Time (09.45 – 23.00)	70.1	66.3	72.6	84.8	70.1	63.6
	Night-time (23.00 – 07.00)	63.6	34.9	64.4	77.1		

Table 12 Location 2 Noise Survey Results

Date	Time Period	L_{Aeq}	L_{A90}	L_{A10}	L_{Amax}	$L_{Aeq,16\ hour}$	$L_{Aeq,8\ hour}$
01/03/2021	Day Time (10.15 – 23.00)	50.6	45.6	51.1	79.2	50.6	44.6
	Night-Time (23.00 – 07.00)	44.6	36.3	44.7	74.0		

Table 13 Location 3 Noise Survey Results

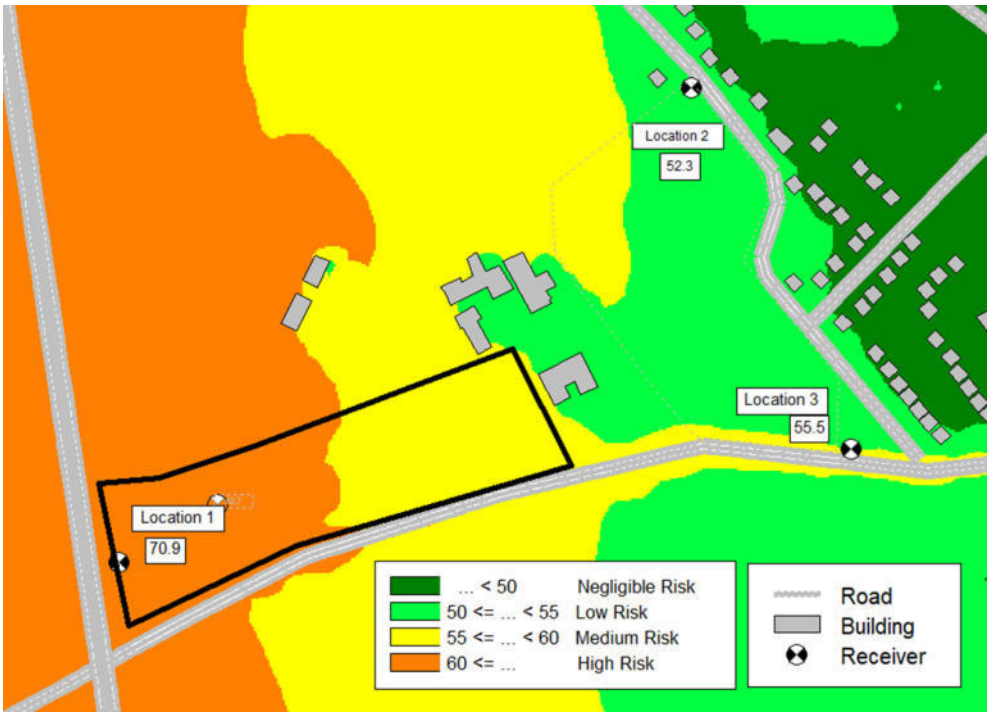
Date	Time Period	L_{Aeq}	L_{A90}	L_{A10}	L_{Amax}	$L_{Aeq,16\ hour}$	$L_{Aeq,8\ hour}$
01/03/2021	Day Time (11:00 – 23:00)	54.3	43.9	57.9	84.0	54.3	43.4
	Night-time (23:00 – 07:00)	43.4	31.2	37.8	72.8		

6.107. To determine the noise environment across the Site, a noise model of the area using the noise modelling software package CadnaA has been developed.

6.108. The noise survey results collected at the measurement locations have been used to calibrate the noise model which contains the existing site contours. The model has then been adjusted to ensure that the predicted noise level at each location closely match the surveyed daytime and night-time noise levels measured.

6.109. With the development boundary for the Site included within the noise model, the daytime external $L_{Aeq,16hr}$ noise environment and Noise Risk Assessment Category at a height of 1.5m can be seen in Figure1. The predicted noise levels across the Site have been modelled based on the measured "*baseline"* noise levels by attributing noise sources to the surrounding road network.

Figure 1 $L_{Aeq,16hr}$ dB External Daytime Noise Level and Risk Assessment Category



With reference to Figure 1:

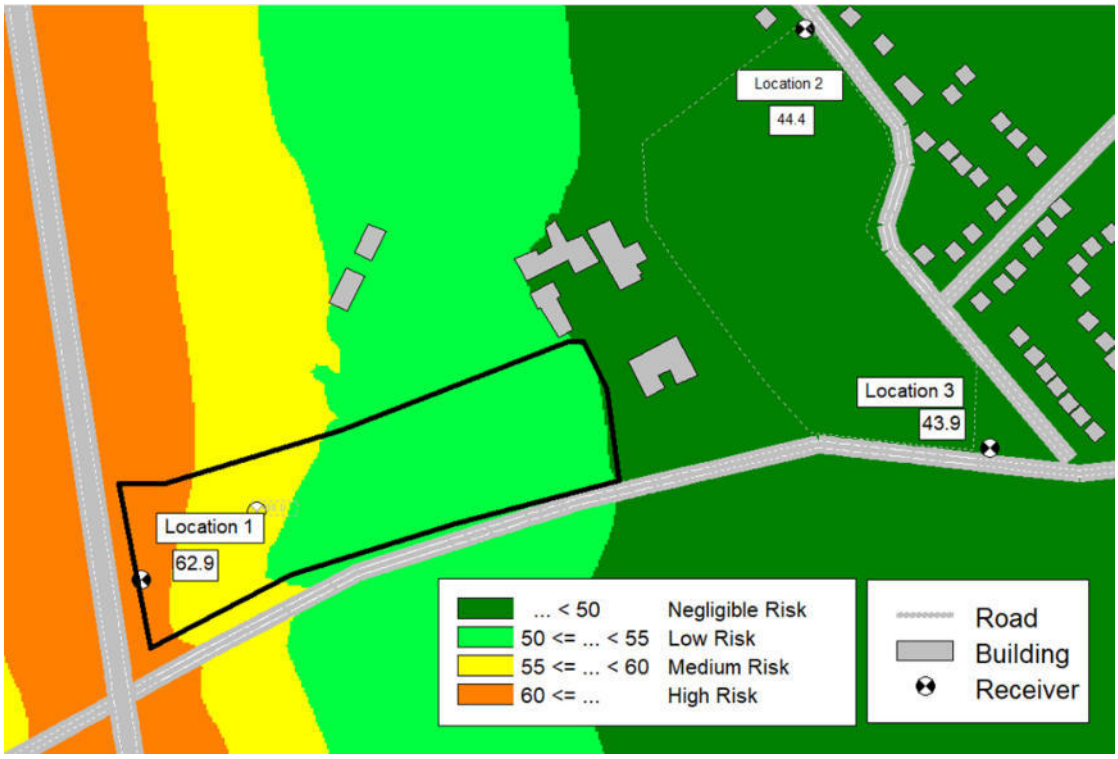
- In the dark green areas external ambient noise levels are below 50dB(A). The BS8233:2014 lower limit of 50dB(A) and the Risk Assessment has identified a Negligible Risk.
- In the light green areas external ambient noise levels are between 50 and 55dB(A). The BS8233:2014 upper limit of 55dB(A) and the Risk Assessment has identified a Low Risk.
- In the yellow areas external ambient noise levels are between 55 and 60dB(A). The BS8233:2014 upper limit is exceeded, and the Risk Assessment has identified a Medium Risk.
- In the orange areas external ambient noise levels are over 60dB(A). The BS8233:2014 upper limit is exceeded, and the Risk Assessment has identified a High Risk.

6.110. In summary, during the daytime the Site falls within the category of 'Medium' to 'High' noise risk.

6.111. With the development boundary for the Site included within the noise model, the night-time external $L_{Aeq,8hr}$ noise environment and Risk Assessment Category at a height of 4m can be seen in Figure 2. The predicted noise levels across the Site have been modelled based on

the measured "*baseline*" noise levels by attributing noise sources to the surrounding road network.

Figure 2 $L_{Aeq,8hr}$ dB External night-time Noise Level and Risk Assessment Category



6.112. With reference to Figure 2:

- In the dark green areas external ambient noise levels are below 45dB(A). The Risk Assessment has identified a Negligible Risk. As the results in Section 4 indicate that L_{Amax} noise levels at night are not regularly over 60.0 dB the Negligible Risk is still valid.
- In the light green areas external ambient noise levels are between 45 and 50dB(A). The Risk Assessment has identified a Low Risk.
- In the yellow areas external ambient noise levels are between 50 and 55dB(A). The Risk Assessment has identified a Medium Risk.
- In the orange areas external ambient noise levels are over 55dB(A). The Risk Assessment has identified a High Risk.

6.113. In summary, at night, the Site falls within the category of 'Low' to 'Medium' noise risk, with a small area of 'High' noise risk located adjacent to the M53 that is likely to be mitigated by the layout of the Proposed Development and the installation of noise mitigation measures.

Baseline Conditions

6.114. The Noise Chapter will be submitted with the planning application. The Chapter will consider the potential effects in detail. The following potential effects will be assessed:

- The noise effects of construction.
- The noise effects of environmental noise arising from noise sources in the vicinity of the Site incident upon the proposed residential development.
- The noise effect of any existing commercial/industrial uses near to the Site.
- The noise effect of increased traffic movements on transport links to and from the Site.

Assessment Methodology

Construction Noise

6.115. An assessment of construction noise would be undertaken at the nearest noise-sensitive receptors to the Site. The levels would be predicted using the guidance contained in British Standard 5228:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*.

6.116. Utilising the measured baseline ambient sound levels, construction noise limits would be specified at each of the nearest noise-sensitive receptors. The predicted noise levels would then be assessed against these limits and mitigation measures would be recommended where required. An assessment of the potential noise impacts of construction related traffic movements would also be included within the assessment.

Environment Noise Incident Upon the Site

6.117. With regards to determining the environmental noise impact upon the residential development, SLR would make use of the onsite noise data and Feasibility Models.

6.118. At this stage SLR would input the Masterplan layout into the noise model, to calculate noise levels across the Site. The predicted noise levels would then be assessed against external and internal noise limits detailed in BS 8233:2014: Guidance on sound insulation and noise reduction for buildings which provides recommendations for the control of noise in and around new buildings.

Commercial and Industrial

6.119. In accordance with the Agent of Change Principle the onus is on the applicant to design the Site accordingly to prevent noise from commercial/industrial operations leading to an adverse noise impact at the proposed residential development. From a desktop review of the area, and with reference to the Surveyors notes completed during the 2021 survey, it is not expected that commercial or industrial noise would require assessment. The nearest potential source of commercial noise is Autism Together. Noise from these premises were not audible during the baseline noise survey. It is not expected that noise from these noise sources would require assessment and they should be scoped out of the Environmental Statement.

Traffic Noise

6.120. The proposals are likely to alter noise levels near the affected network. In accordance with the Design Manual for Roads and Bridges Volume (DMRB) LA111 Noise and Vibration, SLR would undertake an assessment to include all roads where it is anticipated that noise from traffic may change.

6.121. For each link the Basic Noise Level (BNL) will be established for the "With Scheme" and "Without Scheme" Scenarios for the opening year. The BNL is the $L_{A10,T}$ dB noise level at 10m from the kerb of the road assessed.

6.122. The BNL results for each link will be tabulated and the impact and significance would be determined.

Chapter 11 - Air Quality

Introduction

6.123. With respect to air quality, the development has the potential to cause impacts on local air quality during both the construction and operational phases.

6.124. Sensitive residential properties are located within the vicinity of the Site which may be affected by the construction and/or operational phases of the development. Furthermore, the Site borders the M53 motorway, which is a known localised source of air pollution – which could impact future occupants.

Baseline Conditions

6.125. A review of baseline air quality conditions within proximity of the Site will be undertaken with reference to the latest available air quality data in the public domain reference.

6.126. Monitoring data collected prior to the COVID-19 pandemic (i.e. pre-2020) will be used to characterise the baseline environment, as pollutant concentrations monitored during 2020 and 2021 are expected to be atypical, and not representative of the local environment and will therefore not be considered.

6.127. Baseline air quality sources include:

- Roadside modelled concentrations predicted by the Pollution Climate Mapping (PCM) model;
- Local Air Quality Management (LAQM) Air Quality Annual Status Reports (ASR);
- Monitors associated with the Automatic Urban Monitoring Network (AURN); and
- DEFRA background air quality maps (2018 base year).

6.128. From an initial review, there appears to be sufficient coverage of publicly air quality datasets within proximity of the Site to facilitate the characterisation of baseline air quality conditions. Supplementary monitoring is therefore not considered necessary.

6.129. The Site is located outside of an Air Quality Management Area (AQMA). The closest AQMA is the Liverpool City-wide AQMA, located approximately 8.5km north east of the Site. Furthermore, pollutant concentrations reported within proximity of the Site are considered to be well-below the corresponding air quality objectives.

Potential Effects

6.130. Based upon a review of the proposals (in conjunction with the wider project team) and baseline air quality conditions within proximity of the Site, the following air quality effects are proposed to be assessed:

- Construction Phase:
  - Effects associated with dust generated from construction activities upon human and ecological receptors.
- Operational Phase:
  - Effects associated with potential increases in road traffic volumes on local air quality; and
  - Effects associated with the potential introduction of future occupants of the Proposed Development into an existing area of poor air quality.

6.131. An air quality assessment will be submitted with the planning application which will consider these matters in detail. Statutory consultees will have the opportunity to comment on the proposals application during the course of the planning application.

6.132. Furthermore, the scope of the assessment proposed has been agreed with the Environmental Protection Officer at WMBC.

Assessment Methodology

Construction Phase

6.133. Potential dust impacts arising from construction activities would be assessed qualitatively using the approach defined in Guidance on the Assessment of Dust from Demolition and Construction published by the Institute of Air Quality Management (IAQM).

6.134. This assessment will identify the relevant risks and proportionate mitigation requirements. Upon effective application of these measures, residual effects will be rendered not significant.

6.135. In the absence of detailed information regarding construction activities, conservative assumptions will be utilised.

6.136. Given the short-term nature of the construction phase and the comparatively low volume of vehicle movements that will likely arise (when compared to the operational phase, for which a full assessment will be undertaken), there is not considered to be any potential for significant air quality effects from development related road traffic emissions during the construction phase.

Operational Phase

6.137. Operational road traffic flows generated by the scheme upon the local road network will be compared against screening thresholds prescribed within the Environmental Protection UK (EPUK) and IAQM Land-Use Planning & Development Control: Planning for Air Quality guidance document. This will determine whether further assessment is required, or effects can be considered insignificant.

6.138. These screening thresholds relate to a change in Annual Average Daily Traffic (AADT) flows on the local road network (specific to a scheme outside of an AQMA) greater than:

- 500 Light Duty Vehicles (LDV); or
- 100 Heavy Duty Vehicles (HDV).

6.139. Following review, road traffic flows associated with the scheme fall below the above criteria and therefore a detailed impact assessment is consequently not required. Effects are therefore believed to be insignificant and can be screened out.

6.140. Given the proximity of the Site relative to the M53 motorway, a detailed dispersion modelling assessment will be undertaken to appropriately assess the suitability of the Site for residential purposes in relation to road traffic emissions.

6.141. This will include the use of ADMS Roads v5.0 detailed dispersion model, focusing on concentrations of nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) (the pollutants of principal concern arising from road traffic) at future receptor locations for the proposed opening year of the development (2023, for the purposes of the air quality assessment).

6.142. Adoption of 2023 as the opening year for the whole development (for the purposes of the air quality assessment) is considered to be conservative, as assumes that the development is fully occupied by 2023, and therefore brings forward the date of likely exposure for new residents. 2023 represents the year of earliest occupation of the development, and not full completion. Use of further sensitivity modelling is not considered relevant.

6.143. Road traffic emissions will be sources form the Emission Factor Toolkit (EFT) (v10.1) published by the Department for Environment Food and Rural Affairs (DEFRA). Background concentrations will be sourced from the 2018-reference year DEFRA background maps provided at a 1km grid square resolution across the UK.

6.144. The modelling assessment will be undertaken in accordance with DEFRA's LAQM Technical Guidance (LAQM.TG(16). Given no current monitoring exists roadside of the M53 motorway, verification of the ADMS-Roads model will not be undertaken as agreed with the WMBC Environmental Protection Officer.

6.145. Modelled pollutant concentrations at new exposure locations on-Site will be compared with the relevant AQALs to determine suitability, and whether input into the design of the scheme (in terms of setback distances form the M53 motorway) are required to ameliorate any potential effects. At present, this is not considered necessary as effects associated with likely

pollutant concentrations future occupants may be exposed to are considered to be 'not significant'.

Cumulative Impacts

6.146. Cumulative effects will be considered where relevant.

6.147. Within the context of construction dust, consideration will be given to dust generated from other construction activities occurring locally and concurrently. However, all schemes which are considered to pose a risk of cumulative effects will have had to undertake a construction dust assessment separately relating to their own site activities and associated risks, with the recommendation of best practice mitigation to remedy residual effects not significant. As such, cumulative effects associated with construction dust are considered to be not significant.

6.148. Furthermore, the detailed Site suitability assessment will consider the maximum traffic flows that are likely to occur in the future assessment year (i.e. 2023) should the Proposed Development become fully operational. This will include traffic flows associated with:

- Relevant committed developments in the assessment area; and
- The remaining seven residential development applications associated with the Leverhulme Vision Project across the Wirral (which are yet to receive planning consent), where relevant.

6.149. As such, the dispersion modelling exercise will be inherently cumulative in nature, and on reflection represents a worst-case approach in terms of approval of developments associated with the Leverhulme Vision Project.

6.150. Screening of projected road traffic vehicle movements associated with the Proposed Development will be undertaken in isolation and are considered insignificant. No further assessment in relation to cumulative effects are therefore required.

Mitigation

6.151. The above assessments will identify the nature and significance of potential air quality effects that may arise. If required, we will:

- identify the relevant mitigation requirements, proportionate to the development's nature, scale and potential effect(s);

- discuss/collate any relevant embedded mitigation already integrated as part of the scheme; and
- describe the nature and significance of any residual effects following application.

Chapter 12 – Agricultural Land Quality

Introduction

6.152. The Proposed Development would result in the loss (permanent sealing) of agricultural land, an irreversible effect and one that could result in significant environmental effects; therefore an assessment of the effects of the Proposed Development on agricultural land would be scoped into the ES. The purpose of the assessment would be to identify the agricultural land quality of the Site and to assess the effects of the development on the loss of 'best and most versatile' (BMV) agricultural land.

Baseline Conditions

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

6.154. The Site extends to 3.30 ha and comprises predominantly agricultural land. It is shown on the Provisional Agricultural Land Classification (ALC) map as Grade 3 land. However, the Provisional ALC is not suitable for assessing individual Sites due to limitations of scale and changes to the classification system since they were drawn up, and a detailed survey is necessary to establish the definitive grade of land.

6.155. The approach to be taken will comprise desk studies, including a review of published and unpublished soils and agricultural land quality surveys to determine current information about the Site, prior to undertaking a detailed survey and examination of the Site to confirm soil types and additional desk studies/calculations to confirm the ALC grading of the land.

Potential Effects

6.156. The potential effects to consider are the loss (permanent sealing) of BMV agricultural land and the effects on the functioning of soils.

Assessment Methodology

6.157. The significance of effects on agricultural land will depend on the area of land affected by the Proposed Development and the ALC grading of the land. There is little current guidance on what area of loss is considered significant, although 20ha is the threshold adopted in The Town and Country Planning (Development Management Procedure) (England) Order 2015 for local planning authorities to consult Natural England before granting planning permission for a non-agricultural development that is not consistent with an adopted development plan, and which would involve the loss of BMV land. This threshold will be taken into consideration in the assessment of the magnitude of impacts.

6.158. The significance of effect on soil resources will depend on the extent to which soils disturbed or displaced by the Proposed Development will be re-used in a manner that enables them to fulfil one or more of the primary soil functions, including the production of food and biomass; the storage, filtration and cycling of water, carbon and nitrogen in the biosphere; and the support of ecological habitats and biodiversity.

7. Topics to be Scoped Out of EIA

7.1. Taking into account the knowledge of the Site location and characteristics, the findings from reports carried out to date, and professional judgement, it is proposed that the following environmental topics are either fully or partially excluded from the scope of the ES.

Flood Risk and Drainage

7.2. This section of the report identifies the flood risk and drainage receptors of relevance to the Proposed Development, and considers potential effects from the construction, operation and maintenance on the water environment and on flood risk. The water environment includes watercourses and surface water drainage, groundwater below the Site and flood risk.

7.3. Baseline data to inform scoping for Flood Risk and Drainage has been taken from publicly available information and opensource data from a range of sources. The data review includes:

- Environment Agency and data.gov.uk website
- British Geological Survey (BGS) GeoIndex mapping
- Defra's MAGIC website and Natural England
- Cranfield Soil and Agrifood Institute Soilscapes map viewer
- Wirral Council

7.4. The Site is situated within Flood Zone 1 (as defined by the Environment Agency), with a less than 1 in 1,000 annual probability of river flooding (<0.1%). There are two watercourses/ bodies, located 50m north west and 370m south of the Site, which form tributaries of the larger Dibbinsdale Brook c.560m east of the Site.

7.5. The Site is predominantly underlain by bedrock Geology of the Wilmslow Sandstone Formation[1], with the western half of the Site overlain by glacial till. The eastern half of the Site does not have any recorded superficial deposit cover. The Wilmslow Sandstone Formation is designated by the Environment Agency[2] as a 'Principal aquifer'. The glacial till deposits are designated as a 'Secondary (Undifferentiated) Aquifer'.

1 British Geological Survey, Geology of Britain Viewer, https://www.bgs.ac.uk/map-viewers/geology-of-britain-viewer/ (Accessed July 2021)
2 Magic Map Application, DEFRA, https://magic.defra.gov.uk/MagicMap.aspx (Accessed July 2021)

7.6. Groundwater vulnerability designations vary from 'Medium-Low', graduating to 'Medium' in the west of the Site. The Site is not located within a Source Protection Zone (SPZ). The Site lies within a Nitrate Vulnerable Zone (NVZ).

7.7. The WESS demonstrates at Figure 5.3 that the Site has a 'Moderate (1-2)' sensitivity to water. For comparison, the majority of undeveloped land in the Wirral also shares this sensitivity rating. The Moderate sensitivity at this Site relates to the NVZ designation at the Site.

7.8. In accordance with the Council's validation requirements a Flood Risk Assessment and Surface Water Drainage Strategy will be provided with the planning application and the proposals will include sustainable drainage (SuDS) measures, which will be in accordance with Wirral Council Sustainable Drainage and Surface Water Management Technical Guidance for Developers. The SuDS design will seek to manage surface water from any Proposed Development through infiltration to ground or through a controlled discharge nearby Penton Brook. These documents will be subject to review by statutory consultees during the course of the planning application.

7.9. Potential effects during the construction phase are summarised by the following:

- Increase in runoff rate and volume of surface water from the Site resulting from the removal of vegetation and the compaction of the ground:
  - Increased downstream flood risk; and
  - Impacts on channel morphology and ecology.
- Increase in sediment loading of water discharging from the Site to surrounding drainage channels :
  - Blockage of infrastructure along surrounding drainage channels;
  - Impacts on channel morphology and ecology; and
  - Blockage of drainage channels across the Site resulting in increased flood risk.
- Decrease in water quality of surface water leaving the Site. Potential contaminants are:
  - Cementous material; and
  - Fuel, oils, and other hydrocarbons

7.10. Potential effects during the operational phase are summarised by the following:

- Increase in runoff rate and volume of surface water from the Site due to impermeable coverage:
  - Increased downstream flood risk; and

    - Impacts on channel morphology and ecology.
- Changes to the conveyance of surface water across the Site altering the flood risk both upstream and downstream of the Site. This could result in long term morphological impact on remaining channels associated with surface water outfalls, physical structure and changes in flow patterns;
- Decreases in the water quality of surface water being discharged from the Site associated with;
    - Litter or debris entering the drainage system; and
    - Hydrocarbons and metals particularly from vehicular access to the Site.

7.11. As part of the design process a number of designed-in measures are proposed to manage any potential for impacts on the water environment. These measures will evolve over the design process in response to consultation.

7.12. Leverhulme Estates are committed to implement these measures, and also various standard sectoral practices and procedures. It is therefore considered that these measures are inherently part of the design of development proposals and hence have been considered in the judgments as to which impacts can be scoped in/out.

7.13. Measures adopted as part of the project will include:

- Avoidance of impact through design by selecting development platforms that avoid areas sensitive to the water environment;
- Development of, and adherence to, a Code of Considerate Practice which would set out principles for storage and handling of oils, fuel or any other potentially polluting substance, management of surface water and soil management;
- During the construction phase, any piling operations would require a separate Piling Risk Assessment; and
- Preparation of a Flood Risk Assessment including a Surface Water Drainage Strategy, including SuDS management plan.

7.14. The requirement and feasibility of any mitigation measures will be consulted upon with statutory consultees throughout the planning process.

7.15. Incorporation of the mitigation measures outlined above as part of the scheme design process and preparation of a Surface Water Drainage Strategy as part of the Flood Risk Assessment report will ensure that any risk of pollution to the water environment is controlled and there will be no significant impacts. The Flood Risk Assessment will also demonstrate

that there will be no risk to the Proposed Development and no change to flood risk upstream or downstream of the Site. As a result, this topic has been scoped out of the EIA assessment.

Climate Change

7.16. The EIA Regulations require the EIA process to consider the impact of development projects on climate change.

7.17. A separate climate change chapter is not proposed within the ES. Instead, climate change will be considered as relevant within various chapters of the ES. In particular, the design of the development will incorporate measures to minimise and mitigate greenhouse gas emissions, such as measures to reduce reliance on private cars and encourage sustainable modes of transport. This will be explored within the introductory sections of the ES (Chapter 4).

7.18. Consideration of predicted changes in baseline environmental conditions, including changes resulting from climate change, will be addressed within each technical chapter as relevant.

7.19. The operational development would not include any use which would feature processes or operations generating significant additional volumes of greenhouse gases. Whilst there would be some greenhouse gasses emitted, mainly from operational traffic relocating from other parts of the Wirral and the wider UK, the limited amount of information available and the uncertainties involved would mean that any assessment would be very difficult to quantify. In addition, the proposed improvements to pedestrian and cycle routes, Electric Vehicle charging infrastructure, modern insulation standards and improved connections to public transport links should lead to an overall reduction in greenhouse gas emissions associated with transport and domestic heating.

7.20. Therefore, no more detailed assessment of greenhouse gas emissions/climate change is considered necessary or appropriate.

Material Assets

7.21. The EIA Regulations refer to the need to consider ‘material assets’, a broad term which incorporates any resources that are valued and can be either manmade or natural in origin and may provide economic or cultural value. In practice, material assets are considered across a broad range of topics within the ES, as indicated at Table 5 above. It is therefore

considered that no separate Material Assets technical chapter would be necessary or appropriate.

Soil (Land Contamination)

7.22. The Site has not previously been developed and the historical records indicate that this area has only been used for agricultural purposes. Potential contamination sources include localised Made Ground located in the southwest of the Site identified during the Site walkover and use of pesticides and fertilisers during agricultural use. However, these potential sources are unlikely to present an unacceptable risk to the Proposed Development, primarily due to the absence of housing proposed in this area of the Site, use of modern construction techniques and PPE used by construction workers and the use of clean cover soils and construction techniques lowering the risk to future residents. In addition, there are no significant sources of off-Site contamination recorded in the vicinity of the Site that could present an unacceptable risk to the Proposed Development. Consequently, the limited records of significant current and historical sources of contamination located on-Site and in the immediate vicinity are unlikely to have a significant effect on the Proposed Development.

7.23. The Site is predominantly underlain by bedrock of the Wilmslow Sandstone Formation which outcrops at the surface in the east. Glacial Till does however underlie the western half of the Site, underlain by the bedrock geology.

7.24. The Wilmslow Sandstone Formation (bedrock) is classified as a principal aquifer and the Glacial Till is classified by the EA as a secondary (undifferentiated) aquifer. The Site does not lie within a groundwater Source Protection Zone (SPZ), and are no records relating to active groundwater abstractions within 1.5km of the Site. The overall groundwater sensitivity is however considered to be high due to the presence of a principal aquifer underlying the majority of the Site.

7.25. There are no surface water features located on-Site. Clatter Brook is located approximately 25m to the northwest downgradient of the Site. Therefore, the surface water sensitivity is considered as medium to high, although there are no active surface water abstractions within 2km of the Site.

7.26. In the absence of identified sources of significant contamination, no complete pollutant linkages are considered present and active on-Site. Therefore, based on these findings, potential effects to human health and environmental receptors during the construction and

operational phases are considered unlikely to be present in the context of the proposed residential development, and any cumulative effects are also considered to be negligible. Nevertheless, the planning application will be supported by subject to a Preliminary Environmental Risk Assessment. This will formally assess the potential for any contamination within the ground and highlight the requirements for any additional studies and/or remediation measures as required. The survey work supporting the application will also be available for review by statutory consultees.

7.27. As a result, this topic has been scoped out of the EIA assessment, as it is unlikely that there will be any risks to human health or controlled water receptors which cannot be controlled by way of appropriate pollution control measures.

Major Accidents and Disasters

7.28. Schedule 3 of the EIA Regulations 2017 states that: *'1. The characteristics of development must be considered with particular regard to -- (f) the risk of major accidents and/or disasters relevant to the development concerned, including those caused by climate change, in accordance with scientific knowledge'.*

7.29. Given the nature of the Proposed Development, there is no significant likelihood for major accidents and disaster events to occur. However, for proportionality, the potential for major accidents and/or disasters has been considered below:

- Flooding – This matter has been addressed above;
- Malicious Attacks (Terrorism) – The Proposed Development will incorporate secured by design principles which aim to design out crime wherever possible and increase resilience of the Proposed Development, in the unlikely event of a malicious attack; and
- Unexploded Ordnance – A Desk Study and Ground Investigation Report will be undertaken and submitted in support of the planning application, however this is not expected to be a likely environmental impact.

7.30. Therefore, this topic has been scoped out of the EIA assessment.

Wind Microclimate

7.31. Wind microclimate of new development is important both for human comfort and safety as well as impacts on the buildings themselves. During the construction phase, the construction

works and associated apparatus may affect the local wind microclimate, however, any effects would be temporary and would not be anticipated to be significant. In respect of the operational phase of development, the Proposed Development is for low-rise development, with buildings of up to 12 metres in height. Therefore, no likely significant wind effects from the Proposed Development are anticipated, and this topic has been scoped out of the EIA assessment.

Daylight, Sunlight and Overshadowing

7.32. During the construction phase, the associated construction apparatus may cause some overshadowing, however, any effects would be temporary and would not be anticipated to be significant, particularly noting that this is a greenfield Site.

7.33. In respect of the operational phase of development, the Proposed Development is for low-rise development, with buildings of up to 12 metres in height, on a greenfield Site. Therefore, no likely significant daylight, sunlight, or overshadowing effects from the Proposed Development are anticipated, and this topic has been scoped out of the EIA.

Lighting

7.34. The Site lies at the edge of an urbanised area, and is considered to lie within Environmental Zone E3 (suburban) as defined by the Institute of Lighting Professionals. Cognisant of this context, a proposed residential development such as this is not expected to produce significant lighting effects. Consequently, this topic has been scoped out of the EIA.

Waste

7.35. Some waste will be generated during the demolition phase of the Proposed Development from surplus construction materials. However, the amounts of waste generated are not anticipated to be significant, and a Construction Environmental Management Plan would be required by planning condition and implemented during construction to maximise recycling and minimise waste.

7.36. During the operational phase, waste will be generated by the resident population of the development, and from the proposed commercial uses. Household and commercial waste and recycling would be collected, and recycled/disposed of by the local authority, in accordance with relevant legislation. This will be set out in a Waste Management Plan which

can be controlled by planning condition. It is not anticipated that the waste generated would be significant, and this topic has therefore been scoped out of this EIA.

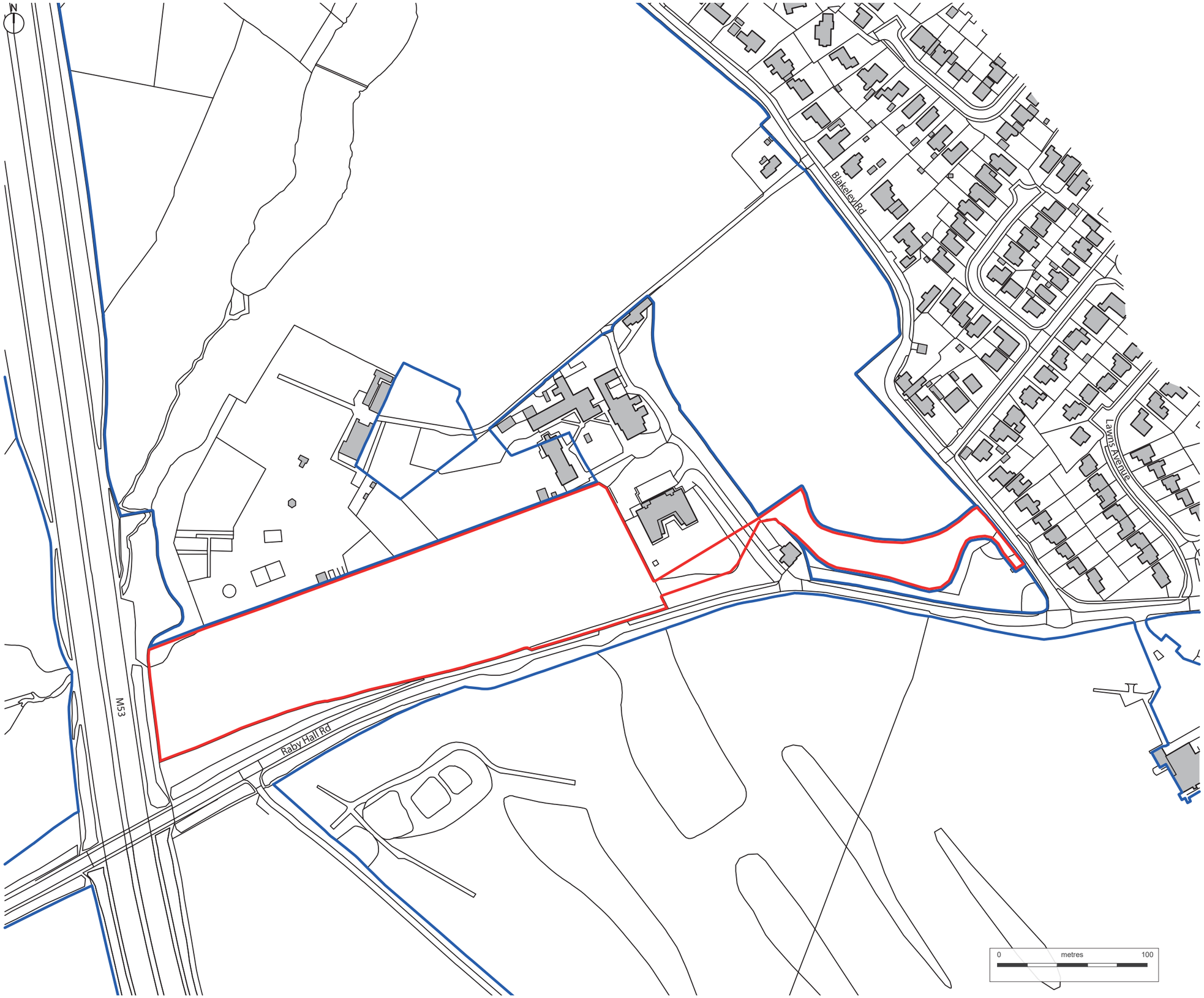
Radiation and Heat

7.37. Given the nature of the Proposed Development, no significant radiation or heat effects are anticipated at either the construction or operational phase, and this topic has therefore been scoped out of this EIA.

Vibration

7.38. There are no sources of vibration incident upon the proposed Site. For example, there are no railway lines (passage of freight trains can cause vibration) and/or a quarries in the vicinity of the Site (blasting can cause vibration). As there are no sources of vibration, vibration is scoped out of this EIA.

APPENDIX 1 - SITE LOCATION PLAN



Site boundary (3.30 ha)

Other land owned by Leverhulme Estates

Based on Ordnance Survey 1:2,500 mapping with the permission of the Controller of HMSO ©Crown Copywrite Licence No. VA 100033416

LEVERHULME ESTATES
LAND WEST OF RABY HALL, RABY HALL ROAD, RABY MERE

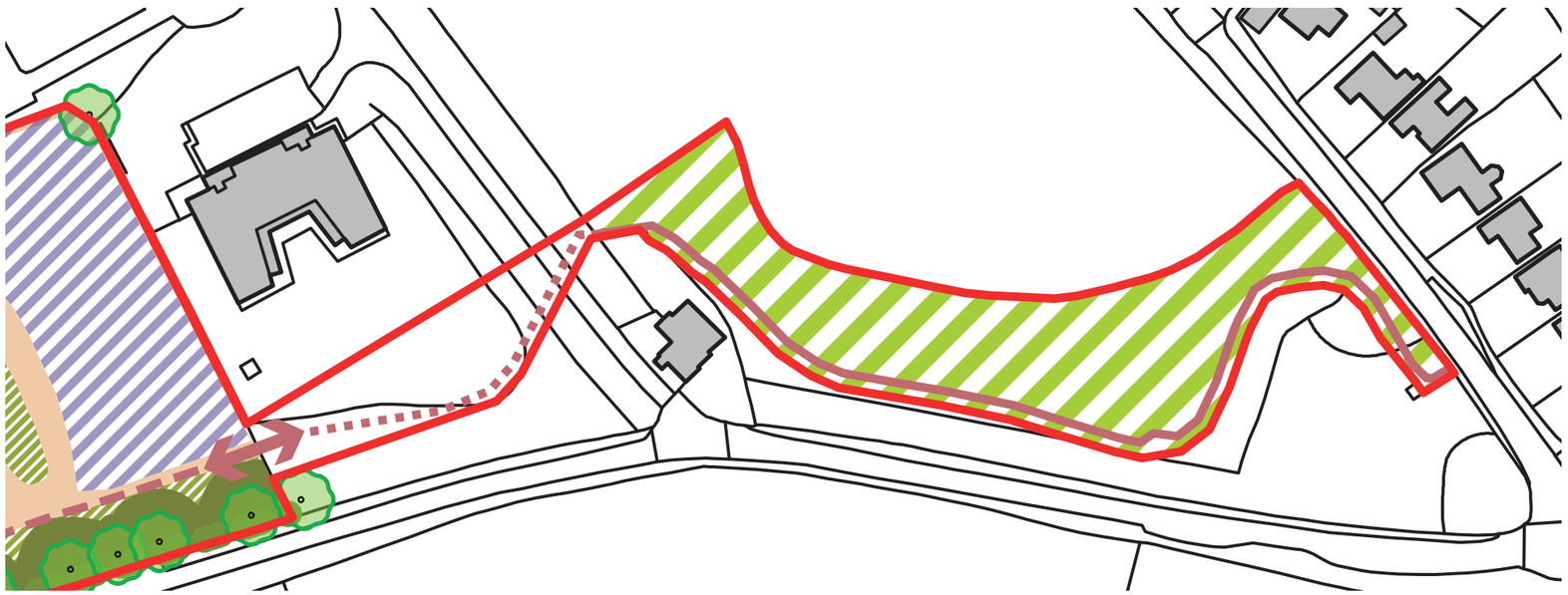
LOCATION PLAN

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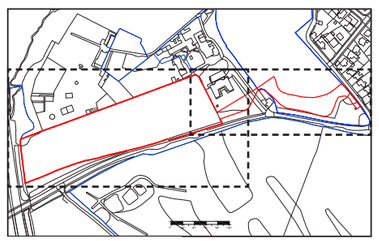
APPENDIX 2 - INDICATIVE PARAMETER PLAN



Western section: development site



Eastern section: footpath to Blakeley Road



Key plan

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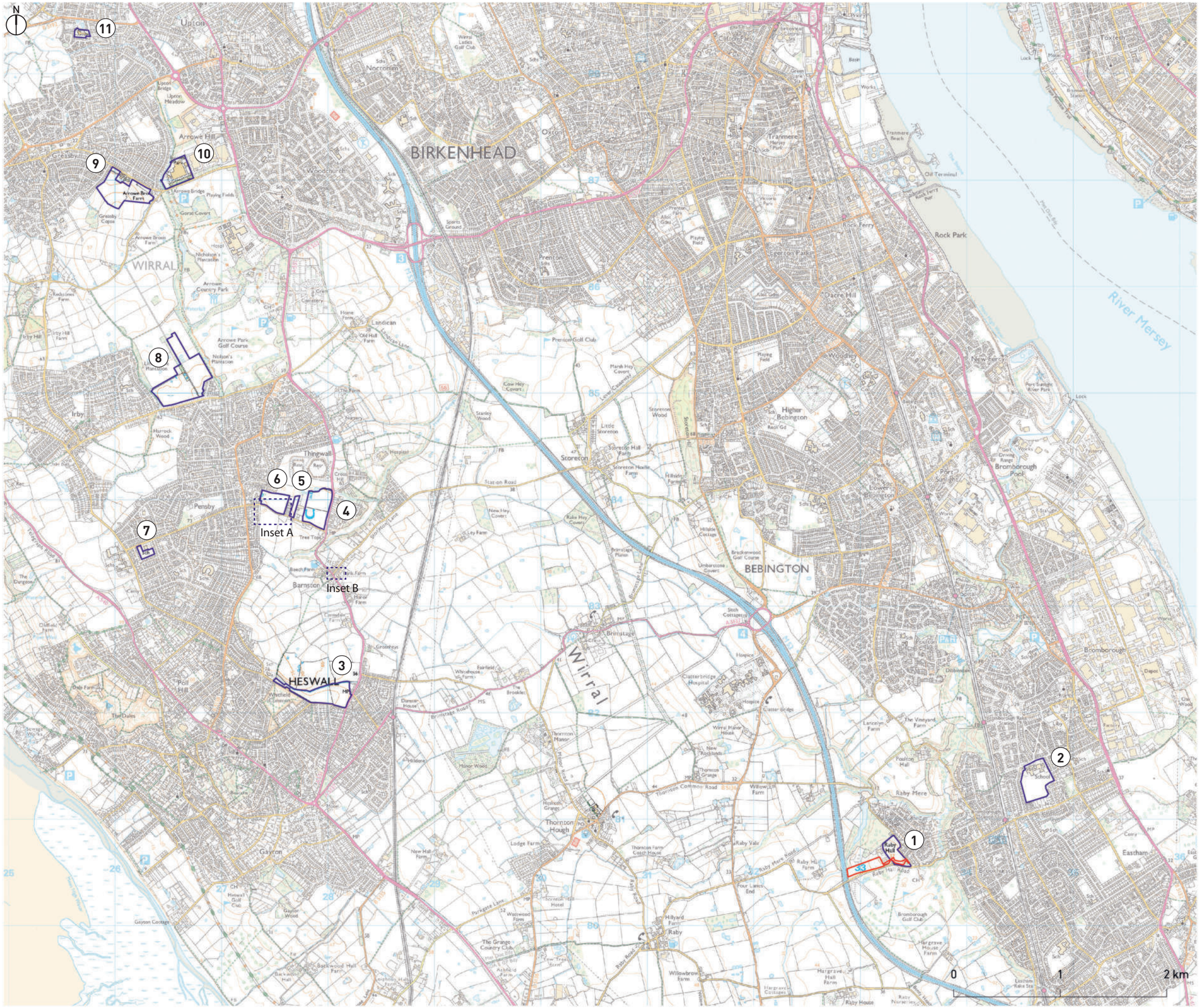
- Site boundary
- Residential development
- Protected green and blue infrastructure - habitat buffer zones and root protection areas
- Proposed green and blue infrastructure (indicative location) - woodland, grassland and wetland habitat, LAP play area, amenity green space and drainage attenuation features
- Area safeguarded for future use by Autism Together
- Retained high quality trees
- Retained moderate quality trees
- Retained existing hedgerows
- Vehicular access point
- Pedestrian/cycle access points (indicative location)
- Drainage attenuation basin (indicative location)
- Play area - LAP (100sqm) (indicative location)
- Acoustic barrier and planted screening
- Off road footpath connecting to Blakeley Road within development site (indicative alignment)
- Off road footpath connecting to Blakely Road crossing Autism Together site (indicative alignment)
- Improved permissive footpath providing off road footpath connecting to Blakeley Road (indicative alignment)
- Retained green infrastructure adjacent to off road footpath

LEVERHULME ESTATES
LAND WEST OF RABY HALL, RABY HALL ROAD, RABY MERE

PARAMETER PLAN

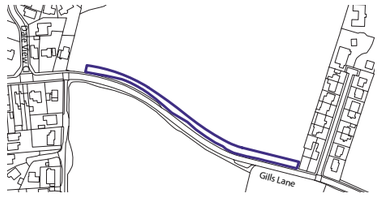
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NOV 2021	Alan Baxter

APPENDIX 3 - PLAN SHOWING LOCATIONS OF CUMULATIVE DEVELOPMENT PROJECTS

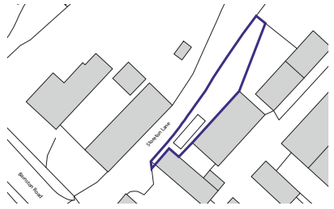


- Planning application boundary
- Cumulative Development Sites

1. Land East of Raby Hall, Raby Hall Road, Raby Mere
2. Land at Acre Lane and Meadowside Road, Bromborough
3. Land at Milner Road and Barnston Road, Heswall
4. Land West of Barnston Road, North of Gills Lane, Barnston
5. Land East of Thorncroft Drive, North of Gills Lane, Pensby
6. Land East of Dale View Close, North of Gills Lane, Pensby
7. Fishers Lane, Pensby
8. Land East of Glenwood Drive, Irby
9. Land East of Rigby Drive, Greasby
10. Wirral Business Park, Arrowe Brook Road, Upton
11. Girtrell Court, Woodpecker Close, Upton



Inset A - relates to site 4



Inset B - relates to sites 3, 4 & 6

LEVERHULME ESTATES
LAND WEST OF RABY HALL

CUMULATIVE DEVELOPMENT SITES PLAN

1815/001/1011 Rev C	1:35,000 @ A3
DEC 2021	Alan Baxter

APPENDIX 4 - LANDSCAPE AND VISUAL IMPACT ASSESSMENT SCOPING REPORT

Landscape and Visual Impact Assessment - Scoping Report

Land to the West of Raby Hall,
Raby Hall Road,
Raby Mere, Wirral

For: Leverhulme

Ref: M2738-SR-RMW-21.03-V4



BARNES WALKER

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3.0	The LVIA Methodology	04

Figures

Figure 1 – Aerial View – Site Location & Study Area
Figure 2 - OS Base with Site Boundary and Viewpoint Locations/VP numbers

1.0 Introduction

1.1 Barnes Walker Ltd has been commissioned by Leverhulme to prepare a Landscape and Visual Impact Assessment (LVIA) for a residential development at Raby Hall.

1.2 The application site extends to approximately 3.3 ha and lies to the north of Raby Hall Road and to the east of the M53. The settlement of Raby Mere is to the east of the site and separated from it by the grounds of Raby Hall School. The location and extent of the study area for the assessment is described by Figure 1.

1.3 The purpose of this report is to set out the scope of the LVIA, including the methodology which it will follow, the extent of the study area and the landscape and visual receptors which will be assessed so these can be agreed with Wirral Metropolitan Borough Council.



Figure 1 - Site Location/Study Area

Application Site

Study Area

2.0 Landscape and Visual Receptors

2.1 The following landscape and visual receptors have been identified and will be assessed within the LVIA.

Landscape Receptors

2.2 The landscape receptors which have the potential to be affected by the proposed development of the application site are as follows:

- The landscape features of the site;
- NCA 58 Merseyside Conurbation and NCA 59 Wirral; and
- Wirral Landscape Character Assessment LCA 4c Clatterbrook and Dibben Valley Lowland.

Visual Receptors

2.3 The LVIA will consider public views, which are experienced from Public Rights of Way, public open spaces and from the road network. The presence of residents experiencing a private view of the application site and the nature of the views experienced will be acknowledged and considered within the baseline. A succinct narrative will be provided regarding the likely visual effects experienced by residents, however the LVIA will only fully assess the visual effects upon visual receptors that experience publicly accessible views.

2.4 The visual receptors identified include:

- People using PRoW FP36 that crosses Bromborough Golf Course to the south of the site;
- Road Users such as drivers and passengers of vehicles, cyclists, pedestrians on Raby Hall Road, Thornton Common Road and Raby Mere Road;
- Golfers on Bromborough Golf Course; and
- Pupils and staff attending Raby Hall School;

2.5 The locations of the relevant associated Representative Viewpoints VP1-9 are described by Figure 2 which include:

- Viewpoints 1-6 from Raby Hall Road; and
- Viewpoints 7, 8 and 9 from PRoW FP36.

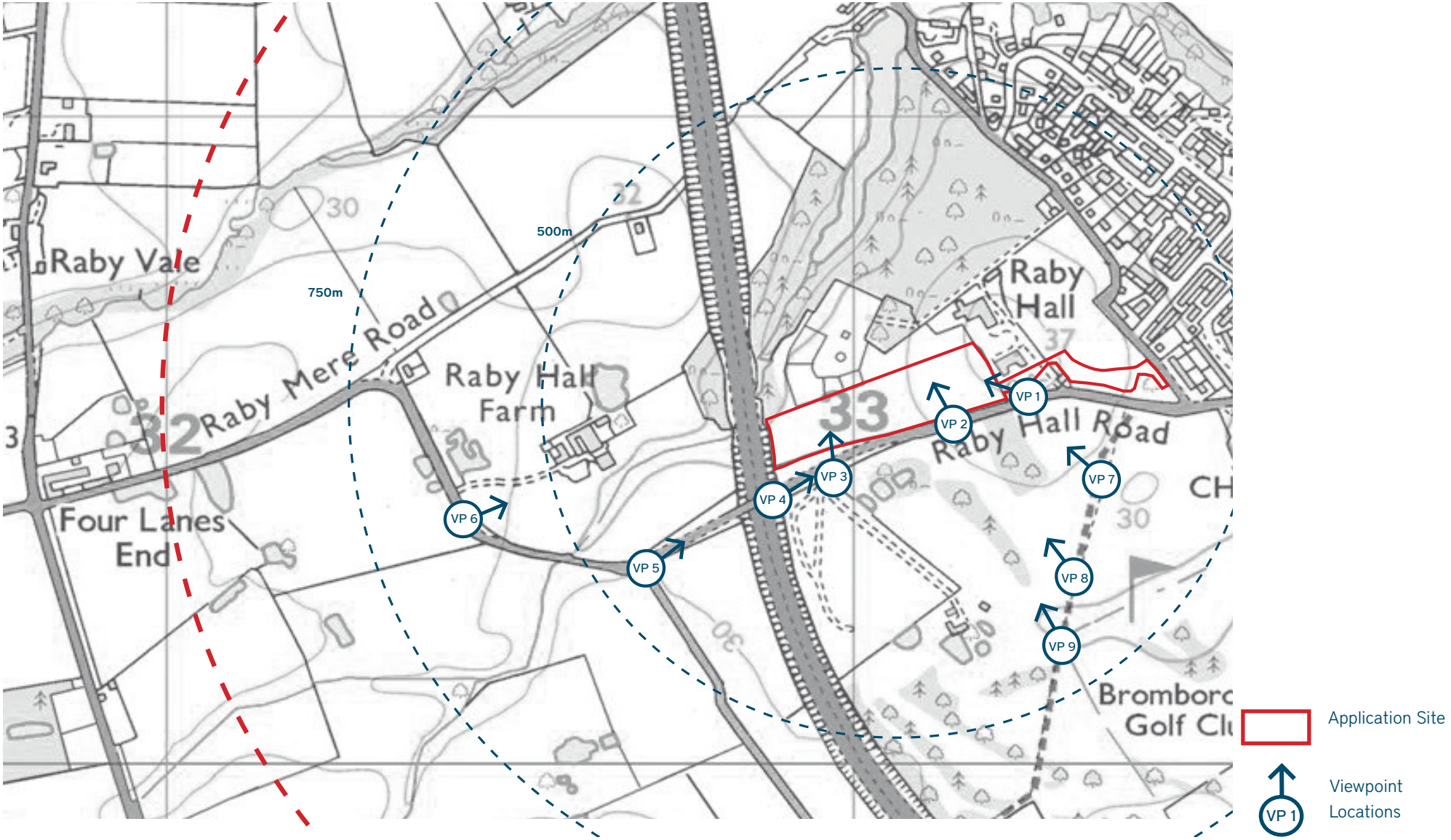


Figure 2 - OS Base with Site Boundary and Viewpoint Locations/VP numbers

3.0 The LVIA Methodology

Introduction

3.1 The assessment of landscape and visual effects will be undertaken with reference to and using aspects of the guidance found within `Guidelines for Landscape and Visual Impact Assessment` 3rd Edition, published by the Landscape Institute (LI) and the Institute of Environmental Management & Assessment (IEMA) 2013 (termed GLVIA3 hereafter).

3.2 As stated within GLVIA3 paragraph 1.20, the guidelines are not prescriptive and the approach and methodology has been tailored to the specific requirements of the proposals.

3.3 GLVIA3 recommends the following five key stages in the assessment of landscape and visual effects:-

- Scope;
- Establishing the landscape and visual baseline;
- Describing the landscape and visual effects;
- Assessing the significance of the landscape and visual effects;
- Ascertaining the overall significance of landscape and visual effects

3.4 These five stages are applied separately to the landscape assessment and the subsequent visual assessment. GLVIA3 recognises that landscape and visual assessments are separate, although linked procedures.

3.5 Landscape effects are the predicted effects on the landscape as a resource in its own right. Landscape effects can be generated by a developments effect upon the physical landscape and or upon its character, fabric and quality. These could include direct physical impacts upon landscape elements, but also includes aesthetic, perceptual and experiential aspects of a landscape which may contribute to an existing landscape character.

3.6 Visual effects are the predicted changes to a view and the related impact on the general visual amenity experienced by people (visual receptors). The various visual receptor groups will comprise individuals or groups of people that experience a view of the application site from a publicly accessible location. They will typically include the users of Public Rights of Way, users of recreational facilities, pedestrians and users of a variety of forms of transport such as the drivers and passengers of vehicles, cyclists or rail passengers.

3.7 With regards to the visual amenity of the residents of private properties, GLVIA3 recommends that private views can be dealt with by a separate 'residential amenity assessment' as in planning terms, residents are not entitled to a view. The presence of residents experiencing a view of the application site and the nature of the views experienced will be acknowledged and considered within the baseline and a succinct narrative will be provided regarding the likely visual effects, however the LVIA will only fully assess the visual effects upon the receptors that experience publicly accessible views.

Study Area

3.8 The overall study area for the landscape and visual assessment will be established by undertaking a desk-based survey, the preparation of a Zone of Theoretical Visibility (ZTV) and refined by subsequent site-based survey work.

3.9 The site-based work will be undertaken by a chartered member of the Landscape Institute with experience of landscape and visual assessment.

3.10 Site-based work will initially involve travelling throughout the area identified by the ZTV in order to ascertain levels of visibility on the ground (taking account of screening trees, hedgerows and built form), in order to inform and confirm the extent of the study area.

3.11 The study area will therefore include the site and the wider landscape which could be influenced by the development proposals and the extent of the area from which the development is potentially visible.

3.12 This desk and subsequent site-based work will also establish the representative viewpoints for the visual assessment. The proposed study area and the representative viewpoints will

be presented within an appropriate landscape Scoping Report to the planning authority for their consideration and approval.

Landscape Effects

3.13 GLVIA3 paragraph 5.1 states *'An assessment of landscape effects deals with the effects of change and development on landscape as a resource.'*

The Landscape Baseline - Desk Based Assessment

3.14 The assessment will include a review of the relevant planning policy and other guidance and relevant information including:

- National Planning Policy Framework (NPPF 2012) and subsequent revision (July 2021);
- Wirral Council Unitary Development Plan;
- Natural England National Character Area 58: Merseyside Conurbation and National Character Area 59: Wirral;
- Neighbourhood Plans (where relevant);
- The Wirral Landscape Character Assessment 2019;
- The Wirral Landscape Sensitivity Assessment 2019/2021;
- Ordnance Survey mapping;
- Historic Mapping;
- Defra (MAGIC) website;
- Online aerial mapping;
- Sustrans website; and
- Published walking or cycling routes.

The Landscape Baseline – Site Based Assessment

3.15 Site Assessment work will initially entail travelling around the confirmed study area by car/cycle and by foot to understand the landscape features within the site and the surrounding area and to confirm the accuracy of the relevant published character assessments.

3.16 The landscape baseline will incorporate descriptions of the application site and the surrounding landscape, before referencing all published landscape character assessments and ascertaining the presence of any designated heritage assets such as Conservation Areas, Listed Buildings and Scheduled Ancient Monuments. The Landscape and Visual Amenity Chapter will acknowledge and incorporate the presence of heritage assets and their influence upon the character and attributed value of the landscape receptors. As such, heritage assets will be incorporated within and inform the assessment process, however this LVIA will not specifically assess effects upon the historic landscape or heritage assets (this will be undertaken in full within a separate chapter of the Environmental Statement).

3.17 GLVIA3 paragraph 5.33 states that the landscape baseline should map describe and illustrate the character of the landscape and its individual elements and aesthetic and perceptual aspects, emphasising any key characteristics that contribute to the distinctive character of the landscape. It also states that the condition of the landscape should be indicated with reference to elements therein, such as buildings, hedgerows or woodland.

Landscape Value

3.18 In accordance with paragraph 5.44 of GLVIA3, the Landscape Baseline will also consider the value of the landscape resource within the study area.

3.19 GLVIA3 paragraph 5.45 states 'the value of the landscape receptors will to some degree reflect landscape designations and the level of importance which they signify, although there should not be over reliance on designations as the sole indicator of value.'

3.20 The fact a landscape is not subject to a designation, does not mean that it does not have any value. Where there is no evidence to indicate landscape value, the assessment will utilise an approach akin to the Box 5.1 assessment as set out within GLVIA3 paragraph 5.28 and Landscape Institute Technical Guidance Note TGN-02-21,

Assessing landscape value outside national designations, which draw on the factors that are generally agreed to influence value, which can be Exceptional (International/National), High (National/Regional), Medium (Regional/Community), Low (Community/Local) or Very Low (Local). In addition to acknowledging the presence of any landscape designations, these factors comprise the following:

- Landscape Condition (Table 1 below to be utilised to assist judgements on condition): A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
- Distinctiveness: Consideration as to whether the landscape has a strong sense of identity through reference to relevant Landscape Character Assessments.
- Natural Heritage: Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.
- Cultural Heritage: Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape.
- Recreational Value: Landscape offering recreational opportunities where experience of landscape is important.
- Perceptual (scenic): Landscape that appeals to the senses, primarily the visual sense.
- Perceptual (wildness and tranquillity): Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies.
- Associations: Landscape which is connected with notable people, events or the arts.
- Functional: Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape.

Assessment of Landscape Effects

3.21 Having established the landscape baseline, the relevant landscape components or 'receptors' are identified and will normally comprise physical landscape features, such as trees, hedgerows, dry-stone walls etc and identified landscape character areas within the study area.

3.22 Having ascertained the landscape receptors, the assessment will then identify interactions between those receptors and the development proposals at different stages.

3.23 The type of landscape effects predicted may include direct, indirect, short term (Year 1 Operational to Year 6), medium term (Year 7 to Year 14) and long term (Year 15 and beyond), temporary (construction) and whether they are positive (beneficial) or negative (adverse) effects.

3.24 In order to determine the significance of the potential landscape effects which may result from the development, the sensitivity and the magnitude of effect of each of the landscape receptors must be established. The sensitivity and magnitude of effect can then be combined to ascertain the significance of effect for the landscape receptors – see Table 4.

Landscape Sensitivity

3.25 Sensitivity determines the degree to which individual landscape receptors may be affected by a development proposal. In order to establish the sensitivity of the relevant landscape receptors, their susceptibility to specific change must be considered alongside a judgement on their respective value (the value, susceptibility and associated sensitivity of the landscape resource is established within the Landscape Baseline).

3.26 Susceptibility to change means the ability of the landscape receptor to accommodate the type of the proposed development (whether it be housing, warehouses, a wind farm etc), without undue consequences for the maintenance of the baseline and/or the achievement of landscape planning policies and strategies and with reference to Table 2 below, is graded on a scale of high, medium or low.

Condition	Criteria
Exceptional	• Strong landscape structure, characteristics, patterns, balanced combination of landform and landcover; • Appropriate management for land use and landcover; • Distinct features worthy of conservation; • Strong sense of place; and • No detracting features.
Very Good	• Robust landscape structure, characteristics, patterns and balanced combination of landform and landcover; • Appropriate management for land use and landcover with potential scope to improve; • Distinct features worthy of conservation; • Sense of place; and • Occasional detracting features;
Good	• Recognisable landscape structure, characteristic patterns and combinations of landform and landcover are still evident; • Scope to improve management for land use and land cover; • Some features worthy of conservation; and • Some detracting features.
Ordinary	• Distinguishable landscape structure, characteristic patterns of landform and landcover; • Scope to improve management of vegetation; • Some features worthy of conservation; and • Some detracting features.
Low	• Weak landscape structures, characteristic patterns of landform and landcover are often masked by land use; • Mixed land use evident; • Lack of management and intervention has resulted in degradation: and • Frequent detracting features.
Very Low	• Degraded landscape structure, characteristic patterns and combinations of landform and landcover are masked by land use; • Mixed land use dominates; • Lack of management/intervention has resulted in degradation; and • Extensive detracting features.
Damaged	• Damaged landscape structure; • Single land use dominates; • Disturbed or derelict land requires treatment; and • Detracting features dominate.

Table 1 – Landscape Condition

Level of Susceptibility	Definition
Higher Susceptibility	• The landscape is of an open nature/ is large scale/has natural topographical variations and/or there is a negligible/low level of containment so is susceptible to the introduction of uncharacteristic elements/features; • The landscape is of a small, intimate scale that is susceptible to the introduction of uncharacteristic elements/features; • There are historic assets/features present, such as remnant parkland and semi-natural woodland; • There is an overriding rural character; • Many of the valued existing landscape characteristics and features would be difficult to replace or mitigate, although it may be possible to enhance/mitigate to some extent; • There are higher levels of wildness and tranquillity.
Lower Susceptibility	• There are limited variations in the topography; • There is a limited presence of natural landform; • The landscape is of a more enclosed nature that results from a strong woodland structure; • Predominantly agricultural land which is intensively farmed, leaving limited semi-natural habitat; • The is a perceived prominence and presence of human activity.

Table 2 – Indicators of Landscape Susceptibility Change

3.27 Combining the value and susceptibility judgements attributed to each landscape receptor then informs a judgement regarding their sensitivity, which is graded on a scale of high, medium or low.

Magnitude of Effect

3.28 GLVIA3 recommends that the magnitude of effect upon landscape receptors is assessed using three considerations as follows:

- The size or scale of the change to the landscape resulting from the implementation of the development proposals - Determining the size or scale of landscape effect takes account of landscape elements which are lost and those which are improved, the degree to which aesthetic or perceptual aspects of the landscape are altered and whether the effects change the key characteristics of the landscape;
- The geographical extent of the area influenced by the development proposals - this could comprise the site only, its immediate setting or possibly the wider landscape at the scale of the landscape type or character area within which the development is located, or also at a larger scale where more than one landscape type or character area within the wider study area is influenced;
- The duration and reversibility of the effect - This is judged on a scale of short term

(0-6 years), medium term (7-15 years taking account of the establishment of planting proposed as embedded mitigation) and long term (15 years and beyond). Reversibility is a judgement about the prospects and the practicality of a particular effect being reversed and is judged on a scale of reversible, partially reversible and permanent. For example, housing can be considered permanent, whereas a wind turbine can be considered as reversible as they have a limited life and could be removed and the land reinstated.

3.29 The overall magnitude of effect is judged as high, medium, low or negligible and this judgement can be adverse or beneficial. Table 3 below describes the magnitude of effect criteria for the landscape assessment:

Landscape Effects

3.30 In order to draw conclusions about the nature of landscape effects, the separate judgements about the sensitivity of the landscape receptors and the magnitude of the landscape effects need to be combined to allow a final judgement to be made (see Table 4 below). The resulting effect may be major, moderate, minor or negligible and can be either beneficial or adverse. It must be noted that the table is a guide to aid the assessor in the decision-making process, therefore in some instances, the ascertained

Magnitude of Effect	Typical Criteria
Higher (adverse or beneficial)	Major alteration to key features or characteristics in the existing landscape and or the introduction of elements considered totally uncharacteristic/ characteristic. Typically, this would be where there would be a great scale of change to the character of the landscape for the long or medium-term.
Medium (adverse or beneficial)	Partial alteration to key features or characteristics of the existing landscape and or the introduction of prominent elements. Typically, this would be where there would be a notable scale of change to the character of the landscape for the medium and long- term; or where there would be a great scale of change on the landscape for the short-term.
Low (adverse or beneficial)	Minor alteration to key features and characteristics of the existing landscape and or the introduction of features which may already be present in the landscape. Typically, this would be where there is a notable or low scale of change to the character of the landscape for the short-term; or where there would be a low scale of change on the landscape in the medium or long-term.
Negligible (adverse or beneficial)	A very minor alteration to key features or characteristics of the existing landscape. Typically, this would be where in the short, medium or long term the scale of change on landscape character would be barely perceptible.

Table 3 – Criteria for the Assessment of the Magnitude of Effect of Landscape Character

level of effect may not be consistent with the sensitivity/magnitude combinations given in Table 4. In addition, judgements associated with sensitivity and magnitude may result in a 'neutral effect'.

Landscape Assessment Timeframes

3.31 The landscape effects are considered at three points in time as follows:

- Construction;
- Year 1 – Operational; and
- Year 15

3.32 The landscape effects ascertained at Year 15 after completion take account of the establishment of the embedded mitigation and are considered to be representative of the residual landscape effects of the development

Cumulative Landscape Effects

3.33 Paragraph 7.3 of GLVIA3 considers the definition of cumulative effects as addressed by Scottish Natural Heritage (SNH). Although the SNH definitions are primarily associated with windfarm development, the guidance is now widely used. It defines:

- Cumulative effects as '*the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together*' (SNH, 2012:4);
- Cumulative landscape effects, as effects that *'can impact on either the physical fabric or character of the landscape, or any special values attached to it'* (SNH, 2012:10).

Cumulative Assessment Study Area

3.34 When establishing an appropriate study area for the cumulative assessment, GLVIA3 paragraph 7.21 recommends the use of recognised character areas that the proposals are within and or where available, the Zone of Theoretical Visibility (ZTV) associated with each of the different projects identified.

Cumulative Assessment Scope

3.35 2.23 The focus of the cumulative landscape assessment will be the effects of the development in question in conjunction with other developments of the same type, however the assessment should consider other types of development proposed within the study area. Developments to consider include those under construction and other schemes that are not yet present within the landscape such as those with planning consent and those that are the subject of a valid planning application.

Sensitivity	Magnitude				
		High	**Medium**	**Low**	**Negligible**
	Low	Moderate	Minor/ Moderate	Minor	Negligible
	Medium	Major/ Moderate	Moderate	Minor/ Moderate	Negligible
	High	Major	Major/ Moderate	Moderate	Negligible

Table 4 – Landscape Effects - Method for Assisting Decision Making When Determining Landscape Effects

3.36 In accordance with GLVIA3 paragraph 7.5, the task will be kept reasonable and 'the emphasis in EIA is on likely significant effects, rather on comprehensive cataloguing of every conceivable effect that might occur.'

Assessing Cumulative Landscape Effects

3.37 In accordance with GLVIA3 paragraph 7.25/7.27, once the range of developments to be considered is established, the approach to assessing the significance of cumulative effects will be guided by the same principles as the main project assessment.

3.38 GLVIA3 paragraph 7.25 also defines the likely cumulative landscape effects as follows:

- *'effects on the fabric of the landscape as a result of removal of or changes in individual elements or features of the landscape and/or the introduction of new elements or features;*
- *on the aesthetic aspects of the landscape – for example its scale, sense of enclosure, diversity, pattern, and/or on its perceptual or experiential attributes, such as sense of naturalness, remoteness or tranquillity;*
- *on the overall character of the landscape as a result of changes in the landscape fabric and/or in aesthetic or perceptual aspects, leading to the modification of key characteristics and possible creation of new landscape character if the changes are substantial enough.'*

Visual Effects

3.39 GLVIA3 paragraph 6.1 states '*An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity.*'

The Visual Baseline - Desk and Site Based Assessment

3.40 The desktop studies undertaken, combined with a site-based analysis of the ZTV will inform the visual baseline for the assessment. The site-based work will be undertaken by a chartered member of the Landscape Institute with experience of landscape and visual assessment.

3.41 Site-based work will initially involve travelling throughout the area identified by the ZTV in order to ascertain levels of visibility on the ground (taking account of screening trees, hedgerows and built form), in order to inform and confirm the extent of the study area, the key relevant visual receptors (individuals or groups of people who experience a view of the application site) and the associated representative viewpoints. This information will be set out within the assessment with descriptions of the views experienced.

3.42 Viewpoint photography will be undertaken in accordance with Landscape Institute Technical Guidance Note 06/19 – Visual Representation of Development Proposals, using a digital full frame single lens reflex camera (Canon EOS 6D MkII) with a 50mm F/1.4 USM lens (guidance recommends the use of a 50mm lens at it provides imagery akin to that of the human eye).

3.43 It is important to note that the visual receptors and in particular, the representative viewpoints are representative of the visual prominence of the application site and will not necessarily form an exhaustive list of all receptors and associated viewpoints.

Assessment of Visual Effects

3.44 In order to determine the significance of the potential visual effects which may result from the development, the sensitivity and the magnitude of effect associated with each of the visual receptors must be established. The sensitivity and magnitude can then be combined to ascertain the nature of the anticipated visual effect for each individual visual receptor.

3.45 The method employed for the assessment of the visual effects that may result from the implementation of the development proposals is in accordance with GLVIA3 specifically paragraphs 6.30 to 6.45.

Receptor Sensitivity

3.46 Sensitivity determines the degree to which visual receptors will be affected by a development proposal. In order to establish the sensitivity of the visual receptors, their susceptibility to specific change in the views experienced, must be considered alongside a judgement on the respective value of those views. The resulting sensitivity is graded on a scale of high, medium and low.

3.47 Susceptibility – The susceptibility of different visual receptors to potential changes in views and visual amenity is subject to the occupation or activity of people experiencing a view and the extent to which their attention is focussed on the views (see Table 4).

3.48 GLVIA3 paragraphs 6.32 to 6.35 provides general guidance upon the levels of susceptibility associated with different, yet common types of visual receptor. A level of Susceptibility to Change of High, Medium or Low will be attributed to each of the visual receptors as follows:

3.49 Judgements associated with assigning a level of susceptibility to the visual receptors will not necessarily always accord with Table 4. As indicated with Road Users, the susceptibility may vary up or down from the values set out within Table 4 and instances where such variations occur, the basis for the judgement will be set out within the assessment.

3.50 Value of the View – The value of the views experienced is determined as High, Medium or Low, with reference to GLVIA3 paragraph 6.37, which states that the following should be taken account of:

- *recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations; and*
- *Indicators of the value attached to views by visitors, for example through reference to a view in a guidebook or on a tourist map, provision of facilities for their enjoyment (such as parking places, sign boards and interpretative material) and references to them in literature and art that indicates a highly valued view, which often can be experienced by many people.*

3.51 Receptor Sensitivity – The sensitivity of the visual receptors is ascertained by combining the judgements associated with their susceptibility and the value of the views they experience, to inform a judgement regarding their sensitivity, which is graded on a scale of high, medium or low.

Magnitude of Effect

3.52 Each of the visual effects identified will be evaluated in terms of its size or scale, its geographical extent of the area influenced and its duration and reversibility. The resulting magnitude of effect is graded on a scale of high, medium, low or negligible.

3.53 When considering the size or scale of the change in the view the following criteria are considered:

- loss or addition of features within the view including the proportion of the view occupied by the proposed development eg introducing housing into a view where housing is already present will represent a lower level of change than the introduction of housing into a view where there is no housing present;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of scale, mass, form, height and colour; and

Visual Receptor	Susceptibility to Change
Users of Public Rights of Way and other recreational routes	High
Public Open Space and visitor attractions where views contribute to the experience	High
Road Users (drivers and passengers of vehicles, cyclists and pedestrians) – Susceptibility could be lower from main roads or higher from rural lanes/tourist routes	Varies
Rail Passengers	Medium/ Low
Golfers	Medium/ Low
Users of sports pitches	Low
Employees/workers in their workplace	Low

Table 5 – Susceptibility to Change

- The nature of the view of the development proposal in terms of the length of time over which it will be experienced and whether the views will be full, partial or glimpses.

3.54 The geographical extent of a visual effect will vary with different viewpoints and is likely to be reflected by the following:

- The angle of view in relation to the main activity of the receptor – changes to direct views will generally be considered to be of greater importance than changes to oblique views;

- The distance of the viewpoint from the proposed development; and
- The extent of the area over which the changes would be visible.

3.55 The duration of visual effects is judged on a scale of short term (0-6 years), medium term (7-15 years) and long term (15 years and beyond), taking account of the establishment of planting proposed as embedded mitigation. Reversibility is a judgement about the prospects and the practicality of a particular effect being reversed and is judged on a scale of reversible, partially reversible and permanent. For example, housing can be considered permanent, whereas a wind turbine can be considered as reversible, as they have a limited life and could be removed and the land reinstated.

3.56 The overall magnitude of effect is judged as high, medium, low or negligible and this judgement can be adverse or beneficial. Table 6 below describes the magnitude of effect criteria for the landscape assessment:

Magnitude of Effect	Typical Criteria
High (adverse or beneficial)	Major alteration to the existing view and/or the introduction of elements considered totally uncharacteristic/characteristic. Typically, the development will be in close proximity to the receptor, with a large proportion of the view affected with little or no filtering. The scale of change would be great and would exist from the medium-term and beyond.
Medium (adverse or beneficial)	Partial alteration to the existing view and or the introduction of prominent elements in the view. Typically, the development would affect a moderate proportion of the view up to and beyond the medium term or the development would be seen in close proximity, with a large proportion of the view affected in the short term.
Low (adverse or beneficial)	Minor changes to the existing view and or the introduction of features that are already present within the view. Typically, this would result from a low scale of change to the existing view; where a moderate to low proportion of the view would be affected in the short term; where the development would be visible in distant views beyond the medium term; where only a small proportion of the view is affected beyond the medium term; or, where high degrees of screening/filtering reduce the effect beyond the medium term.
Negligible (adverse or beneficial)	A very minor alteration to the existing view. Typically, this would result where a development is barely perceptible at any point in time; where the change would be barely perceptible within a longer distance view; where a small proportion of the view is affected; or, where the scale of change from the existing view would be barely perceptible.

Table 6 – Criteria for the Assessment of the Magnitude of Effect on Views

Visual Effects

3.57 In order to draw conclusions about the anticipated levels of visual effect, separate judgements about the sensitivity of the visual receptors and the magnitude of the visual

effects need to be combined to allow a final judgement to be made (see Table 6). The resulting significance of effect may be major, moderate, minor or negligible and can be either beneficial or adverse. It must be noted that the table is a guide to aid the assessor in the decision-making process, therefore in some instances, the ascertained level of visual effect may not be consistent with the sensitivity/magnitude combinations given in Table 7. In addition, judgements associated with sensitivity and magnitude may result in a 'neutral effect'.

3.58 GLVIA3 paragraph 6.44 states '*In making a judgement about the significance of the visual effects, the following points should be noted:*

- *Effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant;*
- *Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant;*
- *Large-scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features already present within the view.'*

Visual Assessment Timeframes

3.59 The visual effects are considered at three points in time as follows:

- Construction;
- Year 1 – Operational; and
- Year 15

3.60 The visual effects ascertained at Year 15 after completion take account of the establishment of the embedded mitigation and are considered to be representative of the residual visual effects of the development.

Cumulative Visual Effects

3.61 Paragraph 7.3 of GLVIA3 considers the definition of cumulative effects as addressed by Scottish Natural Heritage (SNH). Although the SNH definitions are primarily associated with windfarm development, the guidance is now widely used. It defines:

- Cumulative effects as '*the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together*' (SNH, 2012:4);
- Cumulative Visual effects, as effects that can be caused by combined visibility, which '*occurs where the observer is able to see two or more developments from one viewpoint and/or sequential effects which occur when the observer has to move to another viewpoint to see different developments*' (SNH, 2012:10).

Sensitivity	Magnitude			
	High	**Medium**	**Low**	**Negligible**
Low	Moderate	Minor/ Moderate	Minor	Negligible
Medium	Major/ Moderate	Moderate	Minor/ Moderate	Negligible
High	Major	Major/ Moderate	Moderate	Negligible

Table 7 – Visual Effects - Method for Assisting Decision Making When Determining Visual Effects

Cumulative Assessment Study Area

3.62 When establishing an appropriate study area for the cumulative assessment, GLVIA3 paragraph 7.21 recommends the use of recognised character areas that the proposals are within and or where available, the Zone of Theoretical Visibility (ZTV) associated with each of the different projects identified.

Cumulative Assessment Scope

3.63 The focus of the cumulative visual assessment will be the effects of the development in question in conjunction with other developments of the same type, however the assessment should consider other types of development proposed within the study area. Developments to consider include those under construction and other schemes that are not yet present within the landscape such as those with planning consent and those that are the subject of a valid planning application.

3.64 In accordance with GLVIA3 paragraph 7.5, the task will be kept reasonable and '*the emphasis in EIA is on likely significant effects, rather on comprehensive cataloguing of every conceivable effect that might occur.*'

Assessing Cumulative Visual Effects

3.65 In accordance with GLVIA3 paragraph 7.25/7.27, once the range of developments to be considered is established, the approach to assessing the significance of cumulative effects will be guided by the same principles as the main project assessment.

3.66 GLVIA3 paragraph 7.38 suggests that higher levels of significance may arise from cumulative visual effects related to:

- '*developments that are in close proximity to the main project and are clearly visible together in views from the selected viewpoints;*
- *Developments that are highly inter-visible, with overlapping ZTVs – even though the individual developments may be at some distance from the main project and from individual viewpoints, and when viewed individually not particularly significant, the overall combined cumulative effect on a viewer at a particular viewpoint may be significant.*'

Significant Landscape and Visual Effects

3.67 In EIA terms, any residual landscape and visual effects assessed as Moderate or Major would typically be considered to be significant.

Appendix 2.2 – Wirral Metropolitan Borough Council Scoping Opinion

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Wirral Council

Alan Evans
Director of Regeneration & Place
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Wallasey
CH27 9FQ

www.wirral.gov.uk

e-mail: planningapplications@wirral.gov.uk

to Mr John Cutler MRTPI PIEMA
Strutt and Parker.
5 Aldermanbury Square
London
EC2V 7BP

04 February 2022

my ref SCR/21/02386

tel direct

your ref

please ask for Mr M Shingler

Dear Sir/Madam

Proposal **Screening Opinion and Scoping Request (Residential Development)**
Location **RABY HALL, RABY HALL ROAD, RABY MERE, CH63 0NN**

TOWN & COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (ENGLAND & WALES) REGULATIONS 2011

REQUEST FOR A SCREENING AND SCOPING OPINION

I am writing to you further to your letter received on 16 December 2021 requesting a Screening Opinion and scoping request in relation to the above development. I note that the proposed development does not fall within Schedule 1 of the Regulations.

It is noted that the reports refer to an acceptance to the submission of an EIA with any future planning application and further confirmed by way of email correspondence received on 26th January 2022. This is on the basis of the likely cumulative impact of residential developments on seven sites owned by the applicant. This correspondence therefore sets out the Council's Scoping Opinion.

This Scoping Opinion has been prepared in response to your formal request to provide a Scoping Opinion under Regulation 10 of the Town and Country Planning (Environmental Impact Assessment) Regulations.

Background

The subject site comprises greenfield land positioned to the west of the settlement of Raby Mere, and beyond that Bromborough The site is approximately 3.30 hectares in size. It comprises undeveloped agricultural land which is currently used for arable farming, and land associated with Raby Hall (Autism Together).

The main part of the site comprises a broadly rectangular agricultural field. There are several trees within the southern and western parts of the site, but it otherwise comprises a featureless arable field. The site slopes gently from east to west. To the east, the red line extends linearly to include grounds to the front of Raby Hall, which is grassed and with trees to the south, and then to a further agricultural field (also known as ‘Raby Hall East’), extending to Blakeley Road to the east.

The supporting statement details the proposed development as follows: -

- Residential development up to a maximum of 40no. dwellings.

An indicative parameter plan in relation to land use, landscaping and green infrastructure, and access

and movement has been submitted. This is subject to alteration but provides an indication of the scale and broad layout and design features of the scheme. The indicative proposals show the provision of public open space positioned around the south, north, and western boundaries. An area of open space is provided to the west of the site incorporating a drainage provision of acoustic barrier and planting screening (which will be fixed in location on the Parameter Plan). The residential built form is focussed within the central and eastern parts of the main (western) part of the site, with an inclusive local play area provided toward the eastern part of the site. The indicative Parameter Plan also shows the easternmost part of the site safeguarded for future use by Autism Together.

Potentially Likely Significant Environmental Effects

EIA Scoping

The Environmental Statement that supports the planning application should include the following sections as a minimum:

- A non-technical summary;
- Detailed scope of works;
- Reference to key plans and legislation. It is essential that all relevant guidance and policies be complied with as appropriate;
- Detailed baseline review (associated with all development issues); and
- Detailed integrated assessment of all environmental impacts. This assessment needs to consider the nature of impact (importance, magnitude, and duration - quantified as appropriate), reversibility of impact, mitigation, monitoring measures (including reference to long-term management and maintenance measures/plans) and residual impacts.

Your submitted supporting statement states that it is intended that the following technical topic chapters will be presented within the ES: -

- Socio-Economics
- Landscape and Visual Amenity
- Cultural Heritage
- Ecology
- Transport
- Noise
- Air Quality
- Flood Risk and Drainage
- Agricultural Land Quality

It is proposed these will be covered as follows: -

EIA Topics Relevant Chapter in Environmental Statement

Population – Socio-economics
Human Health - Air Quality, Noise, Landscape and Visual, Socio Economics, Transport
Transport and Access - Transport
Landscape - Landscape and Visual Amenity
Cultural Heritage - Heritage
Ecology (to include Biodiversity Net Gain) - Ecology
Noise - Noise
Air Quality - Air Quality
Agriculture/Land - Agricultural Land Quality

The Council considers this approach to be satisfactory.

In your submitted supporting statement, it is stated that you propose to scope out the following: -

Flood Risk and Drainage;
Climate Change;
Soil;
Wind Microclimate;
Daylight, sunlight, and overshadowing;
Major Accidents/disasters;
Lighting;
Waste;
Radiation and heat;
Vibration.

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The Council concur with this and consider these issues do not need to be addressed through individual chapters in the ES. It is proposed that climate change will not have its own chapter but will be addressed within various chapters of the EIA regarding design and reducing greenhouse gas emissions. This is considered acceptable. Climate Change should be considered for both operational and construction impacts with a focus on air quality, agricultural land, ecology, and transport, including resilience to the impacts of climate change on the proposal, in addition to additional mitigation that may be required to avoid impacts on climate change from the proposal.

It is unclear as to whether you are scoping flood risk and drainage in but in any case, a Flood Risk Assessment would be required with any subsequent planning application.

I can confirm as a result of internal consultation that the Council's Environmental Protection and Traffic and Transportation teams are happy with the suggested approach set out in the supporting statement. I have also received consultation responses from Natural England and the Merseyside Environmental Advisory Service, and these are attached with this correspondence for your information. Natural England would be a statutory consultee for any subsequent planning application and therefore the Council draw particular attention to their comments and advise that they are taken into full consideration.

The proposed development falls within the impact risk zone for recreational disturbance to coastal SPAs/Ramsar's. For new residential development in this area, a Habitats Regulations Assessment is required on the likely significant effects resulting from recreational disturbance on the coastal SPA/Ramsar sites.

A significant number of objections and representations have been received from the local community – whilst the Local Planning Authority have noted these comments, it should be noted that the contents of this letter offer no assessment or judgement of the planning merits of the proposed development.

I trust this clarifies the matter. If you have any further queries, please do not hesitate to contact me.

Yours faithfully,

Mr M Shingler
Senior Planning Officer

Merseyside Environmental Advisory Service
The Barn, Court Hey Park
Roby Road, Huyton, L16 3NA
Director: Alan Jemmett, PhD, MBA

Enquiries: 0151 934 4951

Contact: Lucy Atkinson
Email: measdcconsultations@sefton.gov.uk

DEVELOPMENT MANAGEMENT ADVICE

To: Mr M Shingler
Organisation: Development Management
Wirral Council

From: Lucy Atkinson

Your Ref: SCR/21/02386
File Ref: WI21-177
W/P Ref:
Date: 17th January 2022

Request for an Environmental Impact Assessment (EIA) Screening and Scoping Opinion for Land West of Raby Hall, Raby Hall Road, Raby Mere, CH63 0NN

1. Thank you for consulting Merseyside Environmental Advisory Service in respect of this planning application. The proposals comprise the proposed development of 40 dwellings.
2. Having reviewed the application and supporting documentation, our advice is set out below in two parts.
   - Part One deals with issues of regulatory compliance, action required **prior to determination** and matters to be dealt with through planning conditions. Advice is only included here where action is required or where a positive statement of compliance is necessary for statutory purposes. Should the Council decide to adopt an alternative approach to MEAS Part 1 advice, I request that you let us know. MEAS may be able to provide further advice on options to manage risks in the determination of the application.
   - Part Two sets out guidance to facilitate the implementation of Part One advice and informative notes.
   - Appendix 1 provides the detailed reasoning in respect of the conclusions presented in Part One in respect of Environmental Impact Assessment.

   In this case Part One comprises paragraphs 3 to 34, while Part Two comprises paragraph 35.

Part One

EIA Screening

3. The applicant has submitted an EIA Screening Request *(Request for EIA Screening and Scoping Opinion (Combined Report) Strutt & Parker December 2021)* which has been reviewed to form the basis of this memo. It correctly identifies that the proposal as an urban development project which falls under Schedule 2 10 (b) of the EIA Regulations 2017. The proposal exceeds the EIA screening thresholds for this type of development so that screening is required.

4. Having reviewed the Screening Report and considered the project against the provisions of the EIA Regulations (including screening criteria presented in Schedule 3) and the relevant National Planning Practice Guidance, I accordingly consider that the proposals are cumulatively likely to give rise to significant environmental effects from an EIA perspective, and that **EIA is therefore required in this case**.

5. Full details of this Screening are provided for reference in the Appendix to this memo.

EIA Scoping

6. The Environmental Statement that supports the planning application should include the following sections as a minimum:
    - A non-technical summary;
    - Detailed scope of works;
    - Reference to key plans and legislation. It is essential that all relevant guidance and policies be complied with as appropriate;
    - Detailed baseline review (associated with all development issues); and
    - Detailed integrated assessment of all environmental impacts. This assessment needs to take into account the nature of impact (importance, magnitude and duration – quantified as appropriate), reversibility of impact, mitigation, monitoring measures (including reference to long-term management and maintenance measures/plans) and residual impacts.

7. It is important that the conclusions of the environmental impact assessment are transparent and that all information used to draw conclusions is clearly presented and objective (including survey/assessment results) to enable third party verification.

8. The applicant is proposing to consult best practice guidance to assist in preparing the EIA methodology and Environmental Statement (ES) - and this is welcomed.

9. The proposed structure of the ES is acceptable and includes chapters on the following topics: Population and Human Health; Transport and Access; Landscape and Visual; Cultural Heritage; Ecology; Noise; Air Quality; Agricultural Land and Cumulative Effects.

10. The proposed approach to ecology and the historic environment is satisfactory. I will be guided by other technical specialists regarding the acceptability of other individual proposed technical chapters.

Scoped out

11. It is proposed that the following topics will be scoped out:
    - Flood Risk and Drainage;

- Climate Change;
- Wind Microclimate;
- Daylight, sunlight and overshadowing;
- Accidents/disasters;
- Lighting;
- Waste; and
- Vibration.

12. Subject to individual specialists being satisfied, I concur with this and consider these issues do not need to be addressed through individual chapters.

13. It is proposed that climate change will not have its own chapter but will be addressed within various chapters of the EIA in particular with regard to design and reducing greenhouse gas emissions. This is acceptable. Climate Change should be considered for both operational and construction impacts with a focus air quality, agricultural land, ecology and transport, including resilience to the impacts of climate change on the proposal, in addition to additional mitigation that may be required to avoid impacts on climate change from the proposal.

14. It is acceptable for waste to be scoped out of the EIA. However, consideration must be given to policies WM8 and WM9 of the Merseyside and Halton Joint Waste Local Plan.

Cumulative Impacts

15. It is noted that not all the chapters refer to cumulative effects with other existing and approved schemes. A consistent approach is required across all subject areas and should be included in all individual chapters of the Environmental Statement. A separate chapter is proposed for cumulative effects but this will need to be drawn from the individual topic considerations.

16. Detailed comments on ecology and waste are set out below.

Ecology

17. The request has been accompanied by an EIA Screening and Scoping Opinion (Combined Report) (*Strutt and Parker, December 2021*). From an ecological perspective, I concur with the report that EIA will be required due to the potential cumulative impacts with the other identified developments and that ecology should be scoped into the assessment.

18. As stated within paragraph 6.88 of the EIA Screening and Scoping Opinion report, MEAS has previously provided discretionary ecological advice to the applicant's ecological consultant.

19. I advise that the proposed scope of the ecological surveys is acceptable and I welcome that the applicant has committed to achieve a 10% biodiversity net gain. This should be demonstrated using the latest DEFRA metric (currently version 3.0). If the Preliminary Ecological Appraisal has been completed following traditional phase 1 habitat survey, I advise that this is translated into UK Habitat Classification in the

survey report and that the habitats present on the site, along with any habitat losses or gains, be quantified in the survey report to assist MEAS in verifying the completed metric.

20. As eDNA analysis confirmed the presence of great crested newts in a pond near to the site, full GCN survey using traditional methods will be required, **prior to determination** of any future planning application, for the population size assessment.

21. The Ecological Impact Assessment (EcIA) will follow best practice (e.g. CIEEM, 2018) and that cumulative effects with other developments will be assessed.

22. I welcome that Habitats Regulations Assessment (HRA) is to be undertaken. As a part of this, recreational pressure effects on European sites, arising as a result of the proposed development alone, and in-combination with both the adjacent proposed developments on Land east of Raby Hall and the quantum of development proposed in Wirral, should be assessed and mitigated. MEAS has previously advised the applicant on the scope of the non-breeding bird surveys that will also be required to inform the HRA.

23. I advise that increased recreational pressure on Dibbinsdale SSSI and Brotherton Park and Dibbinsdale LNR should also be assessed within any future planning application.

24. Raby Mere LWS is directly to the north of the proposed development. The LWS is designated due to the mere being one of the few large water bodies within Wirral and the woodlands have acidic flora with also areas on heavier clays. The woodland supports breeding and wintering bird assemblages and four species of bat which are likely to roost in the woodland. The proposed development should provide a landscape buffer between the built development and the LWS boundary. Measures should also be put in place to prevent impacts during construction, e.g. lighting and construction related pollutants. Impacts from the residential development will also need to be assessed and mitigated.

25. MEAS discretionary advice should continue to be heeded by the applicant during the undertaking of the EcIA and development design.

Archaeology

26. The report states the combined screening and scoping exercise has been informed by the results of a desk-based assessment (*Section 6.70*). However, this has not been submitted with the EIA screening and scoping request and will be required with the EIA and any future planning application.

27. The report correctly states that there are no designated heritage assets or recorded non-designated heritage within the proposed development site. However, it does acknowledge the potential presence of post-medieval field boundaries (*Section 6.70*).

28. The report is of the opinion that based upon the available evidence, the probability of any archaeological remains that predate the post-medieval/modern period surviving within the Site is considered to be low (*Section 6.72*).

29. However, in addition to the findings of the report it should be noted that the application site has remained as agricultural land throughout the Post-medieval (1540-1750), Industrial (1750 to 1914) and Modern periods (1914 onwards), and that undeveloped and historically undisturbed areas of green space are considered to have an as yet undefined archaeological potential.

Built Heritage

30. The impact to the settings of the Listed Buildings is a matter for Historic England and the relevant Conservation Officer.

Direct Effects

31. *Section 6.78* acknowledge construction-related activities could have a direct effect on potential archaeological remains, but that these would not be significant in terms of EIA. This is a reasonable assessment, although it should be noted that the significance of potential archaeological remains cannot be fully determined prior to investigation.

Indirect Effects

32. The report discusses impact to settings as indirect however, impacts to setting would be as a direct result of the scheme and these are more usually recorded under direct effects. It is agreed that there are no indirect effects to the archaeological resource.

Cumulative Effects

33. It is agreed at this stage that no cumulative effects are anticipated to the archaeological resource.

34. Based on the archaeological information provided within the EIA screening and scoping report the archaeological issues associated with the proposed development site are not likely to be significant. Therefore, I advise that the archaeological issues associated with this site would not require EIA. The archaeological issues could be addressed through a programme of pre-construction archaeological works, secured by means of an appropriately worded planning condition.

Part Two

35. The applicant will need to appoint a professional archaeological contractor to organise the investigation, which will need to be implemented in accordance with appropriate professional standards. I will be able to supply further details of the work on request.

I would be pleased to discuss these issues further and to provide additional information in respect of any of the matters raised.

Lucy Atkinson
Environmental Appraisal and Support Services Team Leader

Appendix 1: EIA Screening

1. The request has been accompanied by an EIA Screening and Scoping Opinion (Combined Report) (*Strutt and Parker, December 2021*). Regarding EIA screening, paragraph 1.4 of this acknowledges that the proposed development does not comprise Schedule 2 development, nor is it located within a sensitive area as defined by the EIA Regs. However, it states that the proposed development together with other potential developments (including those on Leverhulme Estates land) would likely result in significant environment effects.

2. The Proposed Development makes up one of a series of development proposals which are being advanced by the Applicant as part of the 'Leverhulme Vision'. The other 'Leverhulme Vision' sites being brought forward are:
    - Land East of Thorncroft Drive, North of Gills Lane, Pensby;
    - Land West of Barnston Road, North of Gills Lane, Barnston;
    - Land East of Glenwood Drive, Irby;
    - Land at Milner Road and Barnston Road, Heswall;
    - Land East of Rigby Drive, Greasby;
    - Land West of Raby Hall, Raby Hall Road, Raby Mere;
    - Land East of Raby Hall, Raby Hall Road, Raby Mere.

3. The proposals are not Schedule 1 development, however, fall under Schedule 2 10 (b) as an urban development project. The applicable thresholds and criteria for this type of development are:

    i. The development includes more than 1 hectare of urban development which is not dwelling house development; or
    ii. the development includes more than 150 dwellings; or
    iii. the overall area of the development exceeds 5 hectares.

36. I have calculated the overall site area for all the sites is approximately 44ha and construction of 830 dwellings and therefore considerably exceeds the criteria for screening.

37. Online planning practice guidance provides further information to assist the screening process. This includes indicative criteria which state that:

    'Environmental Impact Assessment is unlikely to be required for the redevelopment of land unless the new development is on a significantly greater scale than the previous use, or the types of impact are of a markedly different nature or there is a high level of contamination.'

    'Sites which have not previously been intensively developed:
    (i) area of the scheme is more than 5 hectares; or
    (ii) it would provide a total of more than 10,000 m2 of new commercial floorspace; or
    (iii) the development would have significant urbanising effects in a previously non-urbanised area (e.g. a new development of more than 1,000 dwellings).'

38. As the proposal significantly exceeds 5 hectares in total, and amounts to approximately 830 dwellings, and given that the proposals are for redevelopment of greenfield sites, I concur with the view that significant effects are likely when considering the developments as a whole. The most likely impacts relating to transport, landscape, ecology, air quality and noise. Therefore, I agree that it is appropriate for an Environmental Statement to be prepared which addresses the cumulative impacts of the proposed developments.

Date: 15 January 2022
Our ref: 380131
Your ref: SCR/21/02386

Consultations
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Crewe Business Park
Electra Way
Crewe
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T 0300 060 900

Mr M Shingler
Wirral Council

BY EMAIL ONLY

Dear Mr Shingler

Environmental Impact Assessment Scoping consultation (Regulation 15 (4) of the Town and Country Planning EIA Regulations 2017): Screening Opinion & Scoping Request (Residential Development).
Location: RABY HALL, RABY HALL ROAD, RABY MERE, CH63 0NN.

Thank you for seeking our advice on the scope of the Environmental Statement (ES) in the consultation dated 04 January 2022**.**

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

Natural England advises, based on the material supplied with the consultation, that an Environmental Impact Assessment is required.

The proposed development falls within the impact risk zone for recreational disturbance to coastal SPAs/Ramsars. For new residential development in this area, a Habitats Regulations Assessment is required on the likely significant effects resulting from recreational disturbance on the coastal SPA/Ramsar sites.

Annex A to this letter provides Natural England's advice on the scope of the Environmental Impact Assessment (EIA) for the proposed development.

Further guidance is set out in Planning Practice Guidance on environmental assessment, natural environment and climate change.

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

Please note that Natural England must be consulted on Environmental Statements.

Please send any new consultations or further information on this consultation to consultations@naturalengland.org.uk.

Yours sincerely
Alice Watson
Development and Planning Adviser
Cheshire, Greater Manchester, Merseyside & Lancashire

Annex A – Natural England Advice on EIA Scoping

General Principles

Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, sets out the information that should be included in an Environmental Statement (ES) to assess impacts on the natural environment. This includes:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the operation of the proposed development
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen
- A description of the aspects of the environment likely to be significantly affected by the development including biodiversity (for example fauna and flora), land, including land take, soil, water, air, climate (for example greenhouse gas emissions, impacts relevant to adaptation, cultural heritage and landscape and the interrelationship between the above factors
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium, and long term, permanent and temporary, positive, and negative effects. Effects should relate to the existence of the development, the use of natural resources (in particular land, soil, water and biodiversity) and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment
- A non-technical summary of the information
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information

Further guidance is set out in Planning Practice Guidance on environmental assessment and natural environment.

Cumulative and in-combination effects

The ES should fully consider the implications of the whole development proposal. This should include an assessment of all supporting infrastructure.

An impact assessment should identify, describe, and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):

a. existing completed projects;
b. approved but uncompleted projects;
c. ongoing activities;
d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

Environmental data

Natural England is required to make available information it holds where requested to do so. National datasets held by Natural England are available at http://www.naturalengland.org.uk/publications/data/default.aspx.

Detailed information on the natural environment is available at www.magic.gov.uk.

Natural England's SSSI Impact Risk Zones are a GIS dataset which can be used to help identify the potential for the development to impact on a SSSI. The dataset and user guidance can be accessed from the Natural England Open Data Geoportal.

Natural England does not hold local information on local sites, local landscape character, priority habitats and species or protected species. Local environmental data should be obtained from the appropriate local bodies. This may include the local environmental records centre, the local wildlife trust, local geo-conservation group or other recording society.

Biodiversity and Geodiversity

General principles

The National Planning Policy Framework (paragraphs174-175 and 179-182) sets out how to take account of biodiversity and geodiversity interests in planning decisions. Further guidance is set out in Planning Practice Guidance on the natural environment.

The potential impact of the proposal upon sites and features of nature conservation interest and opportunities for nature recovery and biodiversity net gain should be included in the assessment.

Ecological Impact Assessment (EcIA) is the process of identifying, quantifying, and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal. Guidelines have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM).

Local planning authorities have a duty to have regard to conserving biodiversity as part of their decision making. Conserving biodiversity can include habitat restoration or enhancement. Further information is available here.

Designated nature conservation sites

International and European sites

Recreational disturbance to internationally designated sites in the Liverpool City Region
Recreational disturbance to internationally protected coastal sites in the Liverpool City Region (LCR) is an issue across the LCR. This pressure is a particular issue through in-combination effects, for example additional housing may result in additional recreational visits and therefore increase disturbance at the coastal designated sites. Assessment of this impact needs to be undertaken at the plan and project stage. These assessments needs to satisfy the sequential tests of the Habitat Regulations. Subject to the conclusion of the HRA suitable mitigation may be further required to ensure no adverse effect on integrity of designated sites. Where embedded mitigation measures are considered we refer you to the case law ruling People Over Wind and Sweetman vs Coillte Teoranta (ref: C 323/17) that requires these measures to be considered at the appropriate assessment stage.

European site conservation objectives are available at http://publications.naturalengland.org.uk/category/6490068894089216

The ES should thoroughly assess the potential for the proposal to affect nationally and internationally designated sites of nature conservation importance, including marine sites where relevant. European sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA) fall within the scope of the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations'). In addition paragraph 181 of the National Planning Policy Framework (NPPF) requires that potential SPAs, possible SAC, listed or proposed Ramsar sites, and any site identified or required as compensatory measures for adverse effects on habitat (European) sites, potential SPAs, possible SACs and listed or proposed Ramsar sites have the same protection as classified sites (NB. sites falling within the scope of regulation 8 of the Conservation of Habitats and Species Regulations 2017 are defined as 'habitats sites' in the NPPF). Under Regulation 63 of the Habitats Regulations, an appropriate assessment must be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site. The consideration of likely significant effects should include any functionally linked land outside the designated site. These areas may provide important habitat for mobile species populations that are qualifying features of the site, for example birds and bats. This can also include areas which have a critical function to a habitat feature within a designated site, for example by being linked hydrologically or geomorphologically.

Should a likely significant effect on a European/Internationally designated site be identified (either alone or in-combination) or be uncertain, the competent authority (in this case the Local Planning Authority) may need to prepare an appropriate assessment in addition to the consideration of impacts through the EIA process. Further guidance is set out in Planning Practice Guidance on appropriate assessment
https://www.gov.uk/guidance/appropriate-assessment

This should also take into account any agreed strategic mitigation solution that may be being developed or implemented in the area to address recreational disturbance, nutrients, or other impacts.

Nationally designated sites
Sites of Special Scientific Interest are protected under the Wildlife and Countryside Act 1981 and paragraph 180 of the NPPF. Further information on the SSSI and its special interest features can be found at www.magic.gov .

Natural England's SSSI Impact Risk Zones can be used to help identify the potential for the development to impact on a SSSI. The dataset and user guidance can be accessed from the Natural England Open Data Geoportal.

The Environmental Statement should include a full assessment of the direct and indirect effects of the development on the features of special interest within the SSSI and identify appropriate mitigation measures to avoid, minimise or reduce any adverse significant effects. The consideration of likely significant effects should include any functionally linked land outside the designated site. These areas may provide important habitat for mobile species populations that are interest features of the SSSI, for example birds and bats. This can also include areas which have a critical function to a habitat feature within a site, for example by being linked hydrologically or geomorphologically.

Regionally and Locally Important Sites

The ES should consider any impacts upon local wildlife and geological sites, including local nature reserves. Local Sites are identified by the local wildlife trust, geoconservation group or other local group and protected under the NPPF (paragraph 174 and 175). The ES should set out proposals for mitigation of any impacts and if appropriate, compensation measures and opportunities for enhancement and improving connectivity with wider ecological networks. Contact the relevant local body for further information.

Protected Species

The conservation of species protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017
is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*.

The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats). Natural England does not hold comprehensive information regarding the locations of species protected by law. Records of protected species should be obtained from appropriate local biological record centres, nature conservation organisations and local groups. Consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area.

The area likely to be affected by the development should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and, where necessary, licensed, consultants.

Natural England has adopted standing advice for protected species, which includes guidance on survey and mitigation measures . A separate protected species licence from Natural England or Defra may also be required.

District Level Licensing for Great Crested Newts

District level licensing (DLL) is a type of strategic mitigation licence for great crested newts (GCN) granted in certain areas at a local authority or wider scale. A DLL scheme for GCN may be in place at the location of the development site. If a DLL scheme is in place, developers can make a financial contribution to strategic, off-site habitat compensation instead of applying for a separate licence or carrying out individual detailed surveys. By demonstrating that DLL will be used, impacts on GCN can be scoped out of detailed assessment in the Environmental Statement.

Priority Habitats and Species

Priority Habitats and Species are of particular importance for nature conservation and included in the England Biodiversity List published under section 41 of the Natural Environment and Rural Communities Act 2006. Most priority habitats will be mapped either as Sites of Special Scientific Interest, on the Magic website or as Local Wildlife Sites. Lists of priority habitats and species can be found here. Natural England does not routinely hold species data. Such data should be collected when impacts on priority habitats or species are considered likely.

Consideration should also be given to the potential environmental value of brownfield sites, often found in urban areas and former industrial land. Sites can be checked against the (draft) national Open Mosaic Habitat (OMH) inventory published by Natural England and freely available to download. Further information is also available here.

An appropriate level habitat survey should be carried out on the site, to identify any important habitats present. In addition, ornithological, botanical, and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present.

The Environmental Statement should include details of:

- Any historical data for the site affected by the proposal (e.g. from previous surveys)
- Additional surveys carried out as part of this proposal

- The habitats and species present
- The status of these habitats and species (e.g. whether priority species or habitat)
- The direct and indirect effects of the development upon those habitats and species
- Full details of any mitigation or compensation measures
- Opportunities for biodiversity net gain or other environmental enhancement

Ancient Woodland, ancient and veteran trees
The ES should assess the impacts of the proposal on any ancient woodland, ancient and veteran trees, and the scope to avoid and mitigate for adverse impacts. It should also consider opportunities for enhancement.

Natural England maintains the Ancient Woodland Inventory which can help identify ancient woodland. The wood pasture and parkland inventory sets out information on wood pasture and parkland.

The ancient tree inventory provides information on the location of ancient and veteran trees.

Natural England and the Forestry Commission have prepared standing advice on ancient woodland, ancient and veteran trees.

Biodiversity net gain

Paragraph 174 of the NPPF states that decisions should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Biodiversity Net Gain is additional to statutory requirements relating to designated nature conservation sites and protected species.

The ES should use an appropriate biodiversity metric such as Biodiversity Metric 3.0 together with ecological advice to calculate the change in biodiversity resulting from proposed development and demonstrate how proposals can achieve a net gain.
The metric should be used to:
• assess or audit the biodiversity unit value of land within the application area
• calculate the losses and gains in biodiversity unit value resulting from proposed development
• demonstrate that the required percentage biodiversity net gain will be achieved

Biodiversity Net Gain outcomes can be achieved on site, off-site or through a combination of both. On-site provision should be considered first. Delivery should create or enhance habitats of equal or higher value. When delivering net gain, opportunities should be sought to link delivery to relevant plans or strategies e.g. Green Infrastructure Strategies or Local Nature Recovery Strategies.

Opportunities for wider environmental gains should also be considered.

Landscape

Landscape and visual impacts

The environmental assessment should refer to the relevant National Character Areas. Character area profiles set out descriptions of each landscape area and statements of environmental opportunity.

The ES should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound

basis for guiding, informing, and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character.

A landscape and visual impact assessment should also be carried out for the proposed development and surrounding area. Natural England recommends use of the methodology set out in *Guidelines for Landscape and Visual Impact Assessment 2013 (*(3rd edition) produced by the Landscape Institute and the Institute of Environmental Assessment and Management. For National Parks and AONBs, we advise that the assessment also includes effects on the 'special qualities' of the designated landscape, as set out in the statutory management plan for the area. These identify the particular landscape and related characteristics which underpin the natural beauty of the area and its designation status.

The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. This should include an assessment of the impacts of other proposals currently at scoping stage.

To ensure high quality development that responds to and enhances local landscape character and distinctiveness, the siting and design of the proposed development should reflect local characteristics and, wherever possible, use local materials. Account should be taken of local design policies, design codes and guides as well as guidance in the National Design Guide and National Model Design Code. The ES should set out the measures to be taken to ensure the development will deliver high standards of design and green infrastructure. It should also set out detail of layout alternatives, where appropriate, with a justification of the selected option in terms of landscape impact and benefit.

Heritage Landscapes

The ES should include an assessment of the impacts on any land in the area affected by the development which qualifies for conditional exemption from capital taxes on the grounds of outstanding scenic, scientific, or historic interest. An up-to-date list is available at www.hmrc.gov.uk/heritage/lbsearch.htm.

Connecting People with nature

The ES should consider potential impacts on access land, common land, public rights of way and, where appropriate, the England Coast Path and coastal access routes and coastal margin in the vicinity of the development, in line with NPPF paragraph 100. It should assess the scope to mitigate for any adverse impacts. Rights of Way Improvement Plans (ROWIP) can be used to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

Measures to help people to better access the countryside for quiet enjoyment and opportunities to connect with nature should be considered. Such measures could include reinstating existing footpaths or the creation of new footpaths, cycleways, and bridleways. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green infrastructure. Access to nature within the development site should also be considered, including the role that natural links have in connecting habitats and providing potential pathways for movements of species.

Relevant aspects of local authority green infrastructure strategies should be incorporated where appropriate.

Soils and Agricultural Land Quality

Soils are a valuable, finite natural resource and should also be considered for the ecosystem services they provide, including for food production, water storage and flood mitigation, as a carbon store, reservoir of biodiversity and buffer against pollution. It is therefore important that the soil resources are protected and sustainably managed. Impacts from the development on soils and best

and most versatile (BMV) agricultural land should be considered in line with paragraphs 174 and 175 of the NPPF. Further guidance is set out in the Natural England Guide to assessing development proposals on agricultural land.

As set out in paragraph 211 of the NPPF, new sites or extensions to sites for peat extraction should not be granted planning permission.

The following issues should be considered and, where appropriate, included as part of the Environmental Statement (ES):

- The degree to which soils would be disturbed or damaged as part of the development
- The extent to which agricultural land would be disturbed or lost as part of this development, including whether any best and most versatile (BMV) agricultural land would be impacted.

This may require a detailed Agricultural Land Classification (ALC) survey if one is not already available. For information on the availability of existing ALC information see www.magic.gov.uk.

- Where an ALC and soil survey of the land is required, this should normally be at a detailed level, e.g. one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres. The survey data can inform suitable soil handling methods and appropriate reuse of the soil resource where required (e.g. agricultural reinstatement, habitat creation, landscaping, allotments and public open space).
- The ES should set out details of how any adverse impacts on BMV agricultural land can be minimised through site design/masterplan.
- The ES should set out details of how any adverse impacts on soils can be avoided or minimised and demonstrate how soils will be sustainably used and managed, including consideration in site design and master planning, and areas for green infrastructure or biodiversity net gain. The aim will be to minimise soil handling and maximise the sustainable use and management of the available soil to achieve successful after-uses and minimise off-site impacts.

Further information is available in the Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites and
The British Society of Soil Science Guidance Note Benefitting from Soil Management in Development and Construction.

Air Quality

Air quality in the UK has improved over recent decades but air pollution remains a significant issue. For example, approximately 85% of protected nature conservation sites are currently in exceedance of nitrogen levels where harm is expected (critical load) and approximately 87% of sites exceed the level of ammonia where harm is expected for lower plants (critical level of 1µg) [1].A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The Government's Clean Air Strategy also has a number of targets to reduce emissions including to reduce damaging deposition of reactive forms of nitrogen by 17% over England's protected priority sensitive habitats by 2030, to reduce emissions of ammonia against the 2005 baseline by 16% by 2030 and to reduce emissions of NOx and SO_2 against a 2005 baseline of 73% and 88%

[1] Report: Trends Report 2020: Trends in critical load and critical level exceedances in the UK - Defra, UK

respectively by 2030. Shared Nitrogen Action Plans (SNAPs) have also been identified as a tool to reduce environmental damage from air pollution.

The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly, or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The ES should take account of the risks of air pollution and how these can be managed or reduced. This should include taking account of any strategic solutions or SNAPs, which may be being developed or implemented to mitigate the impacts on air quality. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk).

Information on air pollution modelling, screening and assessment can be found on the following websites:

- SCAIL Combustion and SCAIL Agriculture - http://www.scail.ceh.ac.uk/
- Ammonia assessment for agricultural development https://www.gov.uk/guidance/intensive-farming-risk-assessment-for-your-environmental-permit
- Environment Agency Screening Tool for industrial emissions https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit
- Defra Local Air Quality Management Area Tool (Industrial Emission Screening Tool) – England http://www.airqualityengland.co.uk/laqm

Water Quality

The planning system plays a key role in determining the location of developments which may give rise to water pollution, and hence planning decisions can have a significant impact on water quality, and land. The assessment should take account of the risks of water pollution and how these can be managed or reduced. A number of water dependent protected nature conservation sites have been identified as failing condition due to elevated nutrient levels and nutrient neutrality is consequently required to enable development to proceed without causing further damage to these sites. The ES needs to take account of any strategic solutions for nutrient neutrality or Diffuse Water Pollution Plans, which may be being developed or implemented to mitigate and address the impacts of elevated nutrient levels. Further information can be obtained from the Local Planning Authority.

Climate Change

The ES should identify how the development affects the ability of the natural environment (including habitats, species, and natural processes) to adapt to climate change, including its ability to provide adaptation for people. This should include impacts on the vulnerability or resilience of a natural feature (i.e. what's already there and affected) as well as impacts on how the environment can accommodate change for both nature and people, for example whether the development affects species ability to move and adapt. Nature-based solutions, such as providing green infrastructure on-site and in the surrounding area (e.g. to adapt to flooding, drought and heatwave events), habitat creation and peatland restoration, should be considered. The ES should set out the measures that will be adopted to address impacts.

Further information is available from the Committee on Climate Change's (CCC) Independent Assessment of UK Climate Risk, the National Adaptation Programme (NAP), the Climate Change Impacts Report Cards (biodiversity, infrastructure, water etc.) and the UKCP18 climate projections.

The Natural England and RSPB Climate Change Adaptation Manual (2020) provides extensive information on climate change impacts and adaptation for the natural environment and adaptation focussed nature-based solutions for people. It includes the Landscape Scale Climate Change Assessment Method that can help assess impacts and vulnerabilities on natural environment features and identify adaptation actions. Natural England's Nature Networks Evidence Handbook

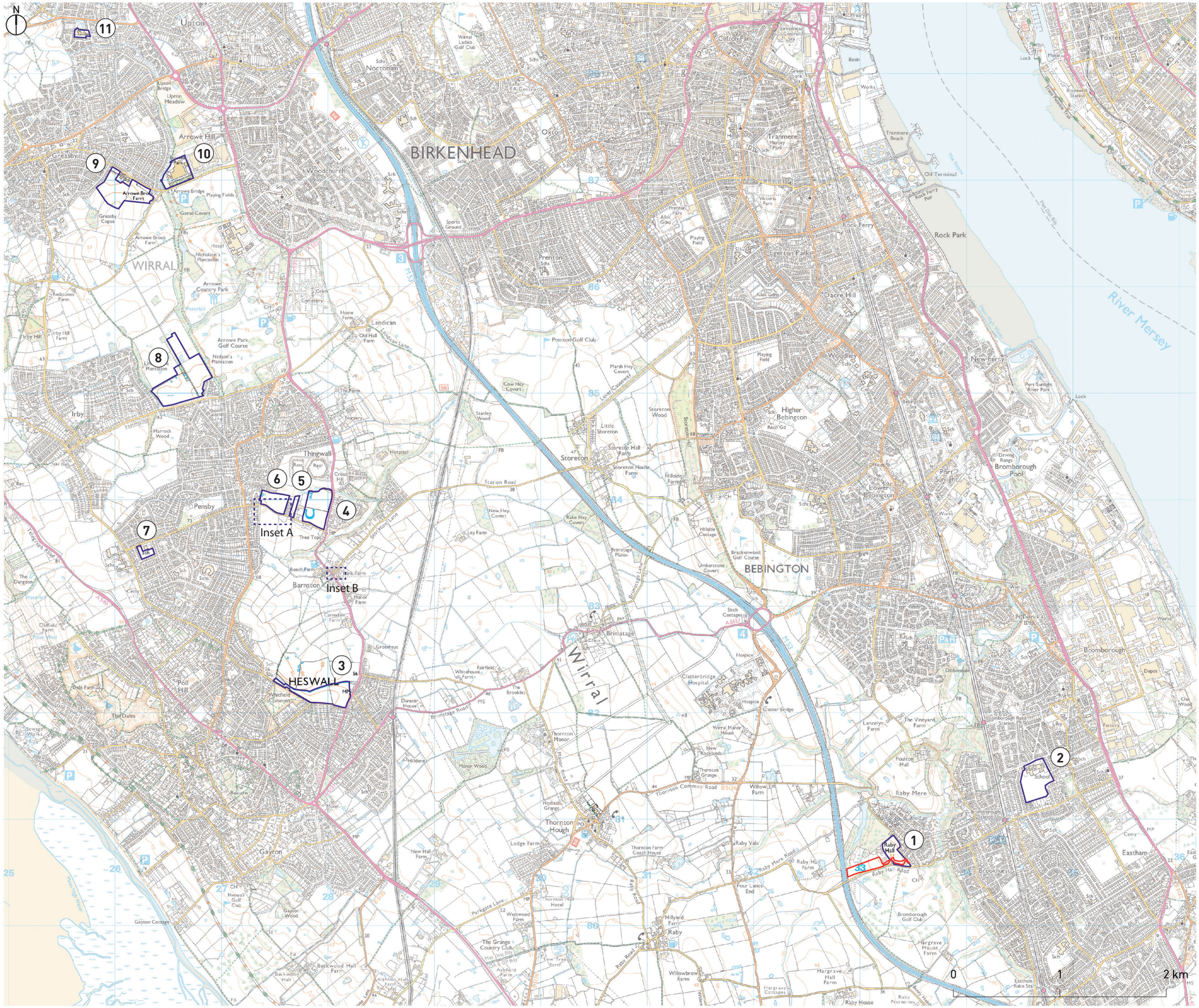
(2020) also provides extensive information on planning and delivering nature networks for people and biodiversity.

The ES should also identify how the development impacts the natural environment's ability to store and sequester greenhouse gases, in relation to climate change mitigation and the natural environment's contribution to achieving net zero by 2050. Natural England's Carbon Storage and Sequestration by Habitat report (2021) and the British Ecological Society's nature-based solutions report (2021) provide further information.

Contribution to local environmental initiatives and priorities

The ES should consider the contribution the development could make to relevant local environmental initiatives and priorities to enhance the environmental quality of the development and deliver wider environmental gains. This should include considering proposals set out in relevant local strategies or supplementary planning documents including landscape strategies, green infrastructure strategies, tree and woodland strategies, biodiversity strategies or biodiversity opportunity areas.

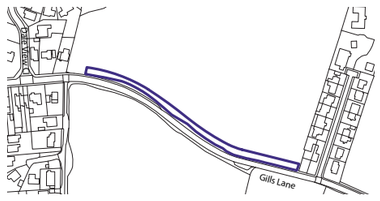
Appendix 2.3 – Cumulative Development Sites



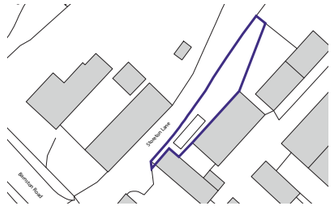
Planning application boundary

Cumulative Development Sites

1. Land East of Raby Hall, Raby Hall Road, Raby Mere
2. Land at Acre Lane and Meadowside Road, Bromborough
3. Land at Milner Road and Barnston Road, Heswall
4. Land West of Barnston Road, North of Gills Lane, Barnston
5. Land East of Thorncroft Drive, North of Gills Lane, Pensby
6. Land East of Dale View Close, North of Gills Lane, Pensby
7. Fishers Lane, Pensby
8. Land East of Glenwood Drive, Irby
9. Land East of Rigby Drive, Greasby
10. Wirral Business Park, Arrowe Brook Road, Upton
11. Girtrell Court, Woodpecker Close, Upton



Inset A - relates to site 4



Inset B - relates to sites 3, 4 & 6

LEVERHULME ESTATES LIMITED
LAND WEST OF RABY HALL

CUMULATIVE DEVELOPMENT SITES PLAN

1815/001/1011 Rev D	1:35,000 @ A3
JAN 2022	Alan Baxter

Appendix 5.1 – Summary of Effects of Construction Phase

Appendix 5.1 – Summary of Effects of Construction Phase

Receptor Identifier/ Description	Effect Description	Effect of Proposed Development (Incorporating Embedded Mitigation)									Further Mitigation Summary	Residual Effect of Proposed Development							
		Sensitivity	Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance		Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance
Population and Housing	Housing needs	H	N	N	-	-	-	N	-	NS	None required	N	N	-	-	-	N	-	NS
Local economy	Employment and local expenditure	H	L	Mi	T	ST	D	B	L	NS	None required	L	Mi	T	ST	D	B	L	NS
Education facilities	School capacity	H	N	N	-	-	-	N	-	NS	None required	N	N	-	-	-	N	-	NS
Healthcare facilities	Healthcare capacity	H	N	N	-	-	-	N	-	NS	None required	N	N	-	-	-	N	-	NS
Social/Community facilities	Social/Community infrastructure capacity	M	N	N	-	-	-	N	-	NS	None required	N	N	-	-	-	N	-	NS
Open space, sports and recreational facilities	Open space, sports and recreational facilities availability	M	N	N	-	-	-	N	-	NS	None required	N	N	-	-	-	N	-	NS

Notes:
Sensitivity = Low (L) / Medium (M) / High (H)
Magnitude = Negligible (N) / Low (L) / Medium (M) / High (H)
Effect Significance = Negligible (N) / Minor (Mi) / Moderate (Mo) / Major (Ma)
Permanence = Permanent (P) / Temporary (T)
Timescale = Short Term (ST) / Medium Term (MT) / Long Term (LT)
Direct (D) / Indirect (I)
Nature = Beneficial (B), Adverse (A) or Neutral (N)
Geographic Scale = Local (L) / District (D) / Regional (R)
Impact Significance = Significant (S) / Not Significant (NS)

Appendix 5.2 – Summary of Effects of Operational Phase

Appendix 5.2 – Summary of Effects of Operational Phase

Receptor Identifier/ Description	Effect Description	Effect of Proposed Development (Incorporating Embedded Mitigation)									Further Mitigation Summary	Residual Effect of Proposed Development							
		Sensitivity	Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance		Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance
Population and Housing	Housing needs	H	L	Mi	P	LT	D	B	L	NS	None required	L	Mi	P	LT	D	B	L	NS
Local economy	Employment and local expenditure	H	L	Mi	P	LT	D	B	L	NS	None required	L	Mi	P	LT	D	B	L	NS
Education facilities	School capacity	H	L	Mi	P	LT	D	A	L	NS	Contributions to mitigate effects on primary school, secondary school and sixth form capacity as required.	L	N	-	-	-	N	-	NS
Healthcare facilities	Healthcare capacity	H	L	Mi	P	LT	D	A	L	NS	Contributions to mitigate effects on healthcare facilities as required.	L	N	-	-	-	N	-	NS
Social/Community facilities	Social/Community infrastructure capacity	M	N	N	-	-	-	N	-	NS	Contributions to mitigate/enhance effects on social/community infrastructure as required.	N	N	-	-	-	N	-	NS
Open space, sports and recreational facilities	Open space, sports and recreational facilities availability	M	L	Mi	P	LT	D	B	L	NS	None required	L	Mi	P	LT	D	B	L	NS

Notes:
Sensitivity = Low (L) / Medium (M) / High (H)
Magnitude = Negligible (N) / Low (L) / Medium (M) / High (H)
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Geographic Scale = Local (L) / District (D) / Regional (R)
Impact Significance = Significant (S) / Not Significant (NS)

Appendix 6.1 – Summary of Effects of Construction Phase

Summary of Effects of Construction Phase (Transport)

Receptor Identifier/ Description	Effect Description	Effect of Proposed Development (Incorporating Embedded Mitigation)									Further Mitigation Summary	Residual Effect of Proposed Development							
		Sensitivity	Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance		Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance
Pedestrians	Severance	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Pedestrian delay	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Pedestrian amenity	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Accidents + safety	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Fear + intimidation	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
Cyclists	Accidents + safety	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Fear + intimidation	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
Equestrians	Accidents + safety	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Fear + intimidation	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Equestrian delay	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
Public Transport Users	Driver delay	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
Motorists	Driver delay	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS
	Accidents + safety	H	N	N	T	ST	D	A	L	NS	None required beyond standard Construction Traffic Management	N	N	T	ST	D	A	L	NS

Notes:
Sensitivity = Low (L) / Medium (M) / High (H)
Magnitude = Negligible (N) / Low (L) / Medium (M) / High (H)
Effect Significance = Negligible (N) / Minor (Mi) / Moderate (Mo) / Major (Ma)
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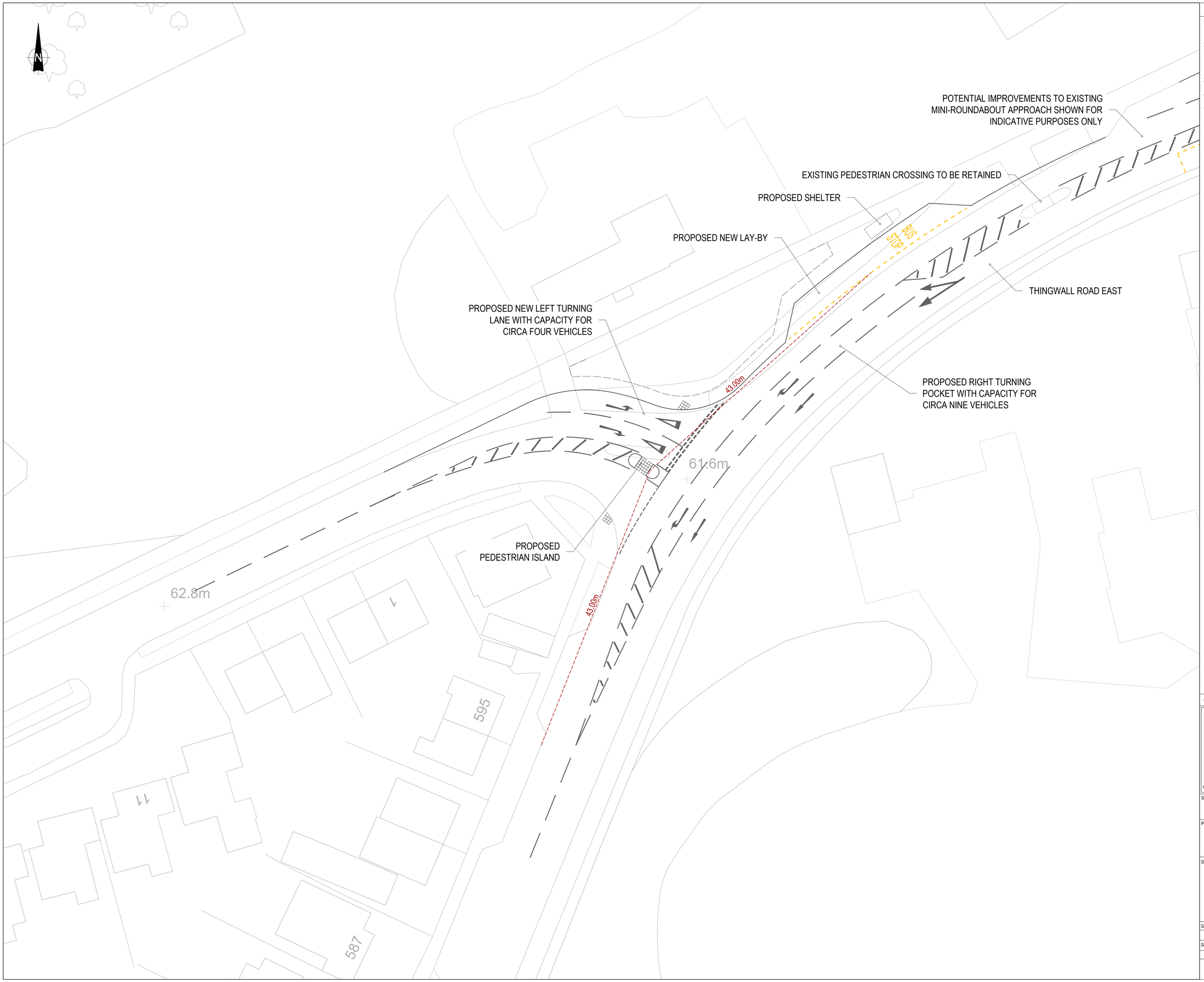
Appendix 6.2 – Summary of Effects of Operational Phase

Summary of Effects of Operational Phase (Transport)

Receptor Identifier/ Description	Effect Description	Effect of Proposed Development (Incorporating Embedded Mitigation)									Further Mitigation Summary	Residual Effect of Proposed Development							
		Sensitivity	Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance		Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance
Pedestrians	Severance	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Pedestrian delay	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Pedestrian amenity	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Accidents + safety	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Fear + intimidation	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
Cyclists	Accidents + safety	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Fear + intimidation	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
Equestrians	Accidents + safety	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Fear + intimidation	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Equestrian delay	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
Public Transport Users	Driver delay	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
Motorists	Driver delay	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS
	Accidents + safety	H	N	N	P	LT	D	A	L	NS	None required	N	N	P	LT	D	A	L	NS

Notes:
Sensitivity = Low (L) / Medium (M) / High (H)
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Impact Significance = Significant (S) / Not Significant (NS)

Appendix 6.3 – Proposed Cumulative Development Improvements



GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.
5. THE CONTENT OF THIS DRAWING IS FOR INDICATIVE INFORMATION ONLY AND NOT SUITABLE FOR CONSTRUCTION PURPOSES

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

Rev:	Description:	Date:	By:	Chkd:

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham

Status:
PRELIMINARY

Project:
LEVERHULME - PHASE 1

Drg Title:
THINGWALL ROAD E
PRIORITY JUNCTION
POTENTIAL IMPROVEMENTS

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	11/08/21	DD	DD	DJ
Scale: 1:250				

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
77829	CUR	00	XX	DR	TP	75005	P01

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GENERAL VIEW

LANDICAN ROAD

SHARED CYCLE LANE / FOOTWAY TO BECOME SEGREGATED CYCLE LANE

SHARED CYCLE LANE / FOOTWAY TO BECOME SEGREGATED CYCLE LANE

PROPOSED SEGREGATED LANE TO BY-PASS THE ROUNDABOUT

NEW PEDESTRIAN CROSSING FACILITIES

SHARED FOOTWAY (MINIMUM WIDTH 3m)

CYCLISTS TO JOIN THE CARRIAGEWAY

PROPOSED SHELTER

RELOCATED BUS STOP

BUS STOP

BARNSTON ROAD

ARROWE PARK ROAD

IMPROVED PEDESTRIAN CROSSING FACILITIES

EXISTING MINI--ROUNDABOUT RELOCATED TO THE WEST TO ENABLE THE CREATION OF THE SEGREGATED LANE TO THE EAST

IMPROVED PEDESTRIAN CROSSING FACILITIES

EXISTING EASTBOUND BUS STOP RELOCATED TO THE WEST (SEE INSET)

EXISTING SHELTER TO BE RETAINED

THINGWALL ROAD EAST

BUS STOP

Shelter

PROPOSED NEW LAY-BY FOR BUSES

TORRINGTON DRIVE

PROPOSED EASTBOUND BUS STOP (THINGWALL ROAD E)

THINGWALL ROAD EAST

BUS STOP

PROPOSED SHELTER

PROPOSED NEW LAY-BY

GENERAL NOTES:

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

Rev:	Description:	Date:	By:	Chkd:

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Status: PRELIMINARY

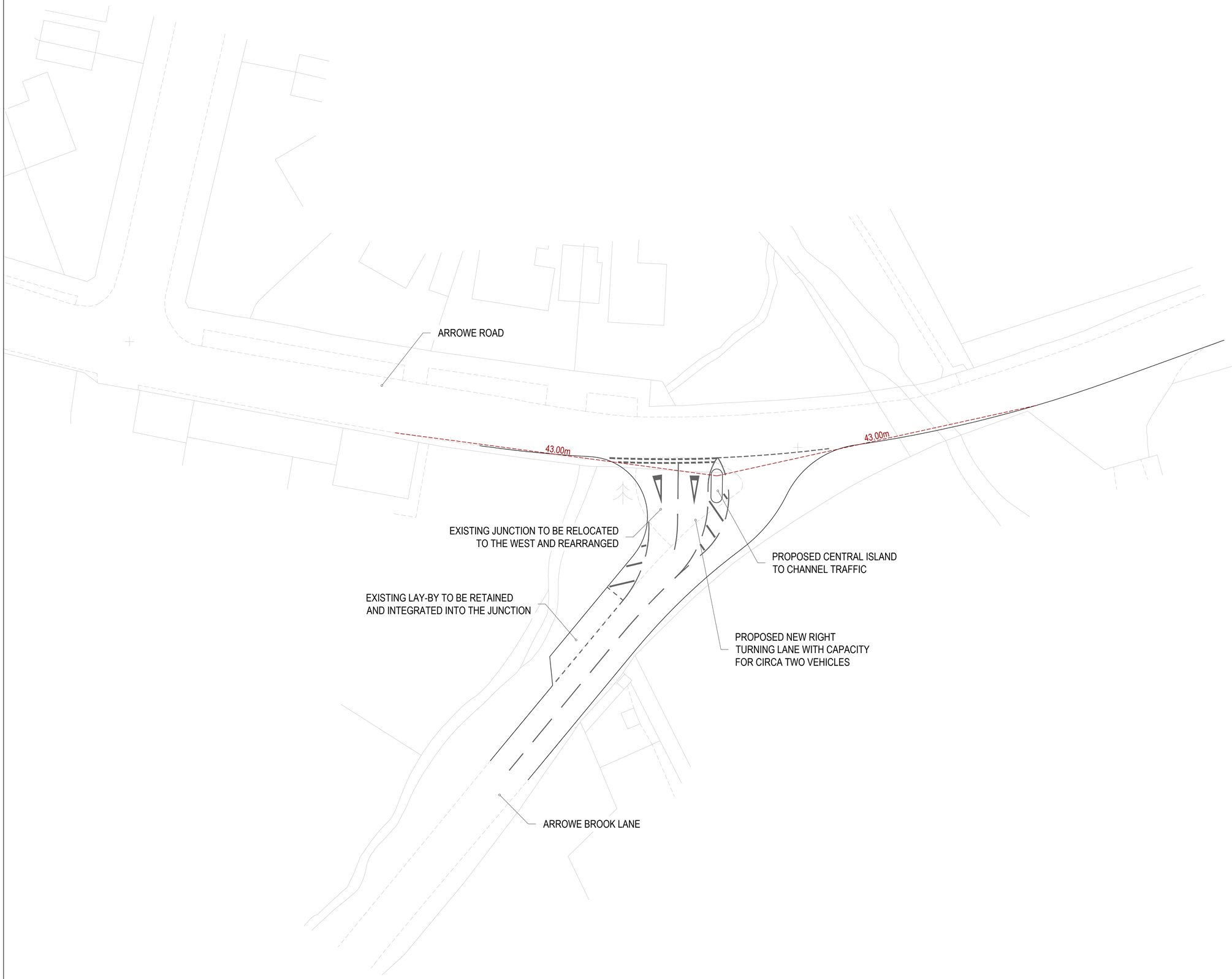
Project: LEVERHULME - PHASE 1

Drg Title: THINGWALL ROAD E / ARROWE PARK RD MINI-ROUNDABOUT POTENTIAL IMPROVEMENTS

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	10/08/21	DD	DD	DJ
Scale: 1:250				

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
77829	- CUR -	00	- XX -	DR	- TP -	75004	- P01

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5. THE CONTENT OF THIS DRAWING IS FOR INDICATIVE INFORMATION ONLY AND NOT SUITABLE FOR CONSTRUCTION PURPOSES

KEY:
- PROPOSED KERB LINE
- PROPOSED FOOTWAY
- PROPOSED ROAD MARKINGS
- 2.40 x 43.00m PROPOSED VISIBILITY SPLAYS (30mph)

Rev:	Description:	Date:	By:	Chkd:

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Status:
PRELIMINARY

Project:
LEVERHULME - PHASE 1

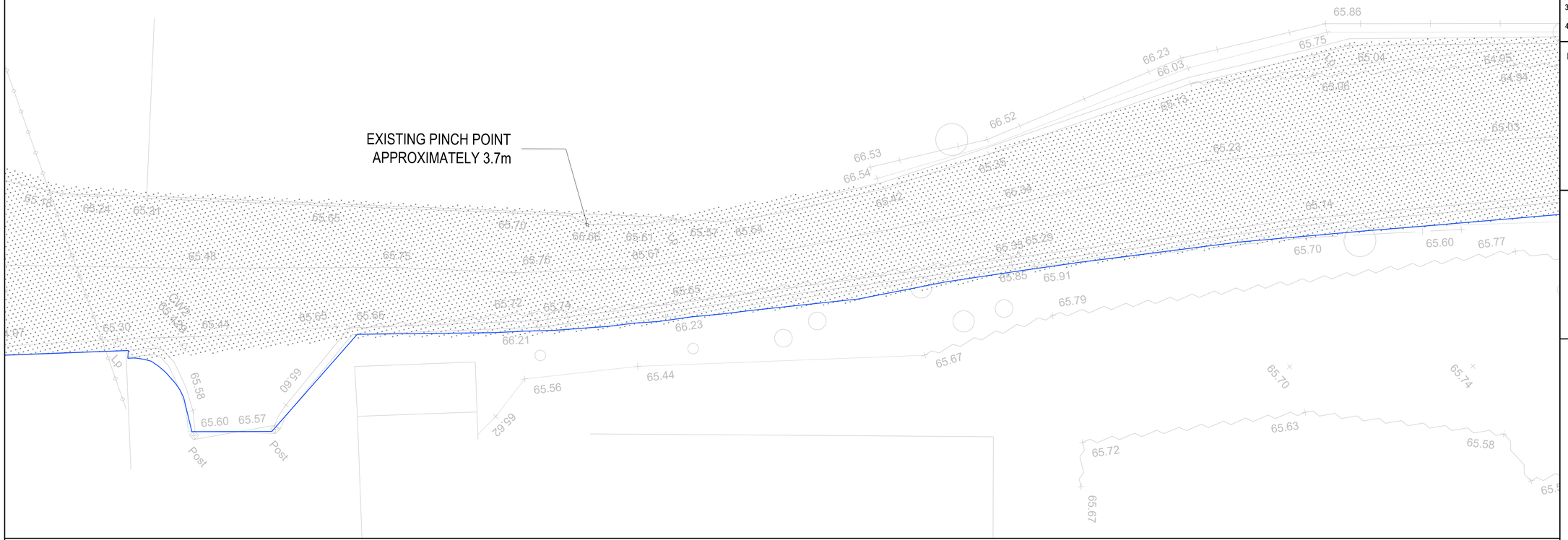
Drg Title:
ARROWE ROAD / ARROWE BROOK LANE
PRIORITY JUNCTION
POTENTIAL IMPROVEMENTS

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	11/08/21	DD	DD	DJ
Scale: 1:250				

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
77829	- CUR -	00	- XX -	DR	- TP -	75006	- P01

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EXISTING ARRANGEMENT



GENERAL NOTES:

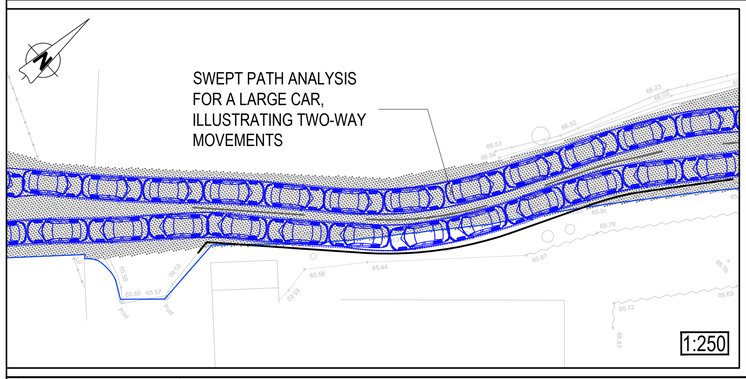
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
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KEY:

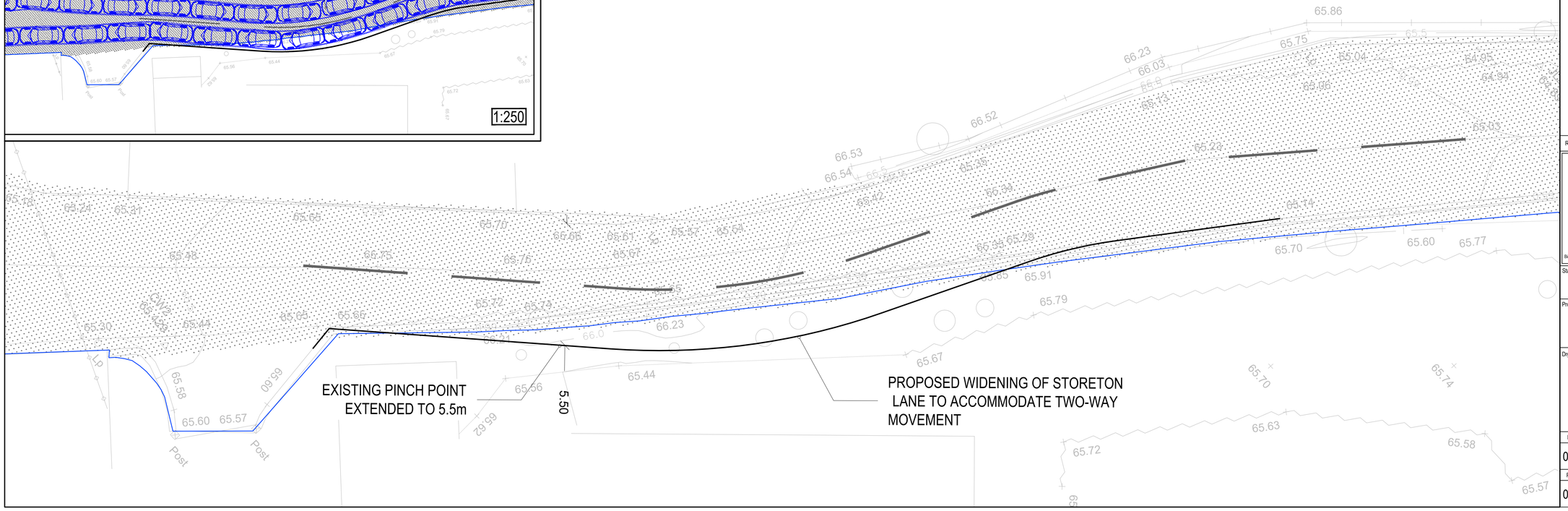
- INDICATIVE OWNERSHIP BOUNDARY
- PROPOSED KERB LINE
- PROPOSED ROAD MARKINGS
- PUBLIC HIGHWAY EXTENTS



Audi A6 (2018)	
Overall Length	4.939m
Overall Width	2.114m
Overall Body Height	1.457m
Min Body Ground Clearance	0.142m
Max Track Width	1.970m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.960m



PROPOSED ARRANGEMENT



Rev:	Description:	Date:	By:	Chkd:

curtins

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Telephone 0151 726 2000
Email Liverpool@curtins.com
Web https://www.curtins.com/

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Status:

PRELIMINARY

Project:

LAND AT MILNER ROAD AND BARNSTON ROAD, HESWALL

Drg Title:

PROPOSED STORETON LANE WIDENING ARRANGEMENT

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
078243	A1	12/10/21	HD	HD	DJ
	Scale: 1:100				

Project Code:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
078243	CUR	00	XX	DR	TP	75006	P01

\\fs03\projects\ TP\078243 - Leverhulme - Heswall\04-Production\4A-Models-Drawings\TP\CAD\75\

Appendix 7.1 – Methodology

Landscape and Visual Impact Assessment Methodology

1 Introduction

1.1 The assessment of landscape and visual effects will be undertaken with reference to and using aspects of the guidance found within `Guidelines for Landscape and Visual Impact Assessment` 3rd Edition, published by the Landscape Institute (LI) and the Institute of Environmental Management & Assessment (IEMA) 2013 (termed GLVIA3 hereafter).

1.2 As stated within GLVIA3 paragraph 1.20, the guidelines are not prescriptive and the approach and methodology has been tailored to the specific requirements of the proposals.

1.3 GLVIA3 recommends the following five key stages in the assessment of landscape and visual effects:-

- Scope;
- Establishing the landscape and visual baseline;
- Describing the landscape and visual effects;
- Assessing the significance of the landscape and visual effects;
- Ascertaining the overall significance of landscape and visual effects.

1.4 These five stages are applied separately to the landscape assessment and the subsequent visual assessment. GLVIA3 recognises that landscape and visual assessments are separate, although linked procedures.

1.5 Landscape effects are the predicted effects on the landscape as a resource in its own right. Landscape effects can be generated by a development's effect upon the physical landscape and or upon its character, fabric and quality. These could include direct physical impacts upon landscape elements, but also includes aesthetic, perceptual and experiential aspects of a landscape which may contribute to an existing landscape character.

1.6 Visual effects are the predicted changes to a view and the related impact on the general visual amenity experienced by people (visual receptors). The various visual receptor groups will comprise individuals or groups of people that experience a view of the application site from a publicly accessible location. They will typically include the users of Public Rights of Way, users of recreational facilities, pedestrians and users of a variety of forms of transport such as the drivers and passengers of vehicles, cyclists or rail passengers.

1.7 With regards to the visual amenity of the residents of private properties, GLVIA3 recommends that private views can be dealt with by a separate 'residential amenity assessment' as in planning terms, residents are not entitled to a view. The presence of residents experiencing a view of the application site and the nature of the views experienced will be acknowledged and

considered within the baseline and a succinct narrative will be provided regarding the likely visual effects, however the LVIA will only fully assess the visual effects upon the receptors that experience publicly accessible views.

Study Area

1.8 The overall study area for the landscape and visual assessment will be established by undertaking a desk-based survey, the preparation of a Zone of Theoretical Visibility (ZTV) and refined by subsequent site-based survey work.

1.9 The site-based work will be undertaken by a chartered member of the Landscape Institute with experience of landscape and visual assessment.

1.10 Site-based work will initially involve travelling throughout the area identified by the ZTV in order to ascertain levels of visibility on the ground (taking account of screening trees, hedgerows and built form), in order to inform and confirm the extent of the study area.

1.11 The study area will therefore include the site and the wider landscape which could be influenced by the development proposals and the extent of the area from which the development is potentially visible.

1.12 This desk and subsequent site-based work will also establish the representative viewpoints for the visual assessment. The proposed study area and the representative viewpoints will be presented within an appropriate landscape Scoping Report to the planning authority for their consideration and approval.

2 Landscape Effects

2.1 GLVIA3 paragraph 5.1 states *'An assessment of landscape effects deals with the effects of change and development on landscape as a resource.'*

The Landscape Baseline

Desk Based Assessment

2.2 The assessment will include a review of the relevant planning policy and other guidance and relevant information including:

- National Planning Policy Framework (NPPF 2012) and subsequent revision (July 2021);
- Wirral Council Unitary Development Plan;
- Natural England National Character Area 58: Merseyside Conurbation and National Character Area 59: Wirral;
- Neighbourhood Plans (where relevant);
- The Wirral Landscape Character Assessment 2019;
- The Wirral Landscape Sensitivity Assessment 2019/2021;
- Ordnance Survey mapping;

- Historic Mapping;
- Defra (MAGIC) website;
- Online aerial mapping;
- Sustrans website; and
- Published walking or cycling routes.

Site Based Assessment

2.3 Site Assessment work will initially entail travelling around the confirmed study area by car/cycle and by foot to understand the landscape features within the site and the surrounding area and to confirm the accuracy of the relevant published character assessments.

2.4 The landscape baseline will incorporate descriptions of the application site and the surrounding landscape, before referencing all published landscape character assessments and ascertaining the presence of any designated heritage assets such as Conservation Areas, Listed Buildings and Scheduled Ancient Monuments. The Landscape and Visual Amenity Chapter will acknowledge and incorporate the presence of heritage assets and their influence upon the character and attributed value of the landscape receptors. As such, heritage assets will be incorporated within and inform the assessment process, however this LVIA will not specifically assess effects upon the historic landscape or heritage assets (this will be undertaken in full within a separate chapter of the Environmental Statement).

2.5 GLVIA3 paragraph 5.33 states that the landscape baseline should map describe and illustrate the character of the landscape and its individual elements and aesthetic and perceptual aspects, emphasising any key characteristics that contribute to the distinctive character of the landscape. It also states that the condition of the landscape should be indicated with reference to elements therein, such as buildings, hedgerows or woodland.

Landscape Value

2.6 In accordance with paragraph 5.44 of GLVIA3, the Landscape Baseline will also consider the value of the landscape resource within the study area.

2.7 GLVIA3 paragraph 5.45 states *'the value of the landscape receptors will to some degree reflect landscape designations and the level of importance which they signify, although there should not be over reliance on designations as the sole indicator of value.'*

2.8 The fact a landscape is not subject to a designation, does not mean that it does not have any value. Where there is no evidence to indicate landscape value, the assessment will utilise an approach akin to the Box 5.1 assessment as set out within GLVIA3 paragraph 5.28 and Landscape Institute Technical Guidance Note TGN-02-21, Assessing landscape value outside national designations, which draw on the factors that are generally agreed to influence value, which can be Exceptional (International/National), High (National/Regional), Medium (Regional/Community), Low (Community/Local) or Very Low (Local). In addition to

acknowledging the presence of any landscape designations, these factors comprise the following:

- Landscape Condition (Table 1 below to be utilised to assist judgements on condition): A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
- Distinctiveness: Consideration as to whether the landscape has a strong sense of identity through reference to relevant Landscape Character Assessments.
- Natural Heritage: Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.
- Cultural Heritage: Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape.
- Recreational Value: Landscape offering recreational opportunities where experience of landscape is important.
- Perceptual (scenic): Landscape that appeals to the senses, primarily the visual sense.
- Perceptual (wildness and tranquillity): Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies.
- Associations: Landscape which is connected with notable people, events or the arts.
- Functional: Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape.

Table 1: - Landscape Condition

Condition	Criteria
Exceptional	• Strong landscape structure, characteristics, patterns, balanced combination of landform and landcover; • Appropriate management for land use and landcover; • Distinct features worthy of conservation; • Strong sense of place; and • No detracting features.
Very Good	• Robust landscape structure, characteristics, patterns and balanced combination of landform and landcover; • Appropriate management for land use and landcover with potential scope to improve; • Distinct features worthy of conservation; • Sense of place; and • Occasional detracting features;
Good	• Recognisable landscape structure, characteristic patterns and combinations of landform and landcover are still evident; • Scope to improve management for land use and land cover; • Some features worthy of conservation; and • Some detracting features.
Ordinary	• Distinguishable landscape structure, characteristic patterns of landform and landcover;

	• Scope to improve management of vegetation; • Some features worthy of conservation; and • Some detracting features.
Low	• Weak landscape structures, characteristic patterns of landform and landcover are often masked by land use; • Mixed land use evident; • Lack of management and intervention has resulted in degradation: and • Frequent detracting features.
Very Low	• Degraded landscape structure, characteristic patterns and combinations of landform and landcover are masked by land use; • Mixed land use dominates; • Lack of management/intervention has resulted in degradation; and • Extensive detracting features.
Damaged	• Damaged landscape structure; • Single land use dominates; • Disturbed or derelict land requires treatment; and • Detracting features dominate.

Assessment of Landscape Effects

2.9 Having established the landscape baseline, the relevant landscape components or 'receptors' are identified and will normally comprise physical landscape features, such as trees, hedgerows, dry-stone walls etc and identified landscape character areas within the study area.

2.10 Having ascertained the landscape receptors, the assessment will then identify interactions between those receptors and the development proposals at different stages.

2.11 The type of landscape effects predicted may include direct, indirect, short term (Year 1 Operational to Year 6), medium term (Year 7 to Year 1) and long term (Year 15 and beyond), temporary (construction) and whether they are positive (beneficial) or negative (adverse) effects.

2.12 In order to determine the significance of the potential landscape effects which may result from the development, the sensitivity and the magnitude of effect of each of the landscape receptors must be established. The sensitivity and magnitude of effect can then be combined to ascertain the significance of effect for the landscape receptors – see Table 4.

Landscape Sensitivity

2.13 Sensitivity determines the degree to which individual landscape receptors may be affected by a development proposal. In order to establish the sensitivity of the relevant landscape receptors, their susceptibility to specific change must be considered alongside a judgement on their respective value (the value, susceptibility and associated sensitivity of the landscape resource is established within the Landscape Baseline).

2.14 Susceptibility to change means the ability of the landscape receptor to accommodate the proposed development (whether it be housing, warehouses, a wind farm etc), without undue consequences for the maintenance of the baseline and/or the achievement of landscape

planning policies and strategies and with reference to Table 2 below, is graded on a scale of high, medium or low.

Table 2 – Indicators of Landscape Susceptibility to Change

Level of Susceptibility	Definition
Higher Susceptibility	• The landscape is of an open nature/ is large scale/has natural topographical variations and/or there is a negligible/low level of containment so is susceptible to the introduction of uncharacteristic elements/features; • The landscape is of a small, intimate scale that is susceptible to the introduction of uncharacteristic elements/features; • There are historic assets/features present, such as remnant parkland and semi-natural woodland; • There is an overriding rural character; • Many of the valued existing landscape characteristics and features would be difficult to replace or mitigate, although it may be possible to enhance/mitigate to some extent; • There are higher levels of wildness and tranquillity.
Lower Susceptibility	• There are limited variations in the topography; • There is a limited presence of natural landform; • The landscape is of a more enclosed nature that results from a strong woodland structure; • Predominantly agricultural land which is intensively farmed, leaving limited semi-natural habitat; • The is a perceived prominence and presence of human activity.

2.15 Combining the value and susceptibility judgements attributed to each landscape receptor then informs a judgement regarding their sensitivity, which is graded on a scale of high, medium or low.

Magnitude of Effect

2.16 GLVIA3 recommends that the magnitude of effect upon landscape receptors is assessed using three considerations as follows:

- The size or scale of the change to the landscape resulting from the implementation of the development proposals - Determining the size or scale of landscape effect takes account of landscape elements which are lost and those which are improved, the degree to which aesthetic or perceptual aspects of the landscape are altered and whether the effects change the key characteristics of the landscape.
- The geographical extent of the area influenced by the development proposals - this could comprise the site only, its immediate setting or possibly the wider landscape at the scale of the landscape type or character area within which the development is

located, or also at a larger scale where more than one landscape type or character area within the wider study area is influenced.

- The duration and reversibility of the effect - This is judged on a scale of short term (0-6 years), medium term (7-15 years taking account of the establishment of planting proposed as embedded mitigation) and long term (15 years and beyond). Reversibility is a judgement about the prospects and the practicality of a particular effect being reversed and is judged on a scale of reversible, partially reversible and permanent. For example, housing can be considered permanent, whereas a wind turbine can be considered as reversible as they have a limited life and could be removed and the land reinstated.

2.17 The overall magnitude of effect is judged as high, medium, low or negligible and this judgement can be adverse or beneficial. Table 3 below describes the magnitude of effect criteria for the landscape assessment:

Table 3 – Criteria for the Assessment of the Magnitude of Effect of Landscape Character

Magnitude of Effect	Typical Criteria
High (adverse or beneficial)	Major alteration to key features or characteristics in the existing landscape and or the introduction of elements considered totally uncharacteristic/characteristic. Typically, this would be where there would be a great scale of change to the character of the landscape for the long or medium-term.
Medium (adverse or beneficial)	Partial alteration to key features or characteristics of the existing landscape and or the introduction of prominent elements. Typically, this would be where there would be a notable scale of change to the character of the landscape for the medium and long- term; or where there would be a great scale of change on the landscape for the short-term.
Low (adverse or beneficial)	Minor alteration to key features and characteristics of the existing landscape and or the introduction of features which may already be present in the landscape. Typically, this would be where there is a notable or low scale of change to the character of the landscape for the short-term; or where there would be a low scale of change on the landscape in the medium or long-term.
Negligible (adverse or beneficial)	A very minor alteration to key features or characteristics of the existing landscape. Typically, this would be where in the short, medium or long term the scale of change on landscape character would be barely perceptible.

Landscape Effects

2.18 In order to draw conclusions about the nature of landscape effects, the separate judgements about the sensitivity of the landscape receptors and the magnitude of the landscape effects need to be combined to allow a final judgement to be made (see Table 4 below). The resulting effect may be major, moderate, minor or negligible and can be either beneficial or adverse. It must be noted that the table is a guide to aid the assessor in the decision-making process,

therefore in some instances, the ascertained level of effect may not be consistent with the sensitivity/magnitude combinations given in Table 4.

Table 4 : Landscape Effects - Method for Assisting Decision Making When Determining Landscape Effects

Sensitivity	Magnitude			
	High	**Medium**	**Low**	**Negligible**
Low	Moderate	Minor/ Moderate	Minor	Negligible
Medium	Major/ Moderate	Moderate	Minor/ Moderate	Negligible
High	Major	Major/ Moderate	Moderate	Negligible

Landscape Assessment Timeframes

2.19 The landscape effects are considered at three points in time as follows:

- Construction;
- Year 1 - Operational
- Year 15

2.20 The landscape effects ascertained at Year 15 after completion take account of the establishment of the embedded mitigation and are considered to be representative of the residual landscape effects of the development.

Cumulative Landscape Effects

2.21 Paragraph 7.3 of GLVIA3 considers the definition of cumulative effects as addressed by Scottish Natural Heritage (SNH). Although the SNH definitions are primarily associated with windfarm development, the guidance is now widely used. It defines:

- Cumulative effects as 'the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together' (SNH, 2012:4);
- Cumulative landscape effects, as effects that *'can impact on either the physical fabric or character of the landscape, or any special values attached to it'* (SNH, 2012:10).

Cumulative Assessment Study Area

2.22 When establishing an appropriate study area for the cumulative assessment, GLVIA3 paragraph 7.21 recommends the use of recognised character areas that the proposals are

within and or where available, the Zone of Theoretical Visibility (ZTV) associated with each of the different projects identified.

Cumulative Assessment Scope

2.23 The focus of the cumulative landscape assessment will be the effects of the development in question in conjunction with other developments of the same type, however the assessment should consider other types of development proposed within the study area. Developments to consider include those under construction and other schemes that are not yet present within the landscape such as those with planning consent and those that are the subject of a valid planning application.

2.24 In accordance with GLVIA3 paragraph 7.5, the task will be kept reasonable and 'the emphasis in EIA is on likely significant effects, rather on comprehensive cataloguing of every conceivable effect that might occur.'

Assessing Cumulative Landscape Effects

2.25 In accordance with GLVIA3 paragraph 7.25/7.27, once the range of developments to be considered is established, the approach to assessing the significance of cumulative effects will be guided by the same principles as the main project assessment.

2.26 GLVIA3 paragraph 7.25 also defines the likely cumulative landscape effects as follows:

- *'effects on the fabric of the landscape as a result of removal of or changes in individual elements or features of the landscape and/or the introduction of new elements or features;*
- *on the aesthetic aspects of the landscape – for example its scale, sense of enclosure, diversity, pattern, and/or on its perceptual or experiential attributes, such as sense of naturalness, remoteness or tranquillity;*
- *on the overall character of the landscape as a result of changes in the landscape fabric and/or in aesthetic or perceptual aspects, leading to the modification of key characteristics and possible creation of new landscape character if the changes are substantial enough.'*

3 Visual Effects

3.1 GLVIA3 paragraph 6.1 states *'An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity.'*

The Visual Baseline

Desk and Site Based Assessment

3.2 The desktop studies undertaken, combined with a site-based analysis of the ZTV will inform the visual baseline for the assessment. The site-based work will be undertaken by a chartered member of the Landscape Institute with experience of landscape and visual assessment.

3.3 Site-based work will initially involve travelling throughout the area identified by the ZTV in order to ascertain levels of visibility on the ground (taking account of screening trees, hedgerows and built form), in order to inform and confirm the extent of the study area, the key relevant visual receptors (individuals or groups of people who experience a view of the application site) and the associated representative viewpoints. This information will be set out within the assessment with descriptions of the views experienced.

3.4 Viewpoint photography will be undertaken in accordance with Landscape Institute Technical Guidance Note 06/19 – Visual Representation of Development Proposals, using a digital full frame single lens reflex camera (Canon EOS 6D MkII) with a 50mm F/1.4 USM lens (guidance recommends the use of a 50mm lens at it provides imagery akin to that of the human eye).

3.5 It is important to note that the visual receptors and in particular, the representative viewpoints are representative of the visual prominence of the application site and will not necessarily form an exhaustive list of all receptors and associated viewpoints.

Assessment of Visual Effects

3.6 In order to determine the significance of the potential visual effects which may result from the development, the sensitivity and the magnitude of effect associated with each of the visual receptors must be established. The sensitivity and magnitude can then be combined to ascertain the nature of the anticipated visual effect for each individual visual receptor (see Table 7).

3.7 The method employed for the assessment of the visual effects that may result from the implementation of the development proposals is in accordance with GLVIA3, specifically paragraphs 6.30 to 6.45.

Receptor Sensitivity

3.8 Sensitivity determines the degree to which visual receptors will be affected by a development proposal. In order to establish the sensitivity of the visual receptors, their susceptibility to specific change in the views experienced, must be considered alongside a judgement on the respective value of those views. The resulting sensitivity is graded on a scale of high, medium and low.

3.9 Susceptibility – The susceptibility of different visual receptors to potential changes in views and visual amenity is subject to the occupation or activity of people experiencing a view and the extent to which their attention is focussed on the views (see Table 5).

3.10 GLVIA3 paragraphs 6.32 to 6.35 provides general guidance upon the levels of susceptibility associated with different, yet common types of visual receptor. In general, a level of Susceptibility to Change of High, Medium or Low will be attributed to each of the visual receptors as follows:

Table 5 – Susceptibility to Change

Visual Receptor	Susceptibility to Change
Users of Public Rights of Way and other recreational routes	**High**
Public Open Space and visitor attractions where views contribute to the experience	**High**
The residents of private properties with views from habitable/principle rooms or from outdoor spaces – susceptibility could be lower where there are restricted views/views from non-habitable/principle rooms	**High**
Road Users (drivers and passengers of vehicles, cyclists and pedestrians) – Susceptibility could be lower from main roads or higher from rural lanes/tourist routes	**Varies**
Rail Passengers	**Medium/Low**
Golfers	**Medium/Low**
Users of sports pitches	**Low**
Employees/workers in their workplace	**Low**

3.11 Judgements associated with assigning a level of susceptibility to the visual receptors will not necessarily always accord with the above Table 5. As indicated with Road Users, the susceptibility may vary up or down from the values set out within Table 5 and instances where such variations occur, the basis for the judgement will be set out within the assessment.

3.12 Value of the View – The value of the views experienced is determined as High, Medium or Low, with reference to GLVIA3 paragraph 6.37, which states that the following should be taken account of:

- *'recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations';* and
- *'indicators of the value attached to views by visitors, for example through reference to a view in a guidebook or on a tourist map, provision of facilities for their enjoyment (such as parking places, sign boards and interpretative material) and references to them in literature and art that indicates a highly valued view, which often can be experienced by many people.'*

3.13 Receptor Sensitivity – The sensitivity of the visual receptors is ascertained by combining the judgements associated with their susceptibility and the value of the views they experience, to inform a judgement regarding their sensitivity, which is graded on a scale of high, medium or low.

Magnitude of Effect

3.14 Each of the visual effects identified will be evaluated in terms of its size or scale, its geographical extent of the area influenced and its duration and reversibility. The resulting magnitude of effect is graded on a scale of high, medium, low or negligible.

3.15 When considering the size or scale of the change in the view the following criteria are considered:

- loss or addition of features within the view including the proportion of the view occupied by the proposed development eg introducing housing into a view where housing is already present will represent a lower level of change than the introduction of housing into a view where there is no housing present;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of scale, mass, form, height and colour; and
- The nature of the view of the development proposal in terms of the length of time over which it will be experienced and whether the views will be full, partial or glimpses.

3.16 The geographical extent of a visual effect will vary with different viewpoints and is likely to be reflected by the following:

- The angle of view in relation to the main activity of the receptor – changes to direct views will generally be considered to be of greater importance than changes to oblique views;
- The distance of the viewpoint from the proposed development; and
- The extent of the area over which the changes would be visible.

3.17 The duration of visual effects is judged on a scale of short term (0-6 years), medium term (7-15 years) and long term (15 years and beyond), taking account of the establishment of planting proposed as embedded mitigation. Reversibility is a judgement about the prospects and the practicality of a particular effect being reversed and is judged on a scale of reversible, partially reversible and permanent. For example, housing can be considered permanent, whereas a wind turbine can be considered as reversible, as they have a limited life and could be removed and the land reinstated.

3.18 The overall magnitude of effect is judged as high, medium, low or negligible and this judgement can be adverse or beneficial. Table 6 below describes the magnitude of effect criteria for the landscape assessment:

Table 6 – Criteria for the Assessment of the Magnitude of Effect on Views

Magnitude of Effect	Typical Criteria
High (adverse or beneficial)	Major alteration to the existing view and/or the introduction of elements considered totally uncharacteristic/characteristic. Typically, the development will be in close proximity to the receptor, with a large proportion of the view affected with little or no filtering. The scale of change

	would be great and would exist from the medium-term and beyond.
Medium (adverse or beneficial)	Partial alteration to the existing view and or the introduction of prominent elements in the view. Typically, the development would affect a moderate proportion of the view up to and beyond the medium term or the development would be seen in close proximity, with a large proportion of the view affected in the short term.
Low (adverse or beneficial)	Minor changes to the existing view and or the introduction of features that are already present within the view. Typically, this would result from a low scale of change to the existing view; where a moderate to low proportion of the view would be affected in the short term; where the development would be visible in distant views beyond the medium term; where only a small proportion of the view is affected beyond the medium term; or, where high degrees of screening/filtering reduce the effect beyond the medium term.
Negligible (adverse or beneficial)	A very minor alteration to the existing view. Typically, this would result where a development is barely perceptible at any point in time; where the change would be barely perceptible within a longer distance view; where a small proportion of the view is affected; or, where the scale of change from the existing view would be barely perceptible.

Visual Effects

3.19 In order to draw conclusions about the anticipated levels of visual effect, separate judgements about the sensitivity of the visual receptors and the magnitude of the visual effects need to be combined to allow a final judgement to be made (see Table 7). The resulting significance of effect may be major, moderate, minor or negligible and can be either beneficial or adverse. It must be noted that the table is a guide to aid the assessor in the decision-making process, therefore in some instances, the ascertained level of visual effect may not be consistent with the sensitivity/magnitude combinations given in Table 7.

Table 7: Visual Effects - Method for Assisting Decision Making When Determining Visual Effects

		Magnitude			
		High	**Medium**	**Low**	**Negligible**
Sensitivity	**Low**	Moderate	Minor/ Moderate	Minor	Negligible
	Medium	Major/ Moderate	Moderate	Minor/ Moderate	Negligible
	High	Major	Major/ Moderate	Moderate	Negligible

3.20 GLVIA3 paragraph 6.44 states '*In making a judgement about the significance of the visual effects, the following points should be noted':*

- *Effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant;*
- *Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant;*
- *Large-scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features already present within the view.'*

Visual Assessment Timeframes

3.21 The visual effects are considered at three points in time as follows:

- Construction;
- Year 1 – Operational; and
- Year 15.

3.22 The visual effects ascertained at Year 15 after completion take account of the establishment of the embedded mitigation and are considered to be representative of the residual visual effects of the development.

Cumulative Visual Effects

3.23 Paragraph 7.3 of GLVIA3 considers the definition of cumulative effects as addressed by Scottish Natural Heritage (SNH). Although the SNH definitions are primarily associated with windfarm development, the guidance is now widely used. It defines:

- *Cumulative effects as 'the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together'* (SNH, 2012:4);
- *Cumulative Visual effects, as effects that can be caused by combined visibility, which 'occurs where the observer is able to see two or more developments from one viewpoint and/or sequential effects which occur when the observer has to move to another viewpoint to see different developments'* (SNH, 2012:10).

Cumulative Assessment Study Area

3.24 When establishing an appropriate study area for the cumulative assessment, GLVIA3 paragraph 7.21 recommends the use of recognised character areas that the proposals are within and or where available, the Zone of Theoretical Visibility (ZTV) associated with each of the different projects identified.

Cumulative Assessment Scope

3.25 The focus of the cumulative visual assessment will be the effects of the development in question in conjunction with other developments of the same type, however the assessment should consider other types of development proposed within the study area. Developments to

consider include those under construction and other schemes that are not yet present within the landscape such as those with planning consent and those that are the subject of a valid planning application.

3.26 In accordance with GLVIA3 paragraph 7.5, the task will be kept reasonable and *'the emphasis in EIA is on likely significant effects, rather on comprehensive cataloguing of every conceivable effect that might occur.'*

Assessing Cumulative Visual Effects

3.27 In accordance with GLVIA3 paragraph 7.25/7.27, once the range of developments to be considered is established, the approach to assessing the significance of cumulative effects will be guided by the same principles as the main project assessment.

3.28 GLVIA3 paragraph 7.38 suggests that higher levels of significance may arise from cumulative visual effects related to:

- *'developments that are in close proximity to the main project and are clearly visible together in views from the selected viewpoints;*
- *Developments that are highly inter-visible, with overlapping ZTVs – even though the individual developments may be at some distance from the main project and from individual viewpoints, and when viewed individually not particularly significant, the overall combined cumulative effect on a viewer at a particular viewpoint may be significant.'*

4 Significant Landscape and Visual Effects

4.1 In EIA terms, any residual landscape and visual effects assessed as Moderate, Moderate/Major or Major would typically be considered to be significant.

Appendix 7.2 – Figures

Figure 1 - Site Location and Aerial Plans





Site boundary

Site photograph locations

Study area

BARNES WALKER

DWG NO.
Figure 1

DWG TITLE.
Site Location and Study Area Plan

CLIENT.
Leverhulme

PROJECT TITLE.
Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE.
NTS @ A3

DATE.
01.22

DRAWN BY.
AC

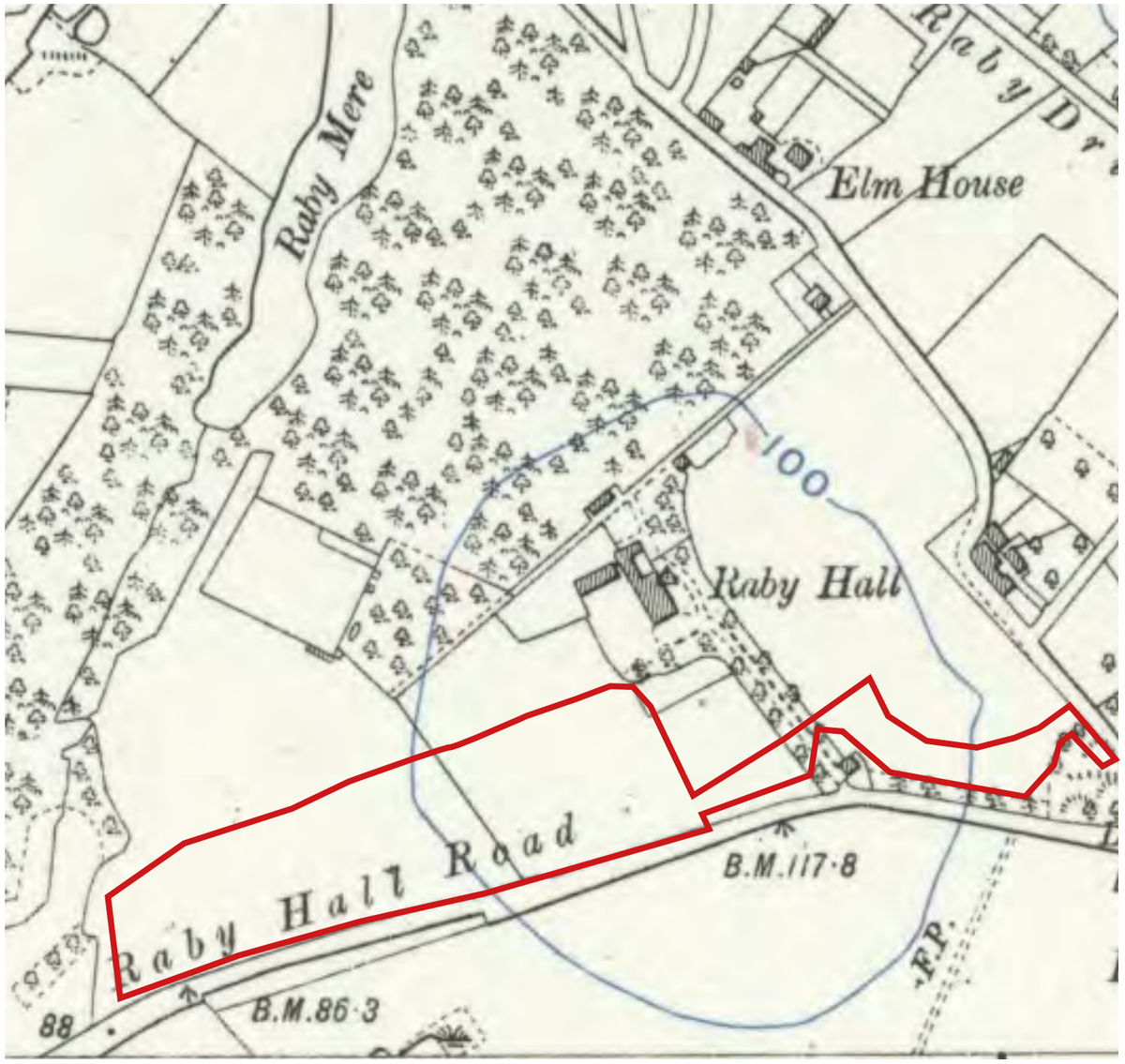
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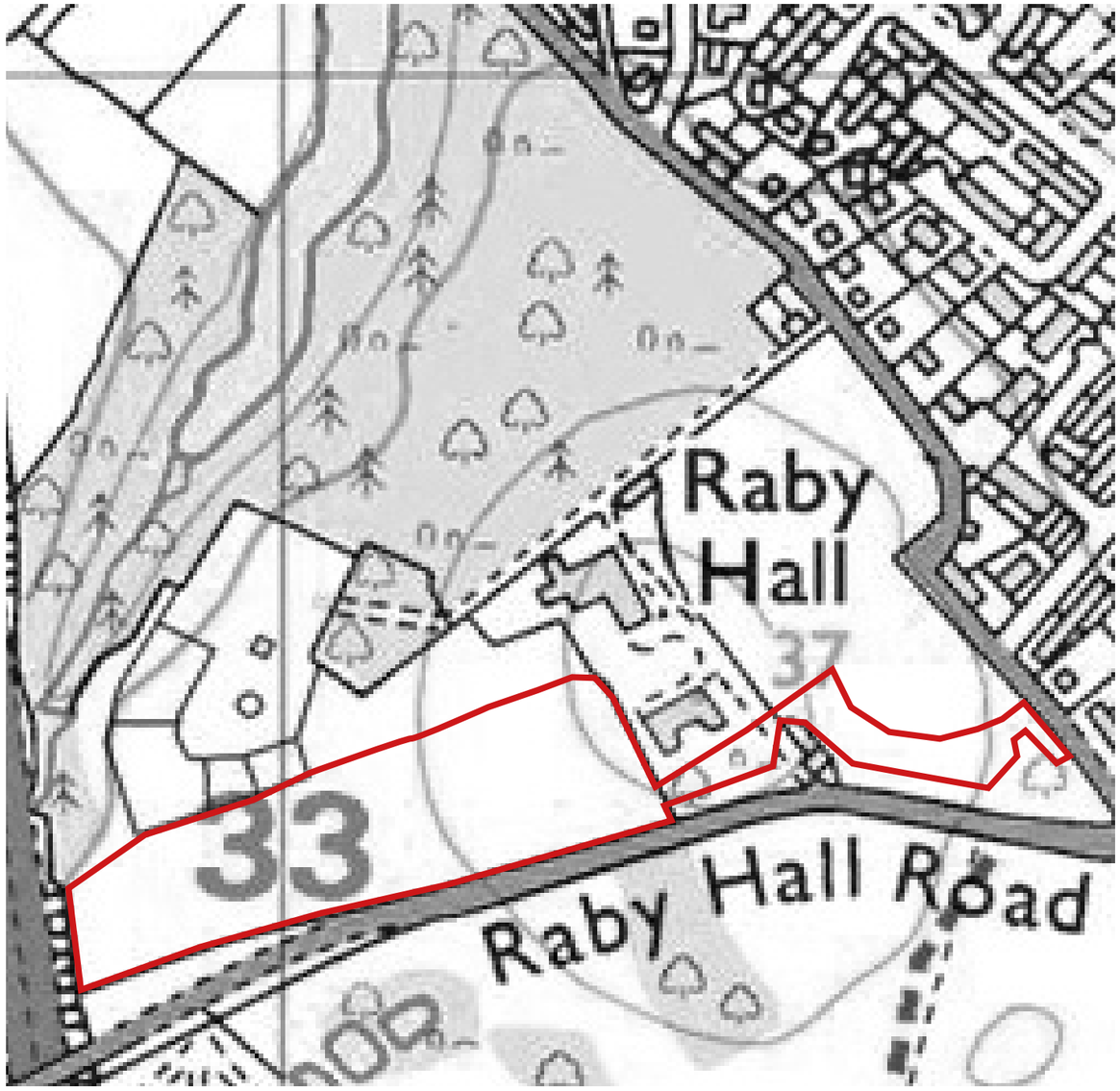
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Note
This map contains data from the following sources:
-Google
© Google Earth 2021

Figure 2 - Historic and Current Mapping



1913 Map



Current OS Map

Site boundary

BARNES WALKER

DWG NO.
Figure 2

DWG TITLE.
Historic and Current OS Mapping

CLIENT.
Leverhulme

PROJECT TITLE.
Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE.
NTS @ A3

DATE.
01.22

DRAWN BY.
AC

CHECKED BY.
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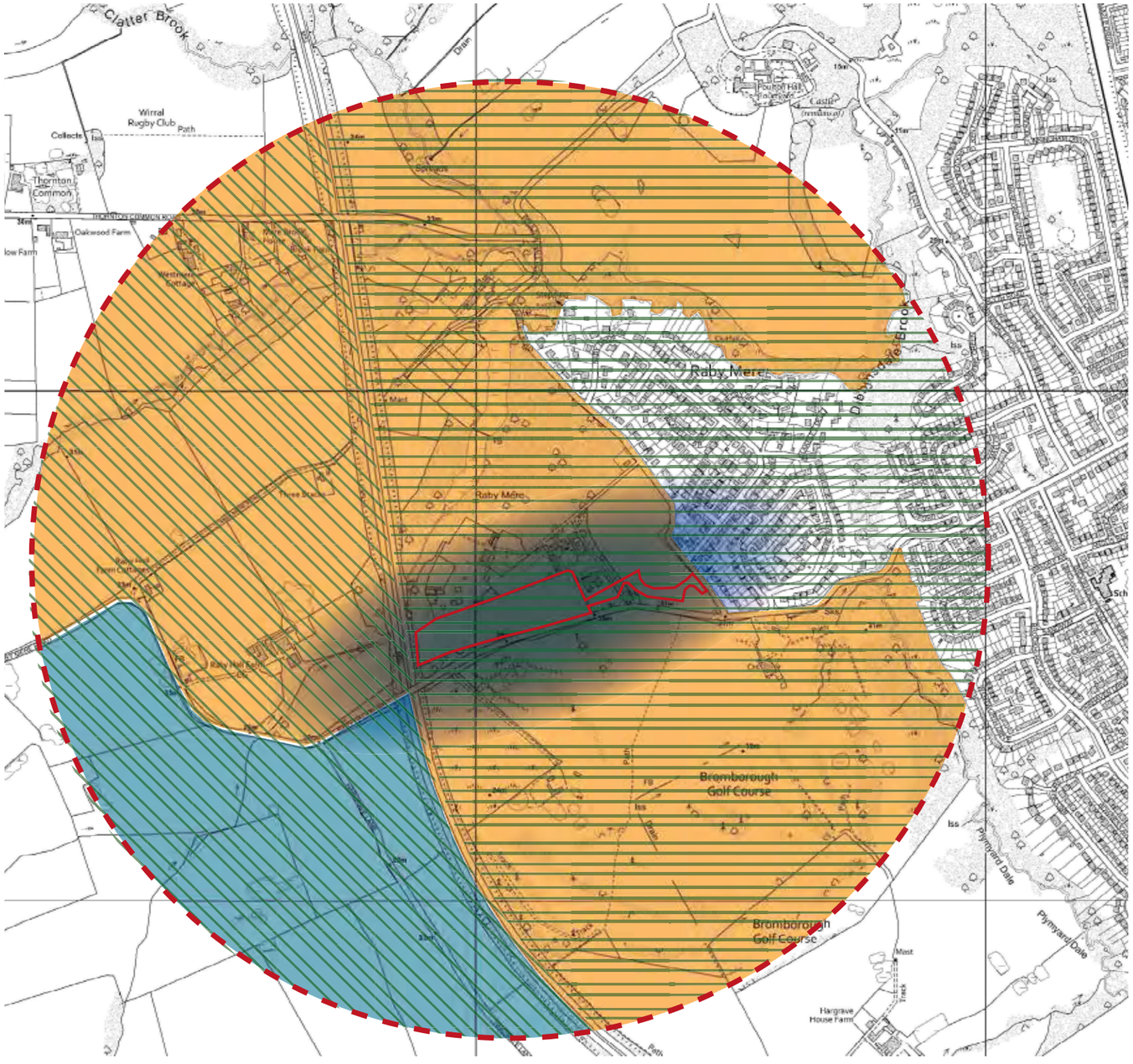
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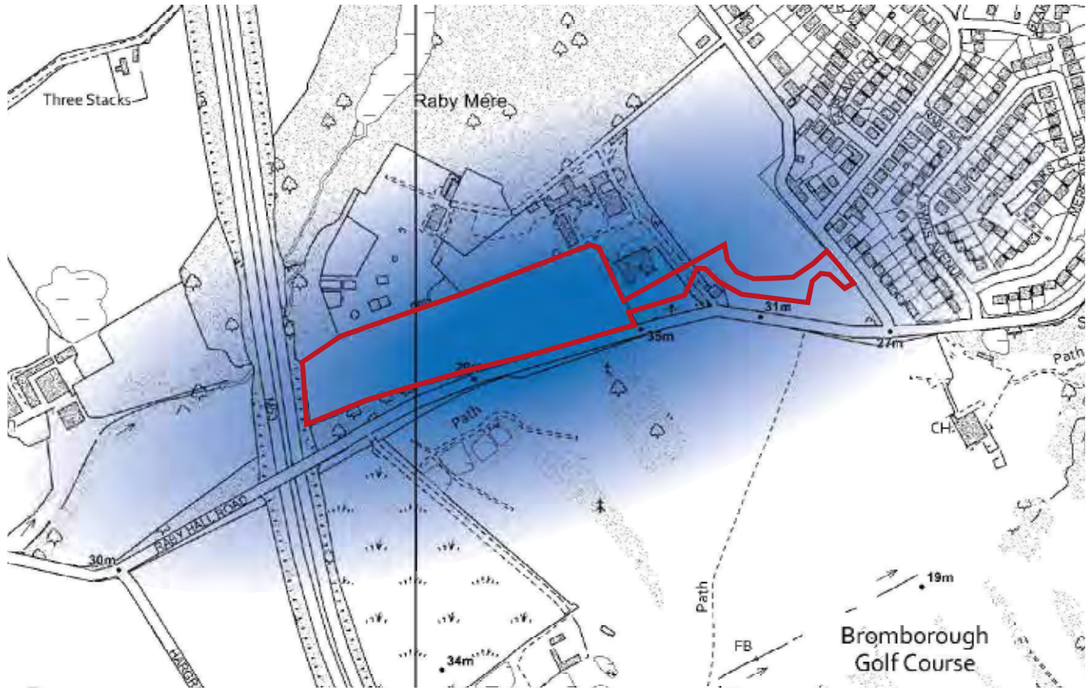
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Note
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Figure 3 - Landscape Receptor Plan



- Site boundary
- Study area
- NCA59 Wirral
- NCA58 Merseyside Conurbation
- LCA 4c Clatterbrook and Dibben Valley Lowland
- LCA 4d Raby Lowland Farmland and Estates
- Site and its immediate setting



BARNES WALKER

DWG NO. Figure 3

DWG TITLE. Landscape Receptor Plan

CLIENT. Leverhulme

PROJECT TITLE. Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE. NTS @ A3

DATE. 01.22

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Note
This map contains data from the following sources:
Wirral Council Unitary Development Plan

Figure 4 - Planning Policy Plan



- Site boundary
- Study area
- Policy GBT1 Greenbelt
- Policy NC4 Sites of National Importance for Nature Conservation/NC9 Dibbinsdale SSSI
- Policy NC6 Nature Conservation/Sites of Biological Importance
- Listed Buildings

43 - Raby Mere
44 - Tue Marfords, Brookhurst
45 - Bromborough Golf Course Pond
47 - Plymyard Dale, Brookhurst

BARNES WALKER

DWG NO.
Figure 4

DWG TITLE.
Planning Policy Plan

CLIENT.
Leverhulme

PROJECT TITLE.
Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE.
NTS @ A3

DATE.
01.22

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Note
This map contains data from the following sources:
Wirral Council Unitary Development Plan

Figure 5 - Site Photography



Site Photo A	View from the south-eastern corner of the site	Direction: north-west	Distance from site boundary: 0m



Site Photo B	View from the southern boundary of the site	Direction: north-east	Distance from site boundary: 0m

BARNES WALKER

DWG NO.
Figure 5

DWG TITLE.
Site Photography

CLIENT.
Leverhulme

PROJECT TITLE.
Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE.
NTS @ A3

DATE.
01.22

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Figure 5 - Site Photography



Site Photo C	View from the western edge of the site	Direction: east	Distance from site boundary: 0m



Site Photo D	View from the north-eastern corner of the site	Direction: south-west	Distance from site boundary: 0m

BARNES WALKER

DWG NO. **Figure 5**

DWG TITLE. **Site Photography**

CLIENT. Leverhulme

PROJECT TITLE. Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE. **NTS @ A3**

DATE. **01.22**

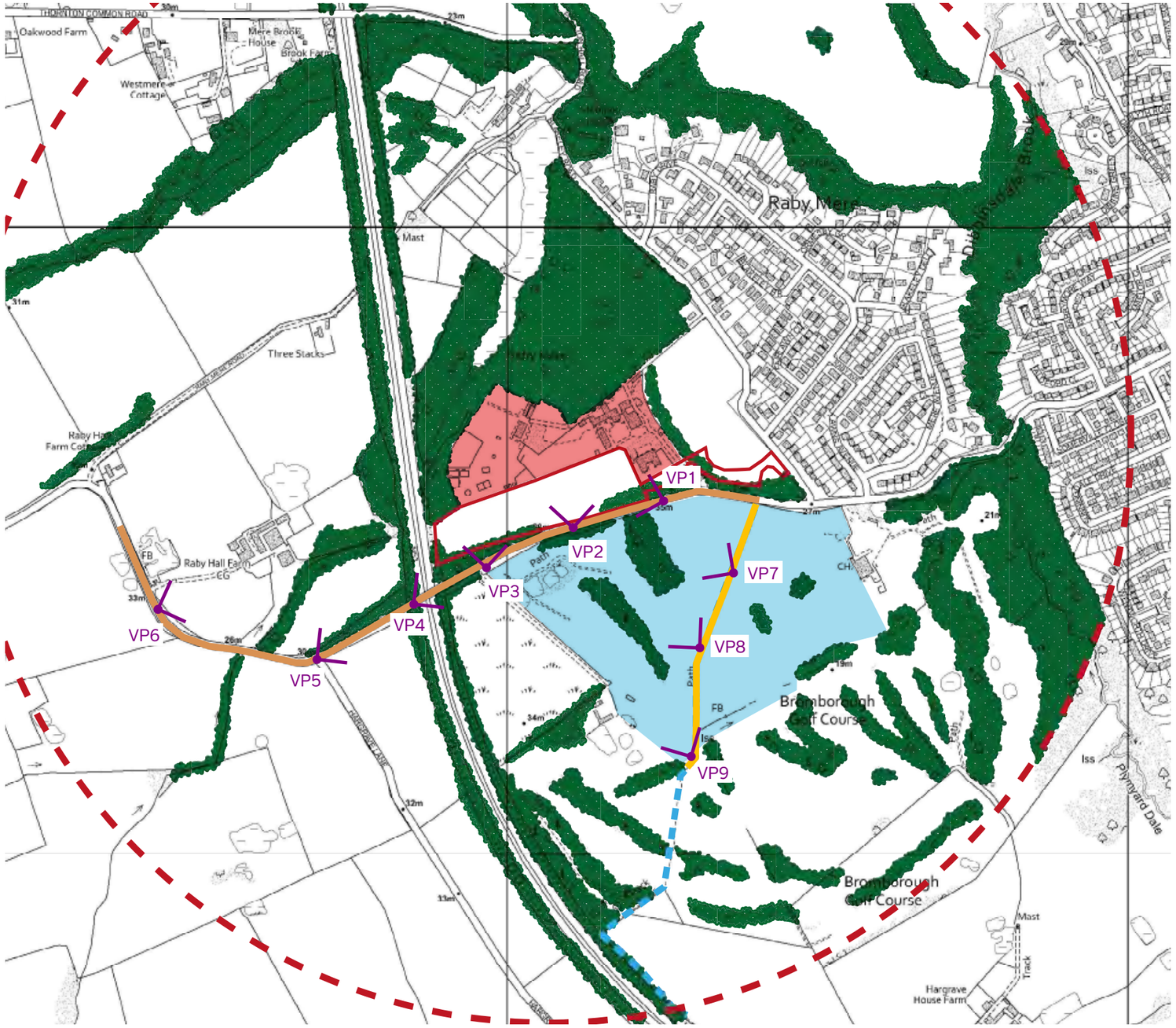
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Figure 6 - Viewpoint Location and Receptors Plan



- Site boundary
- Study Area
- Intervening vegetation
- Public Rights of Way (PRoW)
- Viewpoint Location and Direction
- RG1: Motorists, cyclists and pedestrians using Raby Hall Road
- RG2: Pedestrians using PRoW FP36
- RG3: Golfers using Bromborough Golf Course
- RG4: Pupils and staff at Raby Hall School

BARNES WALKER

DWG NO.
Figure 6

DWG TITLE.
Viewpoint Location and Receptor Plan

CLIENT.
Leverhulme

PROJECT TITLE.
Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE.
NTS @ A3

DATE.
01.22

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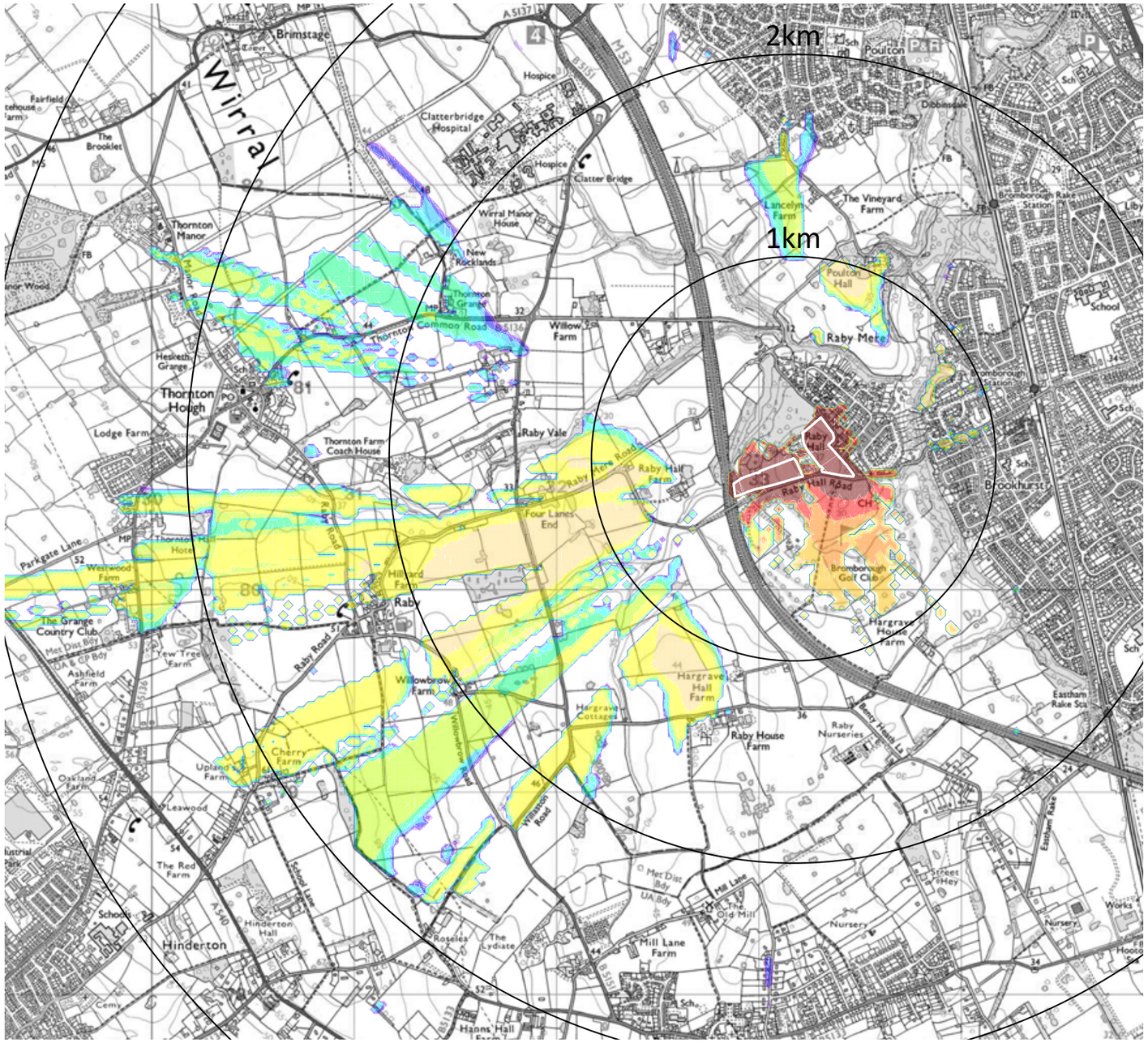
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Note
This map contains data from the following sources:

Figure 7 - ZTV



FIELD OF VIEW
(vertical subtended angle in degrees)

4.096	< HIGHEST VISIBILITY
2.048	
1.024	
0.512	
0.256	
0.128	
0.064	
0.032	
0.016	
0.008	
0.004	
0.002	< LOWEST VISIBILITY
0.001	< INVISIBLE

This ZTV identifies land that, theoretically, is visually connected with the proposed development of the site and the adjacent Site G) Land East of Raby Hall, Raby Hall Road, Raby Mere. For the purposes of this ZTV, the development proposal assumes that the entire area of the two development sites are built out and extruded to a height of 8.5m.

The ZTV was used to inform site survey work in order to confirm the likely extent of the visibility of the developed site. The extent of the visibility of the site and its proposed development was much reduced when compared with the ZTV and as a result, contributed in defining an appropriate study area for the LVIA, as described by Figures 1, 3, 4 and 6.

ZONES OF THEORETICAL VISIBILITY

Vertical Subtended Angle Analysis
(with screening)
Proposed buildings = 8.5m
Existing buildings = 8.5m
Existing Woodland = 12m

Eye level above DTM - 1.7m
Scale - 1:25,000 @ A2
Date - 1 March 2021

DTM created from OS Terrain 5 height data, Crown copyright 2017, OGLv3.0
Background mapping: Contains OS data © Crown copyright and database right 2018

BARNES WALKER

DWG NO. Figure 7
DWG TITLE. ZTV
CLIENT. Leverhulme
PROJECT TITLE. Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere
SCALE. NTS @ A3
DATE. 01.22
DRAWN BY. AC
CHECKED BY. NF

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Note
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OS Terrain 5 height data, Crown copyright 2017, OGLv3.0
OS data Crown copyright and database right2018

Figure 8 - Viewpoint Photography



Viewpoint 1	View from Raby Hall Road	Direction: west	Distance from site boundary: circa 30m



Viewpoint 2	View from Raby Hall Road	Direction: north	Distance from site boundary: circa 10m

BARNES WALKER

DWG NO. **Figure 8**

DWG TITLE. **Viewpoint Photography**

CLIENT. Leverhulme

PROJECT TITLE. Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE. **NTS @ A3**

DATE. **01.22**

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Figure 8 - Viewpoint Photography



Viewpoint 3	View from Raby Hall Road	Direction: north-east	Distance from site boundary: circa 30m



Viewpoint 4	View from Raby Hall Road	Direction: north-east	Distance from site boundary: circa 100m

BARNES WALKER

DWG NO. **Figure 8**

DWG TITLE. **Viewpoint Photography**

CLIENT. Leverhulme

PROJECT TITLE. Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE. **NTS @ A3**

DATE. **01.22**

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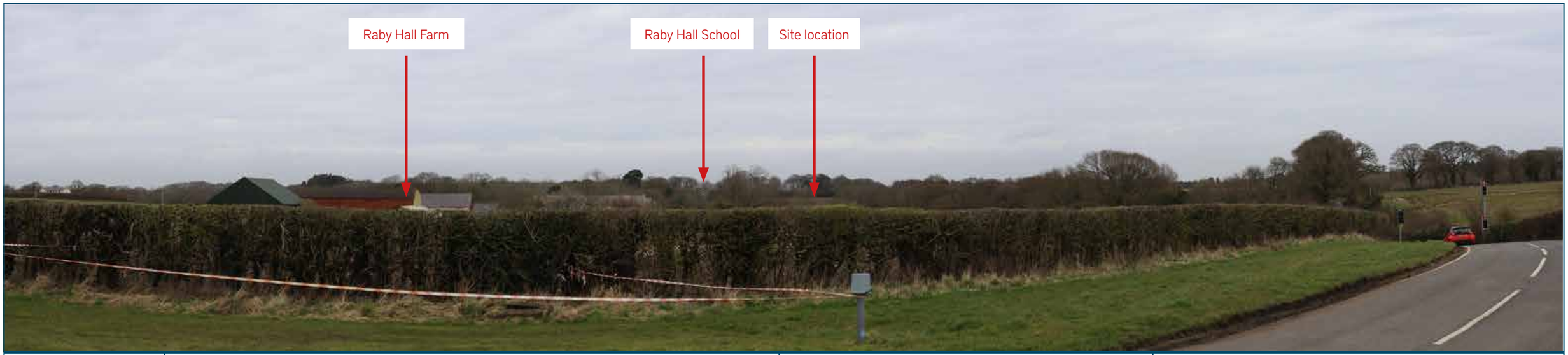
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Figure 8 - Viewpoint Photography



Viewpoint 5	View from Raby Hall Road, at the junction with Hargrave Lane	Direction: north-east	Distance from site boundary: circa 320m



Viewpoint 6	View from Raby Hall Road, close to Raby Hall Farm	Direction: east	Distance from site boundary: circa 480m

BARNES WALKER

DWG NO. **Figure 8**

DWG TITLE. **Viewpoint Photography**

CLIENT. Leverhulme

PROJECT TITLE. Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE. **NTS @ A3**

DATE. **01.22**

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Figure 8 - Viewpoint Photography



Viewpoint 7	View from PRoW FP36/Bromborough Golf Course	Direction: north-west	Distance from site boundary: circa 390m



Viewpoint 8	View from PRoW FP36/Bromborough Golf Course	Direction: north	Distance from site boundary: circa 390m

BARNES WALKER

DWG NO.
Figure 8

DWG TITLE.
Viewpoint Photography

CLIENT.
Leverhulme

PROJECT TITLE.
Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE.
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Figure 8 - Viewpoint Photography



Viewpoint 9	View from PRoW FP36/Bromborough Golf Course	Direction: north	Distance from site boundary: circa 230m

BARNES WALKER

DWG NO. **Figure 8**

DWG TITLE. **Viewpoint Photography**

CLIENT. Leverhulme

PROJECT TITLE. Site F, Land West of Raby Hall, Raby Hall Road, Raby Mere

SCALE. **NTS @ A3**

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Appendix 7.3 – Illustrative Landscape Framework



KEY & NOTES

Existing Trees to be Retained

Existing Hedge

Existing Scrub

Proposed Native Species Hedge
Species mix to include: Crataegus monogyna, Corylus avellana, Prunus spinosa, Ilex aquifolium, Viburnum opulus

Proposed Parkland Hedge
Species to include: Fagus sylvatica

Proposed Native Trees
Species to include: Acer campestre, Alnus glutinosa, Betula pendula, Corylus avellana, Fagus sylvatica, Malus sylvestris, Populus tremula, Prunus avium, Prunus padus, Quercus petrea, Quercus robur, Ulmus glabra, Tilia cordata

Proposed Parkland Trees
Species to include: Acer campestre 'Elsrijk', Betula Alba 'Jermyns' Tricormation', Betula pendula, Carpinus betulus 'Fastigiata', Fagus sylvatica 'Dawyck', Liriodendron tulipifera, Pinus sylvestris, Platanus hispanica, Quercus cerris, Quercus palustris, Robinia pseudoacacia 'Bessoniana', Sorbus aria, Sorbus aucuparia, Tilia cordata, Tilia x europaea

Proposed Street Trees
Species to include: Acer campestre 'Elsrijk', Acer rubrum 'Franksred' Autumn Blaze', Alnus x hausenbergii 'Schnaver', Betula pendula 'Fastigiata', Carpinus betulus 'Frans Fontaine', Liquidambar styraciflua 'Worplesdon', Pyrus calleryana 'Chanticleer', Robinia pseudoacacia 'Bessoniana', Sorbus aria 'Lutescens'

Proposed Garden Trees
Species to include: Acer campestre 'Elsrijk', Acer platanoides 'Crimson Sentry', Betula pendula 'Fastigiata (Aur)', Malus tschonoskii, Prunus avium 'Plena', Prunus sargentii 'Rancho', Sorbus aucuparia 'Cardinal Royal', Sorbus intermedia, Sorbus hupehensis

Proposed Native Woodland Planting
Species mix to include: Acer campestre, Alnus glutinosa, Betula pendula, Corylus avellana, Fagus sylvatica, Malus sylvestris, Pinus sylvestris, Populus tremula, Prunus avium, Prunus padus, Quercus petrea, Quercus robur, Ulmus glabra, Tilia cordata, Crataegus monogyna, Ilex aquifolium, Viburnum opulus

Amenity Parkland Grass
General amenity grassland mix, such as Emorsgate EL1 - Standard General Purpose Mix

Wildflower Meadow
Species rich wildflower mix, such as Emorsgate EM3F - Standard General Purpose Wild Flowers

SUDs Feature
Wetland areas to be seeded with appropriate grass seed such as Emorsgate EM8 - Wetland Meadow Mixture for Wetlands and/or Emorsgate EP1 - Flood Edge Mixture

Safeguarded Land

Scale Bar: Metres
10 20 30 40 50 60 70 80 90 100

north

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DWG NO. M2738-PA-06-V3

DWG TITLE. Illustrative Landscape Framework

CLIENT. Leverhulme

PROJECT TITLE. Site F - Land West of Raby Hall, Raby Mere

WORK STAGE. PLANNING | SCALE. 1:1000@A1 | DATE. 02.2022 | DRAWN BY. APC/HB | CHECKED BY. NF

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Appendix 7.4 – Landscape and Visual Summary Tables

Appendix 7.4 - Landscape and Visual Effects Summary Tables

Table 7.13: Landscape Effects

Landscape Receptor	Construction	Year 1	Year 15
NCA58	Moderate Adverse	Minor Adverse	Minor Adverse
LCA4c	Mod/Major Adverse	Moderate Adverse	Moderate Adverse
LCA4d	Negligible	Negligible	Negligible
Immediate setting	Moderate Adverse	Moderate Adverse	Minor/ Mod Adverse
Landscape Features	Minor Adverse	Neg/Minor Beneficial	Minor Beneficial

Table 7.14: Visual Effects

Visual Receptor	VP	Construction	Year 1	Year 15
RG1 Raby Rd	VP1	Moderate Adverse	Moderate Adverse	Minor/Mod Adverse
	VP2	Mod/Major Adverse	Mod/Major Adverse	Moderate Adverse
	VP3	Minor/Mod Adverse	Minor Adverse	Neg/Minor Adverse
	VP4	Minor Adverse	Minor Adverse/Neg	Negligible
	VP5	Neg/Minor Adverse	Minor Adverse/Neg	Negligible
	VP6	Minor Adverse	Minor Adverse/Neg	Negligible
RG2 FP36	VP7	Minor/Mod Adverse	Minor Adverse	Neg/Minor Adverse
	VP8	Minor Adverse	Minor Adverse	Neg/Minor Adverse
	VP9	Negligible	Negligible	Negligible
RG3 Golfers	VP7	Minor Adverse	Neg/Minor Adverse	Neg/Minor Adverse
	VP8	Neg/Minor Adverse	Neg/Minor Adverse	Neg/Minor Adverse
	VP9	Minor Adverse	Negligible	Negligible
RG4 School		Moderate Adverse	Moderate Adverse	Minor/Mod Adverse

NB: Orange highlights denote a significant landscape/visual effect.

Appendix 7.5 – Summary of Construction Effects Table

Summary of Effects of Construction Phase (Landscape and Visual Amenity)

Receptor Identifier/ Description	Effect Description	Effect of Proposed Development (Incorporating Embedded Mitigation)									Further Mitigation Summary	Residual Effect of Proposed Development							
		Sensitivity	Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance		Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance
NCA 58 Mersey Conurbation	Landscape Character	L-M	M	Mo	T	ST	D	A	L	S	None required	M	Mo	T	ST	D	A	L	S
NCA 59 Wirral	Landscape Character	L-M	N	N	T	ST	I	N	L	NS	None required	N	N	T	ST	I	N	L	NS
LCA 4c Clatterbrook and Dibben Valley Lowland	Landscape Character	M	M-H	Mo-Ma	T	ST	D	A	L	S	None required	M-H	Mo-Ma	T	ST	D	A	L	S
LCA 4d Raby Lowland Farmland and Estates	Landscape Character	L-M	N	N	T	ST	I	N	L	NS	None required	N	N	T	ST	I	N	L	NS
Site and its immediate setting	Landscape Character	L-M	M-H	Mo	T	ST	D	A	L	S	None required	M-H	Mo	T	ST	D	A	L	S
Landscape features within the Site	Landscape Features	L-M	L	Mi	T	ST	D	A	L	NS	None required	L	Mi	T	ST	D	A	L	NS
RG1 – Motorists, cyclists and pedestrians using Raby Hall Road	Views – VP1	L-M	L-M	Mo	T	ST	D	A	L	S	None required	L-M	Mo	T	ST	D	A	L	S
	Views - VP2	L-M	M-H	Mo-Ma	T	ST	D	A	L	S	None required	M-H	Mo-Ma	T	ST	D	A	L	S
	Views - VP3	L-M	L-M	Mi-Mo	T	ST	D	A	L	NS	None required	L-M	Mi-Mo	T	ST	D	A	L	NS
	Views - VP4	L-M	N-L	Mi	T	ST	D	A	L	NS	None required	N-L	Mi	T	ST	D	A	L	NS
	Views – VP5	L-M	N-L	Mi	T	ST	D	A	L	NS	None required	N-L	Mi	T	ST	D	A	L	NS
	Views – VP6	L-M	L	Mi	T	ST	D	A	L	NS	None required	L	Mi	T	ST	D	A	L	NS

RG2 – People Using PRoW FP36	Views – VP7	M	L	Mi-Mo	T	ST	D	A	L	NS	None required	L	Mi-Mo	T	ST	D	A	L	NS
	Views – VP8	M	N-L	Mi	T	ST	D	A	L	NS	None required	N-L	Mi	T	ST	D	A	L	NS
	Views – VP9	M	N	N	T	ST	D	N	L	NS	None required	N	N	T	ST	D	N	L	NS
RG3 – Golfers on Bromborough Golf Course	Views – VP7	L-M	L	Mi	T	ST	D	A	L	NS	None required	L	Mi	T	ST	D	A	L	NS
	Views – VP8	L-M	N-L	N-Mi	T	ST	D	A	L	NS	None required	N-L	N-Mi	T	ST	D	A	L	NS
	Views – VP9	L-M	N	N	T	ST	D	N	L	NS	None required	N	N	T	ST	D	N	L	NS
RG4 – Pupils and Staff at Raby Hall School	Views	L-M	M-H	Mo	T	ST	D	A	L	S	None required	M-H	Mo	T	ST	D	A	L	S

Notes:
Sensitivity = Low (L) / Medium (M) / High (H)
Magnitude = Negligible (N) / Low (L) / Medium (M) / High (H)
Effect Significance = Negligible (N) / Minor (Mi) / Moderate (Mo) / Major (Ma)
Permanence = Permanent (P) / Temporary (T)
Timescale = Short Term (ST) / Medium Term (MT) / Long Term (LT)
Direct (D) / Indirect (I)
Nature = Beneficial (B), Adverse (A) or Neutral (N)
Geographic Scale = Local (L) / District (D) / Regional (R)
Impact Significance = Significant (S) / Not Significant (NS)

Appendix 7.6 – Summary of Operational Effects Table

Summary of Effects of Operational Phase (Landscape and Visual Amenity)

Receptor Identifier/ Description	Effect Description	Effect of Proposed Development Yr1 (Incorporating Embedded Mitigation)									Further Mitigation Summary	Residual Effect of Proposed Development Yr15							
		Sensitivity	Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance		Magnitude	Effect Significance	Permanence	Timescale	Direct/ Indirect	Nature	Geographic Scale	Impact Significance
NCA 58 Mersey Conurbation	Landscape Character	L-M	N-L	Mi	T	MT	D	A	L	NS	None required	N-L	Mi	P	LT	D	A	L	NS
NCA 59 Wirral	Landscape Character	L-M	N	N	T	MT	I	N	L	NS	None required	N	N	P	LT	I	N	L	NS
LCA 4c Clatterbrook and Dibben Valley Lowland	Landscape Character	M	M	Mo	T	MT	D	A	L	S	None required	M	Mo	P	LT	D	A	L	S
LCA 4d Raby Lowland Farmland and Estates	Landscape Character	L-M	N	N	T	MT	I	N	L	NS	None required	N	N	P	LT	I	N	L	NS
Site and its immediate setting	Landscape Character	L-M	M	Mo	T	MT	D	A	L	S	None required	M	Mi-Mo	P	LT	D	A	L	NS
Landscape features within the Site	Landscape Features	L-M	N-L	N-Mi	T	MT	D	B	L	NS	None required	L	Mi	P	LT	D	B	L	NS
RG1 – Motorists, cyclists and pedestrians using Raby Hall Road	Views – VP1	L-M	L-M	Mo	T	MT	D	A	L	S	None required	L	Mi-Mo	P	LT	D	A	L	NS
	Views - VP2	L-M	M	Mo	T	MT	D	A	L	S	None required	M	Mi-Mo	P	LT	D	A	L	NS
	Views - VP3	L-M	L	Mi	T	MT	D	A	L	NS	None required	N-L	N-Mi	P	LT	D	A	L	NS
	Views - VP4	L-M	N-L	N-Mi	T	MT	D	A	L	NS	None required	N	N	P	LT	D	N	L	NS
	Views – VP5	L-M	N-L	N-Mi	T	MT	D	A	L	NS	None required	N	N	P	LT	D	N	L	NS
	Views – VP6	L-M	N-L	N-Mi	T	MT	D	A	L	NS	None required	N	N	P	LT	D	N	L	NS
RG2 – People Using PRoW FP36	Views – VP7	M	L	Mi	T	MT	D	A	L	NS	None required	N-L	N-Mi	P	LT	D	A	L	NS
	Views – VP8	M	N-L	Mi	T	MT	D	A	L	NS	None required	N-L	N-Mi	P	LT	D	A	L	NS
	Views – VP9	M	N	N	T	MT	D	N	L	NS	None required	N	N	P	LT	D	N	L	NS

RG3 – Golfers on Bromborough Golf Course	Views – VP7	L-M	L	N-Mi	T	MT	D	A	L	NS	None required	N-L	N-Mi	P	LT	D	A	L	NS
	Views – VP8	L-M	N-L	N-Mi	T	MT	D	A	L	NS	None required	N-L	N-Mi	P	LT	D	A	L	NS
	Views – VP9	L-M	N	N	T	MT	D	N	L	NS	None required	N	N	P	LT	D	N	L	NS
RG4 – Pupils and Staff at Raby Hall School	Views	L-M	M-H	Mo	T	MT	D	A	L	S	None required	M	Mi-Mo	P	LT	D	A	L	NS

Notes:
Sensitivity = Low (L) / Medium (M) / High (H)
Magnitude = Negligible (N) / Low (L) / Medium (M) / High (H)
Effect Significance = Negligible (N) / Minor (Mi) / Moderate (Mo) / Major (Ma)
Permanence = Permanent (P) / Temporary (T)
Timescale = Short Term (ST) / Medium Term (MT) / Long Term (LT)
Direct (D) / Indirect (I)
Nature = Beneficial (B), Adverse (A) or Neutral (N)
Geographic Scale = Local (L) / District (D) / Regional (R)
Impact Significance = Significant (S) / Not Significant (NS)