

Wirral Metropolitan Borough Council

Wirral Environmental Sensitivity Study Draft Final Report - Part 1

Prepared by LUC
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Wirral Metropolitan Borough Council

Wirral Environmental Sensitivity Study Draft Final Report

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Chapter 1

Introduction

1.1 LUC was commissioned by Wirral Metropolitan Borough Council (Wirral MBC) to undertake an independent and robust environmental sensitivity study for Wirral's Peninsula. The study provides evidence for the emerging Wirral Local Plan on the environmental assets of the Wirral and their sensitivity to development.

1.2 The Council is seeking to meet the Borough's objectively assessed local housing and employment needs through the emerging Local Plan in line with the presumption in favour of sustainable development within the National Planning Policy Framework (NPPF). The Council's preferred option is to meet this need within the existing urban areas, through a strategy of brownfield urban intensification and a revitalisation and regeneration programme. However, alongside the consideration of this preferred option, the Council want to understand the potential environmental sensitivities of Wirral as a whole.

1.3 There are significant environmental constraints, recreational pressures and existing strains on environmental infrastructure within the Borough, all of which have the potential to limit future development.

Study aims and objectives

1.4 This study will help inform the Council's approach to future housing and employment delivery in the Borough by considering the intrinsic environmental character of the Peninsula and its sensitivity to further development.

1.5 The key objectives of the study are to:

- Identify the current state of the environment across Wirral and key assets therein, acknowledging their importance for the Borough and wider adjacent areas.
- Identify existing and potential pressures that may affect the environmental assets in the future (including the effects of climate change).
- Determine the sensitivity of the environment to change. Taking into account the significance of the assets (i.e. whether they are of international - local importance) and their vulnerability/ capacity to withstand change (i.e. whether they are susceptible or more robust to change).
- Assess different areas of the Borough for spatial variation in their potential to generate additional carbon emissions.

- Assess the Strategic Spatial Options identified by Wirral MBC in their Local Plan Issues and Options Report (2020) in terms of both their environmental sensitivity and 'carbon profile'.

Wirral overview

1.6 The Borough of Wirral is characterised by its distinctive peninsular landform, bound on three sides by the Mersey Estuary, the Irish Sea and the Dee Estuary. These coastal areas are home to overlapping national and international designations, due to their importance for biodiversity. The Peninsula is relatively narrow and already heavily urbanised (see **Figure 1.1**) with a tightly defined Green Belt (covering 47% of the area). There is very minimal land outside the urban areas that is not designated as Green Belt.

1.7 The Borough hosts a variety of landscapes - the inland landscape is heavily influenced by a series of sandstone ridges; with the central area characterised by farmland, and other rural uses on lower lying land. Many of these landscapes also have high biodiversity value and an important role in supporting the designated coastal habitats. These include river corridors such as the River Dibbin and the River Birket. Given the national and global biodiversity crisis,¹ in part fed by habitat loss and fragmentation, there are concerns in Wirral that greater linkages are needed between these biodiversity sites in order to allow species to continue to thrive despite recreational activities, and to support their resilience to environmental change.

1.8 The Borough is also rich in historic assets including 26 Conservation Areas, historic buildings relating both to the maritime and industrial heritage of Birkenhead, and sites relating to Wirral's Viking history.

1.9 Economically, despite being a peninsula, Wirral is closely linked to the wider Liverpool City Region, as well as neighbouring Cheshire and Cheshire West, with high levels of out-commuting. In socio-economic terms, it is often seen as a Borough 'of two halves', with stark health and socio-economic inequalities between the east and west of the peninsula. The eastern side, centred around the Birkenhead urban area, has a history of heavy industrial development, and is now the major focus for the Council's regeneration efforts. In this light, the Birkenhead Regeneration Framework (BRF) seeks to demonstrate how brownfield development opportunities can be delivered in this area. The Council has sought to concentrate development on these brownfield sites in order to support regeneration and to relieve pressure on the Borough's greenfield / Green Belt land.

1.10 The climate emergency declared by the Council in 2019 has provided further urgency to ensuring that the Borough is resilient to the impacts of the climate crisis, including notably flood risk, coastal erosion, biodiversity and urban heating. It has also focused attention on the need to ensure the future location of development within the Borough minimises the generation of carbon emissions.

Progress to date on Wirral's MBC Local Plan

1.11 Since early 2019, Wirral MBC has been on a fast-track programme for preparing a new Local Plan and has commissioned a number of evidence base documents to support their work in finalising the most appropriate spatial strategy for the peninsula. However, as several of the evidence base documents have highlighted, the Council is also mindful of the distinctive environmental setting of the Borough as a peninsula, surrounded on all sides by national and international sites of importance for nature conservation.

1.12 Between January and April 2020, the Council released its 'Wirral Local Plan 2020-2035 Issues and Options Report' for a period of public consultation. The report sets out a series of potential strategic Spatial Options which would allow the Borough to deliver its housing requirements of approximately 12,000 net new dwellings over the Plan period to 2035.

1.13 Based on both the key issues emerging from the evidence base, and feedback received during consultation exercises, there is a strong desire to avoid Green Belt release in the Borough in order to meet Wirral's housing need, to avoid significant negative impacts on the peninsula's landscape and environmental assets, and to avoid undermining regeneration. However, there is also recognition of a number of capacity, deliverability, and developability challenges around strategic brownfield sites.

1.14 The overarching strategy seeks to focus development within the existing urban areas, in order to support sustainable patterns of development – particularly relying on sites within Birkenhead and the Wirral Waters site on the former docklands (with the latter delivering several thousand dwellings over the plan period). The Council's Preferred Option (Option 1A) focusses on delivering growth through regeneration and seeks to locate as much new development as possible on urban brownfield sites. The Issues and Options document also included two options for the potential release of Green Belt to meet any shortfall in housing delivery from the urban area – Option 2A a dispersed Green Belt Release and Option 2B a proposed urban extension.

¹ Recognised by Wirral Borough Council in the 'Wirral Tree Hedgerow and Woodland Strategy 2020 – 2030', available from: <https://www.wirral.gov.uk/sites/default/files/all/planning%20and%20bui>

[ding/A%20Greener%20Wirral%20-%20a%20tree%20strategy%20summary.pdf](https://www.wirral.gov.uk/sites/default/files/all/planning%20and%20bui/A%20Greener%20Wirral%20-%20a%20tree%20strategy%20summary.pdf)

1.15 The response to consultation on the document revealed concern about the potential release of Green Belt land, stemming from strongly held views that the identity, character and distinctiveness of the Peninsula will be threatened by large scale development within the Green Belt.

National policy context

1.16 Living within 'environmental limits' has long been an overarching principle of UK sustainable development policy. Although it is no longer directly mentioned specifically in national planning policy, Paragraph 8 of the NPPF indicates that:

'achieving sustainable development means that the planning system has three overarching objectives (environmental, social and economic) which are interdependent and need to be pursued in mutually supportive ways'

1.17 Environmental limits are also recognised in the draft Environment Bill, which obliges policy makers to have due regard to the environmental principles policy statement when choosing policy options, for example by considering the policies which cause the least environmental harm. The principles are:

- environmental protection should be integrated into policy-making principle;
- the preventative action to avert environmental damage principle;
- the precautionary principle;
- environmental damage should as a priority be rectified at source principle; and
- the polluter pays principle.

1.18 Paragraph 11 of the NPPF also outlines the 'presumption in favour of sustainable development' which should be applied in decision making, meaning that 'plans should positively seek opportunities to meet the development needs of their area, and be sufficiently flexible to adapt to rapid change'. For strategic planning policies, the NPPF outlines that plan-making bodies should provide for objectively assessed needs for housing and other uses, as well as any needs that cannot be met within neighbouring areas, unless:

- the application of policies in this Framework that protect areas or assets of particular importance provides a strong reason for restricting the overall scale, type or distribution of development in the plan areas; or

- any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.

1.19 This study will provide a baseline assessment of the environmental sensitivity of Wirral so that the Council can ensure the future integrity of the environment is safeguarded and to provide sustainable development in line with the requirements of the NPPF.

Environmental limits

1.20 There are strong links between ecosystem services, environmental limits and thresholds, and environmental sensitivity. Common to them all is the important concept of 'acceptability'. It can be argued that the environmental limit of a location to accommodate development is at the point when the loss, damage or erosion to the environment turns from being acceptable to being unacceptable.

1.21 Acceptability is determined by society. This can be done in a variety of ways:

1. At the international and national level, 'acceptability' is often decided by the setting of quantitative targets or standards. For example, targets or standards have been set for carbon emissions in order to prevent climate change, for pollutants to air to ensure human health, for pollutants in water, and for the maintenance of the integrity of Natura 2000 sites to protect ecological diversity and networks.
2. Some are set down in national policy, most notably through the National Planning Policy Framework (NPPF), and related guidance, such as for flood risk, and for the protection of SSSIs, historic assets, designated landscapes, and best and most versatile agricultural land. These comprise a mix of quantitative and qualitative measures that can often involve interpretation and argument.
3. Some can only realistically be set at the local level, through engagement with Council Members, stakeholders and the general public, to determine what is acceptable or unacceptable to communities. Examples of these may include how much development a local community might be willing to accept on greenfield land to deliver essential housing, economic activity, or community infrastructure. In these instances, there are likely to be widely divergent views depending upon the priorities of the individuals or communities concerned, and the views may not necessarily reflect what is acceptable in planning terms.

1.22 The purpose of an environmental sensitivity study, therefore, is not to determine the exact point at which targets, standards and policy intent is likely to be compromised. It is

instead to provide in an as objective way as possible, a description and evaluation of the potential sensitivity of land within Wirral to further development, to inform those with an interest and decision makers.

1.23 In order to determine environmental sensitivity, it is important not just to focus on each environmental theme or topic in isolation. The cumulative impact of development on a range of themes also needs to be taken into account. Thus, a development proposal such as an urban extension may not breach any single identifiable environmental limit, but it may impinge on a range of environmental limits that, together, could be considered to lead to significant environmental effects.

1.24 Finally, it may be possible in some cases to mitigate and compensate for the impacts of development in such a way as to ensure that environmental limits are not breached. For example, investment in the upgrading of a sewage treatment works may allow more development to be accommodated without damaging water quality. The incorporation of water efficient appliances and sustainable drainage systems may allow for more development to be delivered without risk of unacceptable water abstraction or flooding. The use of materials and design in development, so that they strengthen local character and distinctiveness, can help to make new developments more acceptable to local people. The restoration and creation of new habitats (e.g. green infrastructure) can help to compensate for those lost to development.

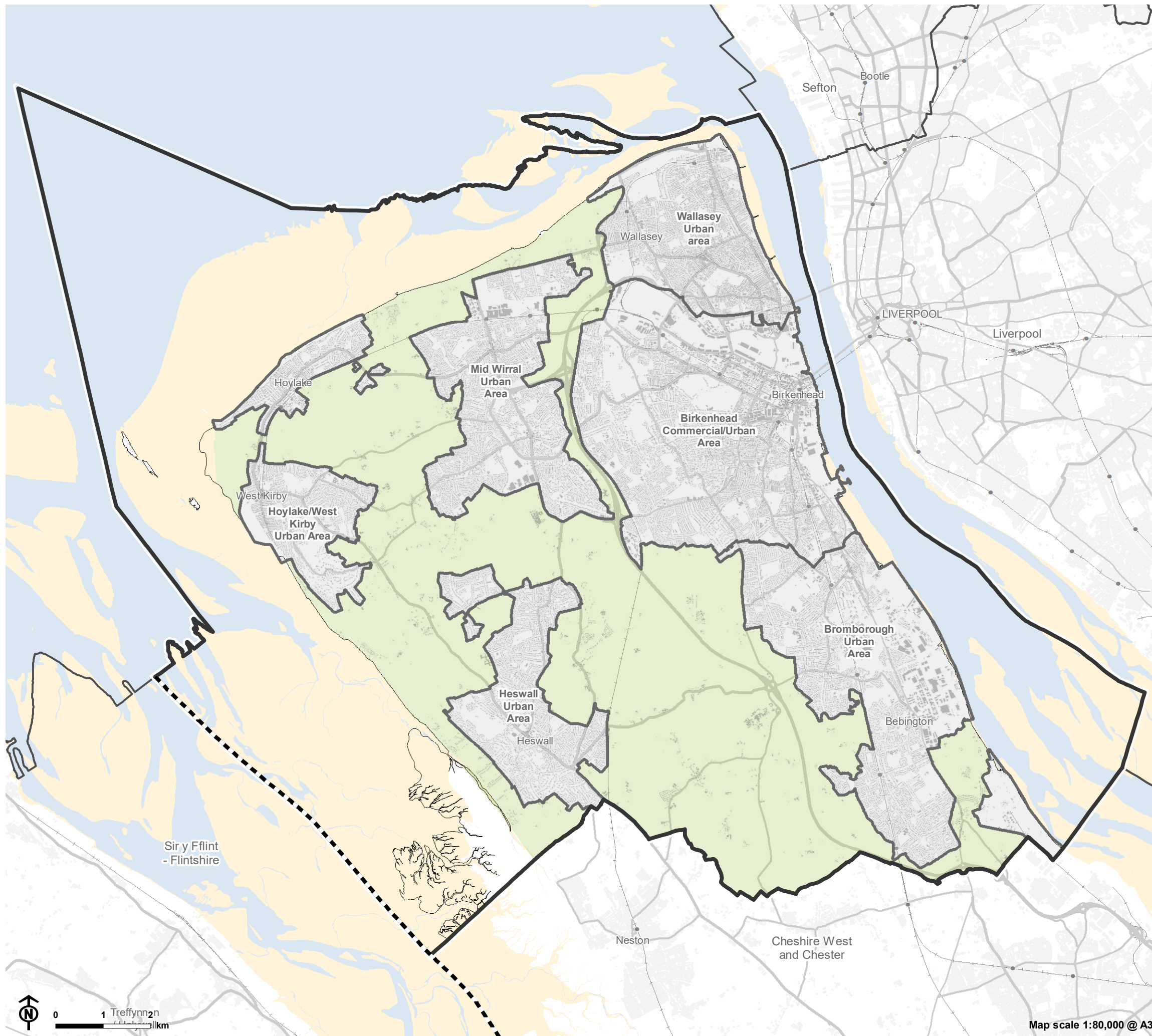
1.25 All of these factors are important in feeding into decisions on the environmental sensitivity of a location to accept development. Ultimately, it is only by going through such thought processes that policies in Local Plans can be developed, tested, consulted upon, and adopted. The benefit of undertaking an environmental sensitivity study is that it makes this process explicit rather than simply implied.

Structure of report

1.26 The remainder of this report is set out as follows:

- **Chapter 2** – provides an overview of the methodology used for the study;
- **Chapters 3 to 8** – set out the Borough's environmental assets (e.g. ecology and geology, landscape and cultural) within 'Core Themes' and 'Sub Themes'. In each case, the relevant Chapter identifies and maps the sensitivity values for the environmental assets considered under that Theme;
- **Chapter 9** – Uses Landscape Sensitivity Assessment (LSA) findings to present a picture of the Borough's landscape sensitivity.
- **Chapter 10** – provides a composite map of 'layered sensitivities' and a narrative about environmental sensitivity in Wirral;
- **Chapter 11** – considers variation in the potential for the generation of additional carbon emissions across the Borough, through an assessment of accessibility to key services;
- **Chapter 12** – assesses the three Strategic Spatial Options identified by Wirral MBC in their Issues and Options Report (2020) according to their environmental sensitivity and potential for generation of carbon emissions;
- **Chapter 13** – assesses each of Wirral's settlement areas in turn, and provides a narrative of the environmental sensitivity of the land on the urban edge, and of the potential for the generation of additional carbon emissions; and
- **Chapter 14** – provides a brief overview of the key findings, discusses how this document should be used and identifies next steps and potential future updates.

Figure 1.1: The Wirral Peninsula – Urban and rural areas



Chapter 2

Methodology and Key Tasks

Introduction

2.1 This chapter sets out the approach used to assess the sensitivity of environmental assets within Wirral.

Overview of approach

The study involved eight key tasks, as set out in **Figure 2.1**:

- **Task 1** Identification and mapping of the Borough's environmental assets, under six 'Core Themes' (see **Figure 2.2**: for theme structure).
- **Task 2** - Identification of sensitivity values for each environmental asset.
- **Task 3** – Mapping of the sensitivity of environmental assets under each Core Theme.
- **Task 4** – Landscape Sensitivity Assessment (LSA).
- **Task 5** – Overarching assessment of Wirral's environmental sensitivity.
- **Task 6** – Assessment of potential for carbon emissions.
- **Task 7** – Assessment of Wirral's Strategic Spatial Options.
- **Task 8** – Assessment of Wirral's Settlement Areas.

2.2 These tasks are explained in more detail below.

Figure 2.1: Methodology overview

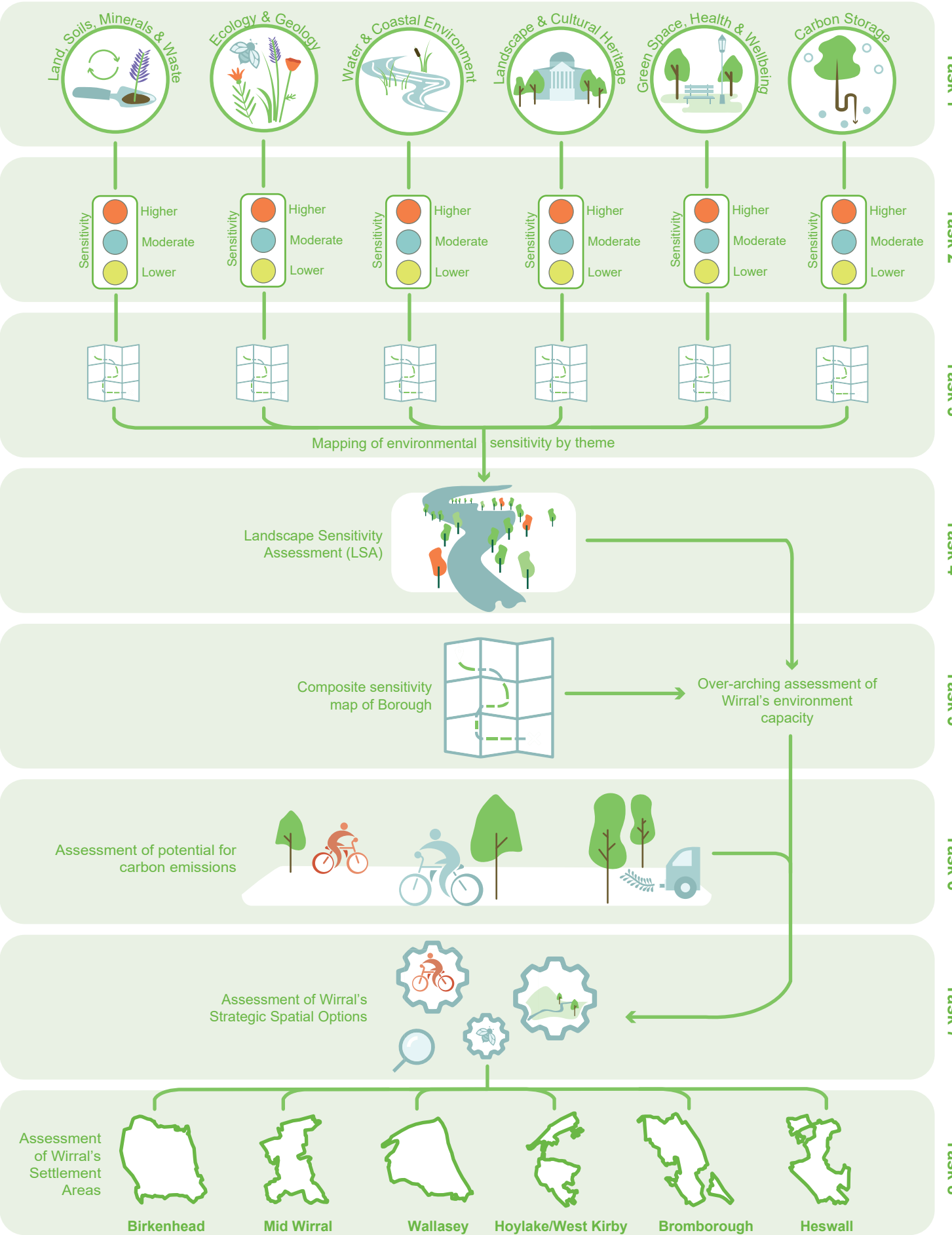
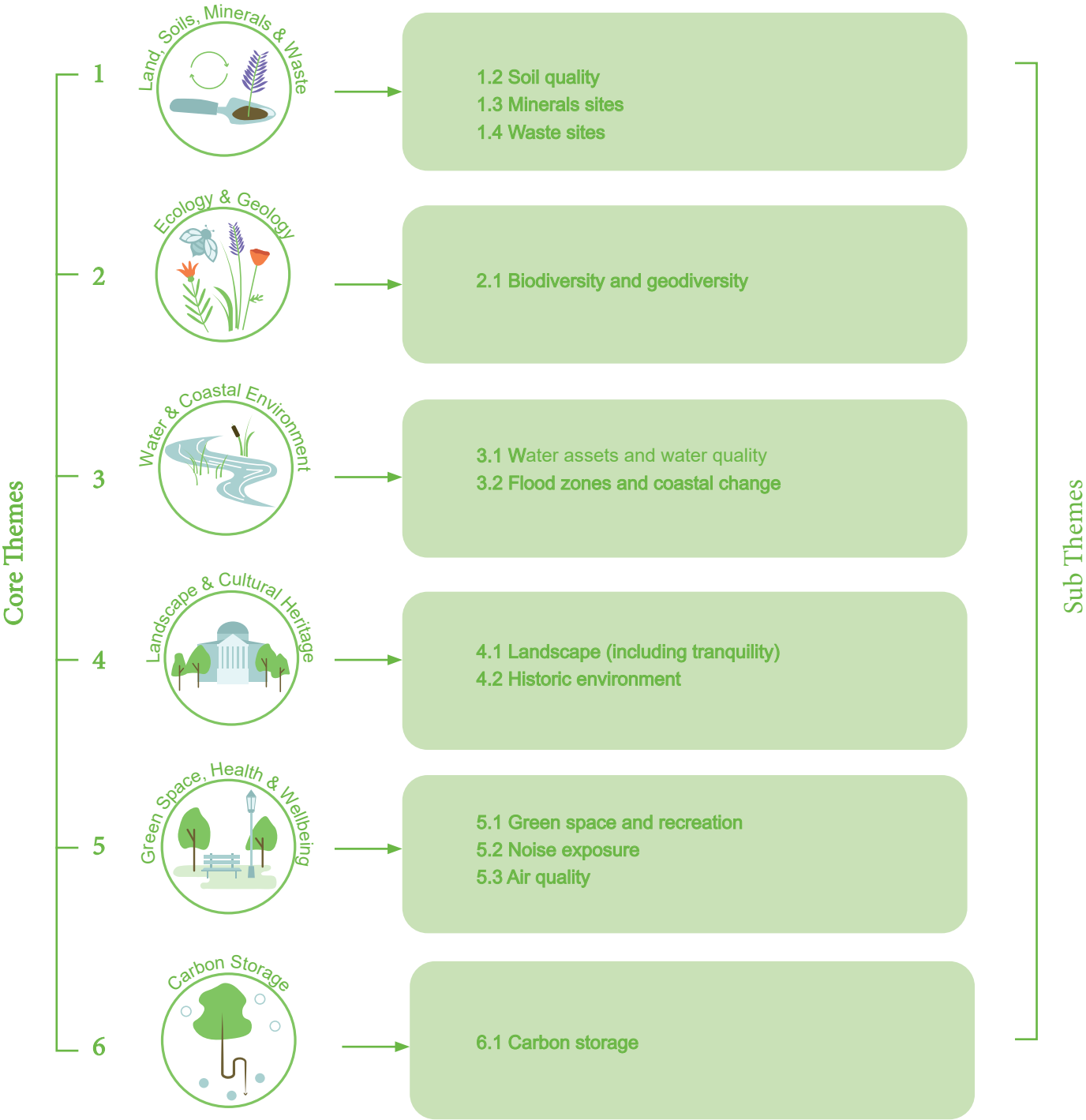


Figure 2.2: Core Themes and Sub Themes



Task 1: Identification and mapping of the Borough's environmental assets

2.3 The initial task involved the identification and mapping of the environmental assets within the Borough, under each of six 'Core Themes', as illustrated in **Figure 2.2**.

2.4 Wirral's peninsula is distinctive and benefits from a wide range of ecological, landscape, agricultural and green/blue infrastructure assets that combine to create a valued and diverse environment. The different types of environmental assets have been grouped into Core Themes, with the further disaggregation of related topics into Sub Themes.

2.5 To identify the environmental assets within the Borough, Task 1 involved gathering spatial data and information from multiple sources including:

- Wirral Metropolitan Borough Council - Local Plan housing site options, SA/HRA findings, Landscape Character Assessment information, Landscape Sensitivity Assessment information (including key local and strategic views), the Council's Strategic Flood Risk Assessment (SFRA), ecology and historic environment information and carbon data.
- Ordnance Survey.
- The Environment Agency.
- Natural England.
- Historic England.
- The Merseyside Environmental Advisory Service (MEAS).
- Sustrans.
- Defra.
- National Grid.
- The Office for National Statistics.

2.6 A full list of the spatial datasets used in the assessment is set out in **Appendix A**.

2.7 Relevant environmental assets were mapped under each Sub Theme. Some areas of land were excluded from assessment as they are considered to be fundamental physical constraints to development, i.e. development cannot be physically located in these areas or development is already committed in these locations. The following are identified as 'physical constraints':

- Existing developed land.
- Roads and railways.

- Waterways and water bodies (rivers, lakes, ponds).
- Areas at risk of coastal change.
- Committed development sites.
- Operational waste sites.

2.8 Fundamental physical constraints are treated separately to designated sites where development may also not be possible, for example international and national nature conservation designations. The consideration of designated sites and their importance is discussed further in Task 2.

2.9 A review of policy documents also assisted in identifying the most relevant assets, and in identifying current pressures and trends in the Borough's environmental baseline.

Appendix B to this report provides a list of all policy documents reviewed for the purposes of this study.

Task 2: Identification of sensitivity values for each environmental asset

2.10 To identify the overall environmental sensitivity of the Peninsula it was necessary to consider the environmental sensitivity of each of its assets in turn.

2.11 Task 2 identified each asset and considered both its **significance** and its **vulnerability/capacity to withstand change**. Each asset was then assigned one of three sensitivity ratings:

- Higher Sensitivity;
- Moderate Sensitivity; or
- Lower Sensitivity;

2.12 The process for determining these ratings is described below and illustrated in **Table 2.1**.

2.13 It was important that the approach to identifying the assets that are most sensitive to future change allowed for a consistent approach to be taken across all the environmental topics, but was also sophisticated enough to measure both the **significance** of the asset (either nationally or locally important) alongside its **vulnerability, or capacity to withstand change** (either 'susceptible' or 'robust').

2.14 The **significance** of the asset or scale of importance was scored according to the below criteria, which focused on legislation and policy protection. If an asset has multiple designations or levels of importance, then the highest level of importance was considered. The criteria are as follows:

- **National/international importance** - The asset is considered to be of national or international importance,

as recognised by statutory designations or national policy.

- **Local/less than national importance** - The asset does not qualify as being nationally important but is considered to have local/less than national importance.

2.15 The **vulnerability/capacity to withstand change** assessment considered two factors:

- The **susceptibility of the environmental asset to change**, which would damage its condition and value (in terms of the benefits it is providing). This susceptibility may depend on the scale of the asset and the extent to which threats affecting part of the asset would affect its overall integrity (i.e. landscape-scale assets being potentially less fragile than smaller sites). The assessment of susceptibility considered specific statutory protection from legal designations.
- The **robustness** of the asset - i.e. the extent to which its condition and value will regenerate if damage takes place.

2.16 The two ratings from this assessment of 'vulnerability/capacity to withstand change' are therefore as follows:

- **Susceptible** - The asset is fragile and would not be expected to recover within a reasonable period OR (if the asset is not fragile), recovery from any harm caused would be slow or would not take place at all (i.e. the damage would be irreversible).
- **More robust** - The asset is not particularly fragile (i.e. it could withstand a moderate level of disruption from the anticipated development before suffering significant harm OR (if it is fragile), the asset is likely to regenerate strongly within a reasonable period (e.g. 5-10 years) after the disruption from the development has taken place).

2.17 This also considers the potential effect of climate change on the assets in question and how that is likely to affect its potential vulnerability.

2.18 The overall sensitivity score for each environmental asset type was assigned automatically, based on the scores for the scale of importance and vulnerability to change, as in the matrix shown in **Table 2.1**.

2.19 The approach to justifying the level of sensitivity value assigned to each environmental asset is set out under each of the Core Themes in Chapters 3-8. Where pertinent, reference is made to the relevant policy context, in order to illustrate the

importance of an issue at the international, national or local level.

2.20 In some cases, assets may be surrounded by areas which contribute to their setting. For example, there is no data available which identifies a clear 'buffer' within which the setting of any heritage asset could be affected. This is typically informed by detailed studies at specific sites. The Study therefore excludes 'setting' as a specific constraint as it is not possible to map this in a consistent way in a strategic study. The issue of site-specific setting issues would need to be taken into account at the next stage of the Council's site selection work, if required (this lies outside the scope of this sensitivity study).

Table 2.1: Classification of sensitivity values when applying sensitivity values to asset mapping

		Level of significance	
		Nationally/ inter- nationally significant	Locally/ less than nationally significant
Capacity to withstand change	Susceptible Either asset is fragile and would not recover within reasonable period OR if asset is not fragile, recovery from harm caused would be slow or would not take place at all.	Higher sensitivity	Moderate sensitivity
	More robust Either asset is not fragile OR if it is fragile, the asset is likely to regenerate strongly within a reasonable period (e.g. 5-10 years).	Moderate sensitivity	Lower sensitivity

Task 3: Mapping of the sensitivity of environmental assets under each Core Theme

2.21 Once the sensitivity values assigned to each asset type were finalised, a sensitivity map was produced for each of the six Core Themes. These sensitivity maps are presented within each Core Theme chapter.

2.22 For each location in the Borough, the maps show the sensitivity ratings as per the categories set out in **Table 2.2**.

Table 2.2: Categories of sensitivity mapped for each Core Theme

Sensitivity level		Sensitivity categories
Higher (Red)		1+ 'higher sensitivity asset' is present, within any Core Theme.
Moderate (Blue)	Spectrum from higher to lower moderate sensitivity	No Higher Sensitivity assets present, but 13+ Moderate Sensitivity assets present, across all Core Themes.
		No Higher Sensitivity assets present, but 10-12 Moderate Sensitivity assets present, across all Core Themes.
		No Higher Sensitivity assets present but 7-9 Moderate Sensitivity assets present, across all Core Themes.
		No Higher Sensitivity assets present but 4-6 Moderate Sensitivity assets present, across all Core Themes.
		No Higher Sensitivity assets present but 1-3 Moderate Sensitivity assets present, across all Core Themes.
Lower (Yellow)		No Moderate or Higher Sensitivity Assets presented, within any Core Theme.

Following Core Theme sensitivity mapping, an overall 'composite' map of Wirral was then produced. This map combined the sensitivity ratings for assets across all of the Core Themes. Where a higher sensitivity rating is present, this rating takes precedent over any moderate/lower sensitivities assigned to assets in the same location. Where a number of moderate sensitivities are present, they are layered up as described in **Table 2.3**.

Table 2.3: Process for carrying out sensitivity mapping

Sensitivity level		Sensitivity categories
Higher (Red)		1+ 'higher sensitivity asset' is present
Moderate (Blue)	Spectrum from higher to lower moderate sensitivity	No Higher Sensitivity assets present, but 5+ Moderate Sensitivity assets present.
		No Higher Sensitivity assets present, but 3-4 Moderate Sensitivity assets present.
		No Higher Sensitivity assets present and <1-2 Moderate Sensitivity assets present.
Lower (Yellow)		No Moderate or Higher Sensitivity Assets present.

2.23 The sub-division of the moderate sensitivity levels into different categories is arbitrary. It seeks to highlight those areas that have the presence of a greater or lesser number of moderately sensitive assets. The sensitivity mapping doesn't obviate the need for detailed consideration of the nature of the assets and their potential cumulative impact, which is examined in Tasks 5, 7 and 8.

Task 4: Landscape sensitivity assessment (LSA)

2.24 In addition to the consideration of environmental assets, a desktop LSA exercise was undertaken to identify the variations in landscape sensitivity to development within Wirral. This work supplemented the findings of the Wirral Site Specific Landscape Sensitivity Assessment (2019).

2.25 In 2019 LUC undertook a Landscape Sensitivity Assessment for 53 specific sites within Wirral. This study rated the potential sensitivity of these sites to notional residential and/or employment development. Each site was given an overall rating of potential sensitivity to development ranging from Low, Moderate-low, Moderate, Moderate-high and High.

2.26 The additional LSA work undertaken for this study assessed the remaining land outside of the settlement boundaries that had not been previously assessed in the 2019

study. The remaining areas were considered in relation to the Landscape Character Areas (LCA) as defined by Wirral's Landscape Character Assessment (LUC, 2019). In addition, the results of the 2019 assessment were amended in order to capture variation in sensitivity across the sites identified within that study and to ensure consistency with the method used for the 2020 work.

2.27 The LSA work provides a strategic assessment of the extent to which the character and quality of the landscape would, in principle, be susceptible to change as a result of the introduction of built development.

2.28 Landscape sensitivity was determined through a review of 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.
- Perceptual and experiential qualities.

2.29 The full method for the desktop LSA is provided in **Appendix C**.

2.30 A commentary on Wirral's landscape sensitivity is provided within **Chapter 9**. The results were overlaid on the composite Environmental Sensitivity map produced under **Task 3**, to provide a holistic view of environmental and landscape sensitivities across the Borough. This map was used to aid the analysis of the over-arching assessment of Wirral's sensitivity in **Task 5**.

Task 5: Over-arching assessment of Wirral's environmental sensitivity

2.31 Based on the outputs of Tasks 3 and 4, an over-arching assessment was undertaken of the environmental sensitivities across the Borough.

2.32 Given their recognised importance for the overall environmental integrity of Wirral, this assessment considered three key elements:

- The environmental sensitivity of Wirral's identified assets;
- Wirral's landscape sensitivity; and
- Implications for Wirral's habitat networks, and their ability to support designated sites.

Task 6: Assessment of potential for carbon emissions

2.33 In order to understand the potential spatial implications of development with regards to carbon emissions, the study considered:

- the accessibility to key services using either public transport or active travel.
- the opportunity for renewable and low carbon energy including district heating networks.

2.34 Potential issues relating to carbon storage were considered as one of the Core Themes in Task 3.

Accessibility to key services

2.35 The carbon analysis focused on degrees of accessibility to key services. The assessment was based on the principle that, whilst transport accessibility can often be influenced through improvements to public transport routes and services, certain locations are more advantageous than others in terms of their scope for people to complete everyday journeys by sustainable transport options (walking, cycling, public transport) if they were developed for housing or employment purposes; and that this is typically due to the presence of existing routes and services, and/or the proximity of locations to existing important destinations such as workplaces, urban centres, schools, and healthcare facilities.

2.36 The full methodology for the carbon assessment is provided in **Chapter 11**. The method makes use of both time-based data compiled by MerseyTravel, and mapping of proximity to publicly accessible open spaces according to thresholds set out in Wirral's Draft Open Space Standards (2020).

Renewable and low carbon energy

2.37 This section of the study considered the findings of the Wirral Local Plan Climate Change and Renewable Energy Study (2020) which provides an assessment of the potential for different forms of renewables to be accommodated within the Borough. This work does not include proposed allocations for renewable energy developments but rather potential 'opportunity areas' which would be subject to further assessment.

2.38 The findings of the Wirral Heat Mapping and Masterplanning report (2020) were also considered through this section.

Task 7: Assessment of Wirral's strategic spatial options

2.39 One of the key objectives of the study was to evaluate the environmental sensitivity of the Borough's identified Strategic Spatial Options (Options 1a, 2a and 2b, as outlined in the Wirral Local Plan Issues and Options consultation 2020).

2.40 This assessment takes into account the composite sensitivity mapping (carried out under Task 4 and 5) and the accessibility to services assessment (carried out under Task 6) and provides an overview of the performance of the spatial options against the sensitivity/accessibility criteria.

Task 8: Assessment of Wirral's settlement areas

2.41 The final task looked beyond the identified Strategic Spatial Options to provide a broader view of sensitivity around the edge of Wirral's Urban Areas. If the Council was to consider potential development within the Green Belt beyond the existing settlements, this assessment identifies the relative sensitivity of land around existing urban areas. Land adjacent to the urban areas was considered as it is anticipated, in line with the Issue and Options consultation that there would be a preference to extend existing settlements as opposed to the creation of a new settlement.

2.42 This assessment used the findings of the composite sensitivity maps to assess the sensitivity of land around the edge of Wirral's six² Urban Areas. It pairs this assessment with a summary of the accessibility work undertaken through Task 6.

2.43 The assessments also highlight potential mitigation options which could be implemented to reduce impacts to identified environmentally sensitive assets. The assessment draws out conclusions of those areas which are more and less sensitive to potential development.

2.44 This is, however, a strategic study which identifies general levels of environmental sensitivity and accessibility to services across Wirral. This will not obviate the need for more detailed studies at the local level to assess the potential impacts of development at site level.

Consultation

2.45 Consultation was carried out on the proposed methodology for the study and on the justification for applying sensitivity values to various environmental assets in Wirral.

2.46 At the outset of the study, a client Steering Group was established with representatives from Wirral MBC. LUC undertook ongoing liaison with the Steering Group in relation to all key aspects of the study and at all study stages. This liaison took place via a mixture of email correspondence, individual and group calls, and group meetings, and included discussion and agreement of the scope of wider consultation.

2.47 A Method Statement setting out the proposed study method was compiled in September 2020. Various professional and technical consultees were consulted on this Method Statement during the period 24th September to 12th October 2020. The consulted parties were agreed with the Steering Group and included:

- Cheshire West and Chester
- Cheshire Wildlife Trust
- Environment Agency
- Highways England
- Historic England
- LCR Combined Authority
- National Trust
- Natural England
- Network Rail
- MEAS
- Marine Management Organisation
- United Utilities
- Welsh Water
- Wirral Wildlife
- Wirral MBC departments (including Environmental Health, Lead Local Flood Authority, Parks and Countryside, Wirral Strategic Transport, Wirral Sustainability)

2.48 The results of this consultation were reviewed and are summarised in **Appendix D**. LUC considered whether its proposed method was robust in the light of the comments

² For the purposes of this assessment, Areas 2-3 ('Birkenhead Commercial' and 'Birkenhead Urban Area') will be assessed together

rather than separately, given the limited extent of the outer boundary of the 'Birkenhead Commercial' settlement area.

received, modifying the method where it considered this to be appropriate.

Chapter 3

Core Theme 1: Applying Sensitivity Values to Land, Soils, Minerals and Waste Assets

Introduction

3.1 This section considers the environmental sensitivity of land, soil quality, and minerals and waste sites. The theme focusses on the quality of land and existing/historic land uses.

Overview

3.2 A number of Sub Themes have been identified under Core Theme 1:

- Sub Theme 1.1: Brownfield and contaminated land.
- Sub Theme 1.2: Soil quality.
- Sub Theme 1.3: Minerals sites.
- Sub Theme 1.4: Waste sites.

3.3 For each Sub Theme, the following information is presented:

- Data sources and any limitations.
- The importance of the asset.
- Overview of important legislation/ national planning policy.
- Local policy context.
- Assigned sensitivity ratings.

3.4 Table 3.1 sets out the assets that have been considered; relevant data sets and the source of the data.

3.5 Figure 3.1 maps the assets which show the land, soils, minerals and waste baseline of the Borough.

Table 3.1: Land, soils, minerals and waste: assets and data sources

Sub Theme	Data Set	Data Source
Brownfield and contaminated land	Contaminated land	Wirral MBC
	<i>Data set used for contextual mapping, but not assigned sensitivity ratings</i>	
	Brownfield sites (from Brownfield Site Register and SHLAA)	Wirral MBC
Soil quality	Agricultural Land Classifications / Soil types	ADAS/Wirral MBC
Mineral sites	Active Minerals Sites	Wirral MBC
	Historic Minerals Sites	Wirral MBC
	Mineral Safeguarding zones	Wirral MBC
Waste sites	Historic Landfill Sites	Wirral MBC
	Active waste management facilities	Wirral MBC

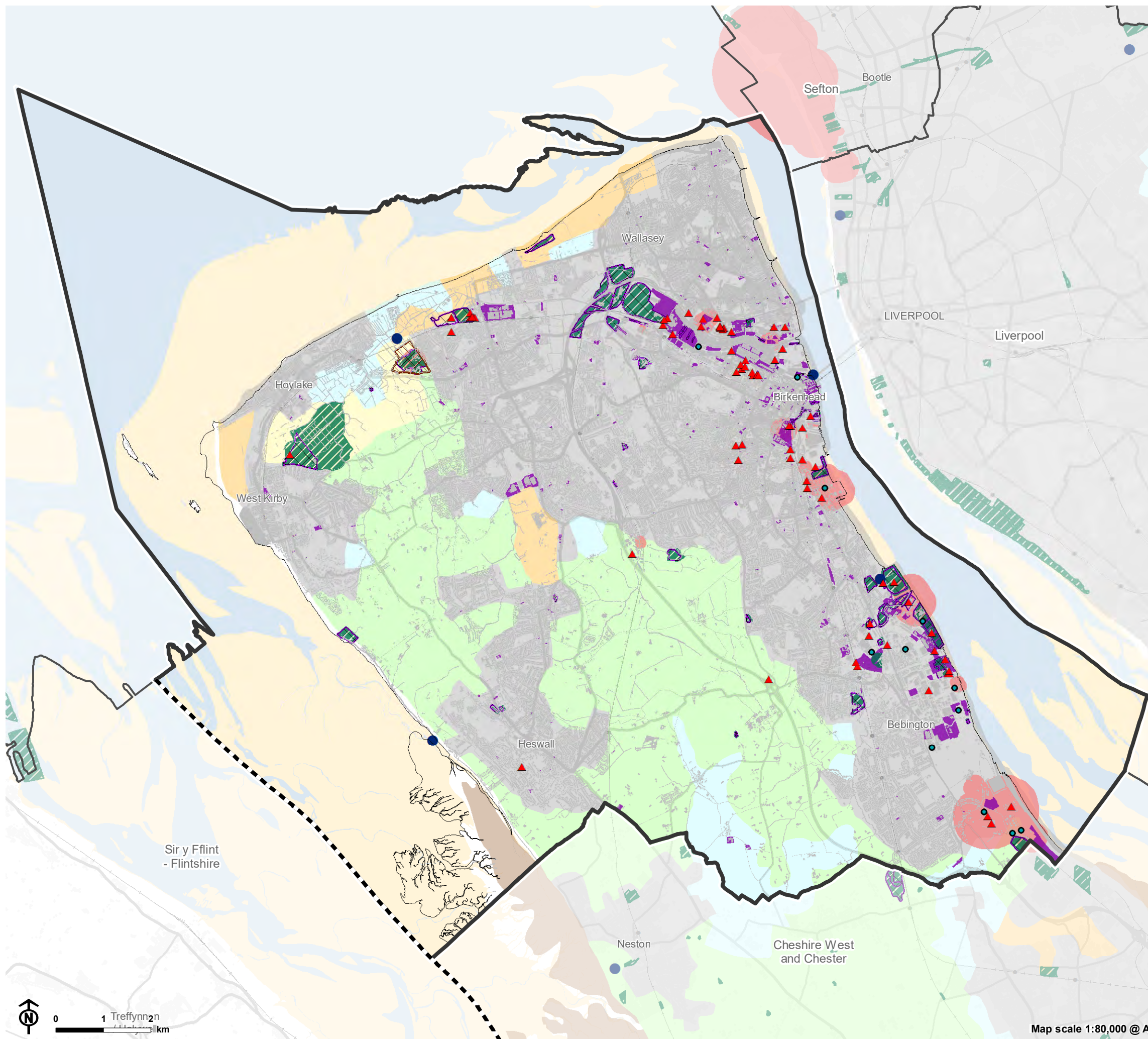
Data limitations

The following issue was identified as a data limitation under Core Theme 1:

Agricultural Land Classification

It is acknowledged that the data available on agricultural land classification (ALC) is relatively dated (1998-1995) and doesn't enable the identification of all categories of 'Best and Most Versatile land'. Nationally, there are five grades of agricultural land Grade 1 (excellent) to Grade 5 (poor), with Grade 3 subdivided into 3a and 3b. Best and Most Versatile land is defined as Grades 1, 2 and 3a. As is explained under Sub-theme 1.2, detailed technical soil surveys would be required to provide the classifications required to identify the most sensitive land, which lies out with the scope of this study, and as such all areas of Best and Most Versatile agricultural land were given the same sensitivity rating.

Figure 3.1: Land, soils, minerals and waste sites in Wirral



- Wirral boundary
- Other Local Authority boundary
- England - Wales boundary
- Landform edge
- Permitted waste site
- Industry / processing facility
- Urban waste water treatment plant
- Physical constraints
- Waste disposal site
- Historic landfill site
- Mineral reserve
- Brownfield site
- COMAH site
- Agricultural Land Classification**
 - Grade 1
 - Grade 2
 - Grade 3
 - Grade 4
 - Grade 5
 - Non Agricultural
 - Urban

Note
Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Sub Theme 1.1: Brownfield and contaminated land

Why are these assets important?

3.6 In recent years, National Planning Policy has increasingly focused on the redevelopment of previously developed (brownfield) land to make best use of existing infrastructure, recycle land and assist with social and economy regeneration.

3.7 However, developing on brownfield land can bring additional challenges of dealing with contamination as a result of previous, often industrial, uses. Without proper management, contaminated land can pose a risk to human and environmental health.

3.8 Land can be contaminated by a variety of substances that pose either immediate or long-term risks. Such contaminants may escape from the site to cause air, land, surface or groundwater pollution, and in some cases can damage buildings or contaminate the food chain. In pursuing the re-use and redevelopment of sites, local authorities need to be aware of contamination issues, and the potential costs of addressing them.

3.9 It is also important, to recognise that some brownfield land is of high environmental value, providing habitats for protected or priority species and other environmental and amenity benefits. While these sites constitute the minority of brownfield sites, the biodiversity or geodiversity value of the land and its environmental sensitivity will need to be taken into account in order to avoid, or mitigate, harm. In particular, those areas of land identified by DEFRA as 'open mosaic habitats' – characterised by a mosaic of early-succession communities, friable bare ground and scattered scrub – can form an important part of green infrastructure networks and may merit protection.

Legislation

3.10 The system for identifying and remediating statutorily defined contaminated land is covered under Part 2A of the Environmental Protection Act 1990, which provides a risk-based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment.

3.11 'Contaminated land' is defined within the Act³ as

'any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that:

- a) Significant harm is being caused or there is the significant possibility of such harm being caused; or*
- b) Pollution of controlled waters is being, or is likely to be, caused...'*

3.12 Failure to deal adequately with contamination can also undermine compliance with the Water Environment Regulations 2017.

National policy context

3.13 The NPPF is strong in its desire to make effective use of land (Section 11) in meeting the need for homes and other uses. Paragraph 117 outlines that:

'Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.'

3.14 Paragraph 118 of the NPPF states that:

'Planning policies and decisions should...

- c) give substantial weight to the value of using brownfield land within settlements for homes and other identified needs and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land.'*

3.15 Whilst paragraph 119 further promotes the re-use of land:

'Local planning authorities, and other plan-making bodies, should take a proactive role in identifying and helping to bring forward land that may be suitable for meeting development needs, including suitable sites on brownfield registers or held in public ownership.'

3.16 The NPPF, at Paragraph 137 references the fact that, in relation to changes to Green Belt boundaries:

'...the strategic policy-making authority should be able to demonstrate that it has examined fully all other reasonable options for meeting its identified need for

development. This will be assessed through the examination of its strategic policies... and whether the strategy:

a) makes as much use as possible of suitable brownfield sites and underutilised land'.

3.17 The NPPF also provides guidance on dealing with contaminated land through the planning process. Paragraph 178 notes that planning policies and decisions should ensure that:

'a) A site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) After remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990.'

Local policy context

3.18 Policy URN1 (Development and Urban Regeneration) of the Wirral Unitary Development Plan (UDP) requires the local planning authority to ensure that:

- *'Full and effective use is made of land within the urban areas;*
- *Neglected, unused or derelict land or buildings are brought into use;*
- *The need for new services is minimised by promoting the use of spare capacity in existing services.'*

3.19 According to the UDP, this approach seeks to:

- Encourage investment and development into the urban areas of the Borough, and particularly those suffering the worst conditions;
- Operate policies of development constraint in non-urban areas whilst maintaining the quality of the environment and heritage of the Borough.

3.20 The Wirral Growth Plan (A 2020 Vision) also highlights the importance of urban regeneration, focussing on

opportunities such as a 'rejuvenated principal town centre', deriving benefits from waterfront locations and utilising port infrastructure.

Local considerations and current pressures relating to brownfield and contaminated land

Brownfield sites

3.21 Wirral MBC has stated its ambition in its emerging Local Plan to make effective use of land resources by encouraging as much suitable brownfield land as possible to be regenerated. Much of this will focus on the regeneration of the wider Birkenhead Area, as set out in the forthcoming Birkenhead Regeneration Framework (BRF). This includes the redevelopment of the Wirral Waters site on the footprint of the former docks north of the town centre.

3.22 Areas of existing brownfield land are identified in Wirral's Brownfield Register, first published in 2017 and regularly updated. A number of these are also designated within the Priority Habitat Inventory (PHI) as areas of 'open mosaic habitat', which denotes brownfield sites of high biodiversity value. In Wirral, these are largely concentrated around the former docks (and adjacent to Bidston Moss), as well as further sites along the Mersey Estuary and scattered sites in the west of the Borough, around Hoylake and Thurstaston. They are addressed in more detail under Sub Theme 2.1 (Biodiversity and Geodiversity), as part of the Priority Habitat Network.

Contaminated land

3.23 A number of areas in Wirral have previously been occupied by a variety of industrial activities – which may have left substances in the ground that could be hazardous to human health and the environment.

3.24 The Contaminated Land team at the Merseyside Environmental Advisory Service (MEAS) provides technical advice regarding environmental matters and the NPPF relevant to land contamination issues, and in soil management in relation to the remediation of contaminated sites.

Sensitivity of assets

3.25 The approach taken in this study to assessing brownfield land as well as the capacity of contaminated sites to withstand change, their significance and overall sensitivity is summarised in **Table 3.2**.

Table 3.2: Sensitivity of brownfield land and contaminated sites

Asset	Capacity to Withstand Change	Significance	Sensitivity
Brownfield sites	<p>Brownfield land (including SHLAA sites and employment land register sites) has been mapped as part of the baseline analysis, however sensitivity values have not been assigned to these sites. Instead, in line with para 137 of the NPPF, it is anticipated that brownfield land will be prioritised for development before the use of Green Belt.</p> <p>Some brownfield sites may be important for biodiversity and this will be a key factor in determining a sites capacity to accommodate development. However, sites which are not designated for their biodiversity value do not benefit from any explicit protection and the use of brownfield land is actively encouraged. The NPPF encourages 'as much use as possible of previously developed or 'brownfield' land' (NPPF Para 117).</p>		
Contaminated land	<p>More robust</p> <p>Once fully remediated in line with local and national regulations, contaminated sites, contaminated sites are able to be developed. However, this is likely to result in higher costs which may have an impact on site viability.</p>	<p>National</p> <p>Contaminated sites are regulated by national legislation, which sets out clear guidelines for how they are treated as part of the development process.</p>	<p>Moderate</p> <p>Development may be possible in some locations if viable, provided remediation is carried out in full compliance with appropriate regulations.</p>

Sub Theme 1.2: Soil quality

Why are these assets important?

3.26 Soil is an invaluable and non-renewable natural resource and is also recognised as part of the country's geodiversity baseline. The socio-economic and environmental contribution made by soil is often overlooked, but it provides a range of vital ecosystem services including food, timber, wildlife habitats, clean water, run-off and flood management, nutrient cycling, and carbon storage. As set out in the Soil Strategy for England, "soil is one of the building blocks of life".

3.27 Soil productivity is one of the major factors affecting land use for food production, and is affected by type, quality, altitude, slope, drainage etc. In the medium term, this productivity can be altered by water availability, flood risk, climate change and soil erosion.

3.28 Intensive agriculture has caused arable soils to lose 40% to 60% of their organic carbon, and the impacts of climate change poses further risks. Extended periods of wet weather can cause widespread damage to soil structure, as well as soil erosion (estimates suggest over 2 million hectares of soil are at risk of erosion in England and Wales)⁴.

3.29 Poor soil quality also has a detrimental impact on the income and way of life of the UK's farmers. Soil erosion due to wind and rainfall in the UK is estimated to cost British farmers £9 million a year in lost production⁵.

Legislation

3.30 The Town and Country Planning (General Permitted Development) (England) Order 2015 permits certain types of development (without permission from the local authority) on agricultural land; mainly development that is small in scale and directly connected to the agricultural operations.

National policy context

3.31 Current EU and UK policies highlight the need to protect and manage soils sustainably, both for food production and to secure wider environmental benefits. The UK government's 25 Year Environment Plan includes as a key aim the reversal of soil degradation and restoring soil fertility by 2030.

3.32 Safeguarding our Soils – A Strategy for England (2011) sets out the current policy context on soils and includes a number of core objectives for policy and research. It emphasises the importance of the planning system in

providing appropriate levels of protection for good quality agricultural land.

3.33 Section 15 of the NPPF (Conserving and enhancing the natural environment), Paragraph 170, states that:

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

a) Protecting and enhancing [...] 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 wide 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 [...].'

3.34 The national Planning Practice Guidance (PPG) outlines the agricultural land classification system, which assesses the quality of farmland to 'enable informed choices to be made about its future use within the planning system'. There are five grades of agricultural land Grade 1 (excellent) to Grade 5 (poor), with Grade 3 subdivided into 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a.

3.35 The Best and Most Versatile (BMV) land is considered to be the:

'most flexible, productive and efficient in response to inputs and which can best deliver future crops for food and non-food uses such as biomass, fibres and pharmaceuticals.'

Local policy context

3.36 Policy AGR1 (The Protection of Agriculture) in Wirral's Unitary Development Plan (UDP) requires that proposals for development on agricultural land seek to "prevent the loss of Wirral's best and most versatile agricultural land". Further, Policy AG2 (Protection of Best Quality Agricultural Land) requires that, proposals involving the non-agricultural use of this land must "demonstrate the extent to which it would be practicable to return the land to its former quality if the development took place".

3.37 In the case of development near existing agricultural land holdings, Policy AG1 (Development and Agriculture) requires

⁴ Environment Agency (2019), 'The state of the environment: soil' [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/805926/State_of_the_environment_soil_report.pdf

⁵ DEFRA (2009), 'Safeguarding our Soils: A Strategy for England' [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69261/pb13297-soil-strategy-090910.pdf

that proposals "minimise direct or indirect disturbance to existing agricultural land uses".

3.38 Wirral's Agricultural Economy and Land Study (2019) provides an up-to-date assessment of agricultural land in Wirral, including underlying soil and geology and climate limitations.

Local soil quality considerations and current pressures

3.39 Wirral's soil assets are summarised below, along with an indication of current local pressure and how they might be expected to change in the future.

3.40 Wirral's Agricultural Economy and Land Study highlights that nearly 27% of the land in Wirral (4,304 hectares) is still used for agricultural purposes, with cereals accounting for the majority of crops grown (24% of land use). It notes that soils in Wirral fall predominantly within 5 major soil associations – named Clifton, Bridgnorth, Blackwood, Sandwich and Salwick. Clifton (36%) is the predominant soil association in the agricultural areas, and is defined as a slowly permeable, seasonally waterlogged and coarse loamy soil.

3.41 The study also included a climate study, to understand the limitations that climate change places on potential agricultural and horticultural land use. It found that the region does not, at this point, routinely suffer from excessively dry, wet, hot or cold conditions that may affect crop production.

3.42 The Study of Agricultural Economy and Land in Wirral was undertaken to review and analyse agricultural practices and land use, farm income and viability, the socio-economic impact of farming, climate limitations and soil and geological information in Wirral in order to inform the emerging Local Plan. Based on the Agricultural Land Classification (ALC) of sample area surveys undertaken from 1988 to 1997 and estimations of soil associations in non-urban land within Wirral, extrapolated ALC results found that the majority of agricultural land within Wirral was either Grade 2, 3a or 3b. It was however stated that it is not possible to determine the ALC grade of particular land parcels without a detailed technical survey of the soil.

3.43 Grade 2 and 3a land classifications are considered to be of higher sensitivity by the ALC. The NPPF defines this as best and most versatile land and other lower quality land areas should be considered for development in preference of these areas. Therefore this study has assigned a moderate sensitivity rating to all areas of the Peninsula (which, as discussed above, for the purpose of this study will consider all currently farmed land as being potentially Grade 2 and 3a agricultural land) until such time as detailed, or on site, investigations are undertaken to determine agricultural land quality in specific locations of the Peninsula.

Sensitivity of assets

3.44 The capacity of each type of soil to withstand change, its significance and its overall sensitivity is summarised in **Table 3.3**.

Table 3.3: Sensitivity of soil quality assets

Asset	Capacity to Withstand Change	Significance	Sensitivity
Agricultural land (Grade 1, 2, 3a/3b)	Susceptible If Agricultural Land is determined to be Grade 1, 2 or 3a - Higher grade agricultural land.	National The NPPF encourages the use of poorer quality land for development in preference to the best and most versatile land (Grades 1-3a).	Moderate Residential development may be possible in some locations subject to the impact on individual farm holdings and further soil surveys.

Sub Theme 1.3: Minerals sites

Why are these assets important?

3.45 Minerals are naturally occurring and by virtue of their properties and use form an important part of the UK's geodiversity baseline and have high importance in economic terms to the construction, manufacturing and energy industries. The broad aim of minerals policy is to supply the minerals required for these sectors at the least social, economic and environmental cost.

3.46 Mineral operations can have both positive and short-term negative impacts on the environment. Once quarrying or mining has finished, many sites are appropriate for developing for nature conservation or community use and can become highly valued biodiversity and recreational assets.

3.47 Mineral extraction can only take place where mineral occurs (in sufficient quantity and of required quality) and so it is important to safeguard mineral resources from being sterilised by development.

National policy context

3.48 Extraction of minerals is subject to the UK's mineral planning process, the aim of which is to facilitate the sustainable supply and use of minerals. Mineral working is not a permanent use of land, and extraction sites are usually restored for beneficial after-use.

3.49 The NPPF (Paragraph 203) states that:

'Since minerals are a finite natural resource, and can only be worked where they are found, best use needs to be made of them to secure their long-term conservation.'

3.50 The NPPF (Paragraph 204) outlines that planning policies should:

- *'provide for the extraction of mineral resources of local and national importance...*
- *safeguard mineral resources by defining Mineral Safeguarding Areas; and adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked);*
- *set out policies to encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place;*

- *safeguard existing, planned and potential sites for: the bulk transport, handling and processing of minerals; the manufacture of concrete and concrete products; and the handling, processing and distribution of substitute, recycled and secondary aggregate material;'*

3.51 Paragraph 206 states that:

'Local planning authorities should not normally permit other development proposals in Mineral Safeguarding Areas if it might constrain potential future use for mineral working.'

3.52 Furthermore, Local Planning Authorities should:

'set out policies to encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place.'

Local policy context

3.53 Local Planning policy on minerals extraction and development currently consists of a suite of policies from Wirral's Unitary Development Plan (UDP), under Policies MIN1 to MIN3 and their sub-policies:

Policy MIN1: Maintaining Minerals Supply - outlines the requirement for Wirral to maintain a minimum seven years of extraction whilst describing that the Borough is faced with severely limited mineral reserves and any reserves are affected by environmental and nature conservation considerations.

Policy MIN2: Safeguarding Mineral Reserves - explains that the council will refuse planning permission for surface development which would prevent mineral extraction or will permit extraction of the mineral prior to development commencing.

Policy MIN3: Restoration and Aftercare of Mineral Extraction Sites – Seeks to direct the restoration and aftercare of closed mineral sites in order to enhance the environment.

3.54 Further policies within this suite provide detail on particular areas of the Borough and particular types of facilities. In particular, Policy MI4 (Sand, Gravel and Sandstone Extraction) seeks to apply a greater level of scrutiny and rigorous assessment to any extraction proposals that come forward, as all known small deposits of sand and gravel within Wirral are located beneath areas of high quality

agricultural land or areas of high landscape value. Sand within the Dee Estuary and North Wirral foreshore are located in SSSIs.

3.55 Policy CS37 in the Proposed Submission Draft Core Strategy (December 2012) also requires applicants to demonstrate that a range of criteria can be met including that operations will not have an unacceptable impact on the environment, amenity or human health.

Local minerals considerations and current pressures

3.56 The Wirral Minerals Report (January 2020)⁶ provides an updated position on mineral resources in the area stating that the Merseyside Mineral Resource Study⁷ (MMRS) confirmed at the time:

'following consultation with the mineral industry...Wirral had no workable resources for land-won crushed rock, sand and gravel or industrial minerals.'

3.57 According to the Minerals Report (2020), much of Wirral is founded on sandstone, which is a major aquifer. Wirral does not however have any significant mineral reserves, apart from small amounts of winnable brick clay.

3.58 Superficial deposits of sand and gravel occur as marine deposits or along the northern coastal areas of Wirral peninsula.

3.59 There are no operational building stone quarries in Wirral, furthermore, there are no remaining winnable brick clay deposits in the peninsula.

3.60 The Minerals report recommended that only the Carr Lane Brickworks at Moreton should be safeguarded for future mineral extraction. The report does suggest that safeguarding Wirral's mineral resources as a whole is still relevant in line with National Planning Policy.

Sensitivity of assets

The capacity of each asset to withstand change, their significance and their overall sensitivity is summarised in **Table 3.4**.

Table 3.4: Sensitivity of minerals sites

Asset	Capacity to Withstand Change	Significance	Sensitivity
Active minerals sites	N/A – mapped as a physical constraint to development.		
Historic minerals sites	More robust Some sites are designated as a RIG or wildlife site, in which case they will be protected from certain development on those terms. However, while local policy encourages the restoration of these sites to create sites of biodiversity value, sites which are not designated for their biodiversity and geodiversity value do not benefit from any explicit protection.	Local UDP policy MIN3 seeks to direct the restoration and aftercare of closed mineral sites in order to enhance the environment.	Moderate Residential development may be possible unless the site is designated as a RIG, wildlife site, or other designation or where development is restricted, subject to ground conditions.
Minerals safeguarding areas	More robust While the NPPF seeks to ensure that specific minerals resources of local and national importance are not sterilised by non-mineral	National Defined by Paragraph 204 and 206 of the NPPF, which seeks their protection.	Moderate Residential development may be possible if it is viable to win the safeguarded resource before development occurs and

⁶ Wirral Minerals Report (RPS Group), 7th January 2020.

⁷ The Evidence Base for Minerals Planning in Merseyside Final Report August 2008 (Urban Vison)

Asset	Capacity to Withstand Change	Significance	Sensitivity
	development, there is potential to extract mineral resource prior to development being brought forward.		subject to any restoration conditions.

Sub Theme 1.4: Waste sites

Why are these assets important?

3.61 In general, waste management and the safe disposal of waste have far-reaching consequences for the environment.

3.62 The siting of waste facilities is important to the health of the broader environment because harmful chemicals and greenhouse gases are released from rubbish and landfill sites. Badly managed landfill sites may also attract vermin or cause litter.

3.63 Similarly, incinerating waste, while avoiding some of the issues with landfill sites, can lead to air quality issues and a threat to human health in the surrounding area.

3.64 There are increasing instances where former landfill sites are used to deliver development – there are 20,000 former landfill sites across the UK, with 1,200 of those on the country's coastline. However, the Health Protection Agency warns that these sites, when risks not properly managed, can represent a pollution risk and potential health risk.⁸

Legislation

3.65 Waste Framework Directive 2008/98/EC sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. It explains when waste ceases to be waste and becomes a secondary raw material (so called end-of-waste criteria), and how to distinguish between waste and by-products. The Directive lays down some basic waste management principles - it requires that waste be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

3.66 Historic landfills are managed under the Environmental Protection Act 1990, Part 2A (1990).

National policy context

3.67 The National Planning Policy for Waste (2014) sets out the Government's ambition to work towards a more sustainable and efficient approach to resource use and management. This policy approach emphasises the importance of providing a network of facilities to deliver sustainable waste management as well as identifying areas

for waste management facilities in line with the proximity principle and giving priority to the re-use of previously developed land.

3.68 The NPPF does not explicitly reference the siting of waste sites, however it notes that the framework should be read in conjunction with the Government's planning policy for waste.

Local policy context

3.69 The Joint Waste Local Plan for Merseyside and Halton (2013) identifies sites and criteria for sub regional waste facilities and district level facilities (suitable for smaller waste management operations). In Wirral, Site W1 at Campbelltown Road Car Park/Storage area is identified for use as a Sub regional allocation. Site allocations W2 (Bidston MRF/HWRC at Wallasey Bridge Road) and W3 (Former Goods Yard, adjacent W2) are allocated as district facilities where an intensification of existing uses is planned.

- Policy WM5 considers areas of search for additional small-scale waste management operations and re-processing sites. The policy states that additional sites required over and above those allocated for specific waste management uses will be considered favourably in the vicinity of a number of locations. Industrial areas associated with Cammell Laird Shipyard, Tranmere and to the north of the Dock Road on the north bank of the West Float Docks are listed as such locations in Wirral.
- Policy WM7 seeks to protect existing Waste Management Capacity for built facilities and landfill. Existing operational and consented waste management sites will be expected to remain in waste management use in order to maintain essential waste management capacity. For built waste management facilities any change of use from waste management will only be allowed in exceptional circumstances and will need to be justified by the developer.
- Policy WM16 Restoration and Aftercare of Landfill Facilities. Outlines that appropriate landscaping, long term management and ecology plans will be required for restoration proposals. Supporting text (paragraph 5.87) identifies that appropriate restoration uses of landfill sites could make a valuable contribution to green infrastructure including improving public access, management for water resources, biodiversity and long-term ecological management, provision of ecosystem

⁸ Health Protection Agency (2011), 'Impact on Health of Emissions from Landfill Sites' [Online] Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/u>

[loads/attachment_data/file/334356/RCE-18 for website with security.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/334356/RCE-18_for_website_with_security.pdf)

services, a return to agriculture, forestry or recreational facilities.

3.70 The Joint Waste Local Plan also states that:

'When determining applications for non-waste development on a district site specifically identified for waste management, or within a distance that could affect the potential for waste use on a site specifically identified for waste management, consideration will be given to any potential adverse impact the proposed development might have on the future of the site as a location for waste management'

Local waste site/management considerations and current pressures

Active landfill sites

3.71 There are no active or approved landfills in Wirral at present and none are proposed in the Waste Local Plan. Former landfill sites exist at Moreton and two further ones close to Port Sunlight.

Historic landfill sites

3.72 There are a larger number of historic landfill sites in Wirral, several of which have been restored as recreational assets. The largest sites are found at: Greenbank Road; Bidston Moss; and around Bromborough Docks.

3.73 The Port Sunlight River Park and Bidston Moss are two examples where significant additional local green spaces have been created through the restoration of former landfill sites.

Active waste management facilities

3.74 There are a significant number of waste disposal sites present throughout the urban areas of Wirral, with a larger concentration in the east of the Borough. In particular, there are three Household Waste Recycling Centres (HWRCs) in Wirral – in West Kirby, Bidston and Clatterbridge.

3.75 Active waste management facilities have been mapped as a physical constraint to development as it is considered highly unlikely that they would be developed upon. If development were to be brought forward in proximity to these facilities then it will be necessary to consider the impacts of odour, noise, dust and HGV traffic on residents.

Sensitivity of assets

3.76 There are a number of reasons to restrict development on/near to active/historic landfill sites and active waste management facilities, particular related to the health risks identified above.⁹ The type of material landfilled at historic landfill sites will also be a key consideration and could have an adverse impact on the health of nearby residents.

3.77 The capacity of each asset to withstand change, its significance and its overall sensitivity is summarised in **Table 3.5**.

Table 3.5: Sensitivity of assets to waste sites

Asset	Capacity to Withstand Change	Significance	Sensitivity
Historic Landfill Sites	<p>More robust</p> <p>Through appropriate mitigation it may be possible to limit health risks (the type of mitigation required and likelihood of development occurring would depend on the waste material landfilled at a particular location e.g. an inert material landfill may be more suitable). Old landfill sites may not have been capped and lined and could have contamination issues.</p>	<p>Local</p> <p>Not afforded any statutory protection. Permitted by County/local planning policy.</p>	<p>Moderate</p> <p>Residential development may be possible with appropriate mitigation, the type of material landfilled will be a key factor in determining suitability.</p>

⁹ Health Protection Agency (2011), 'Impact on Health of Emissions from Landfill Sites' [Online] Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/u>

[loads/attachment_data/file/334356/RCE-18 for website with security.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/334356/RCE-18_for_website_with_security.pdf)

Asset	Capacity to Withstand Change	Significance	Sensitivity
Active waste management facilities (e.g. Household Recycling Centres, Waste Transfer facilities)	N/A – mapped as a physical constraint to development.		

Sensitivity of land, soils, minerals and waste in Wirral

3.78 Figure 3.2 shows that there are no areas of High Sensitivity in Wirral related to land, soils, minerals and waste. However, a number of areas have been highlighted as being moderately sensitive.

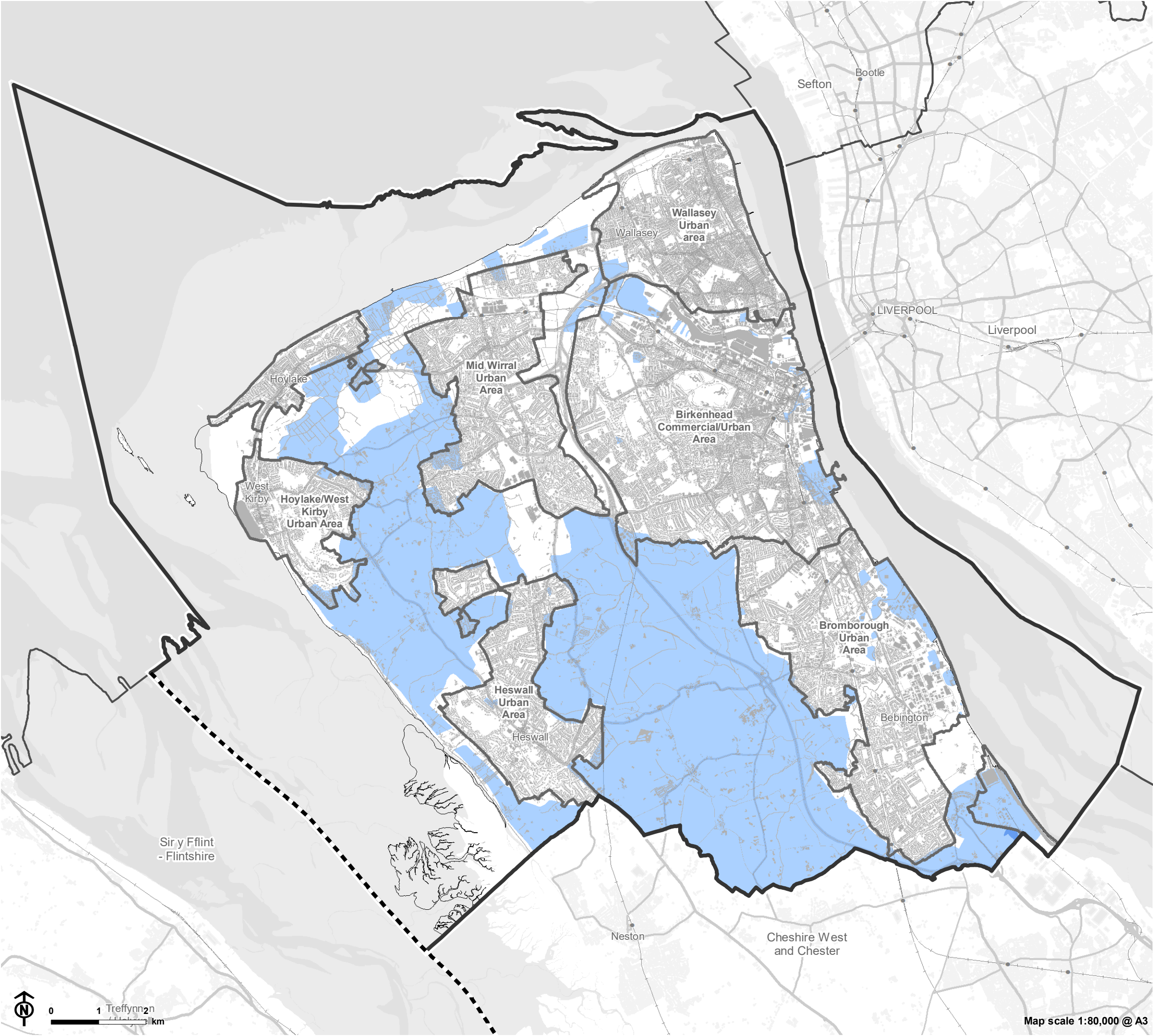
3.79 These areas mostly relate to the sensitivity and value of Best and Most Versatile (BMV) agricultural land, with a swathe in the centre of the Borough, further land in the north east and pockets of land in coastal areas.

3.80 Aside from agricultural land, other areas of (moderate) sensitivity relate to historic landfill sites at Greenbank Road, Bidston Moss and around Bromborough Docks.

3.81 The remaining areas of the Borough are considered to be less environmentally sensitivity in relation to this Theme.

3.82 The sensitivity of the Borough as a whole, i.e. presenting the sensitivity of all environmental assets in one composite map, is considered in **Chapter 10**.

Figure 3.2: Land, soils, minerals and waste sites in Wirral and their sensitivity



Chapter 4

Core Theme 2: Applying Sensitivity Values to Ecology and Geology Assets

Introduction

4.1 This section considers the environmental sensitivity of ecological and geological assets within Wirral. For example, designated wildlife sites and the wider habitats which support them.

Overview

4.2 Core Theme 2 considers the following as the only Sub Theme:

- **Sub Theme 2.1:** Biodiversity and geodiversity.

4.3 For this single Sub Theme, the following information is presented:

- Data sources and any limitations.
- The importance of the asset.
- Overview of important legislation/ national planning policy.
- Local policy context.
- Assigned sensitivity ratings.

4.4 Table 4.1 sets out the assets that have been considered; relevant data sets and the source of the data.

4.5 Figure 4.1 maps the assets to show the biodiversity and geodiversity baseline of the Borough.

Table 4.1: Ecology and geology: assets and data sources

Sub Theme	Data Set	Data Source
Biodiversity and Geodiversity	Statutory designations: international sites (SPA / SAC / Ramsar) ¹⁰	Natural England
	Statutory designations: national sites (SSSI) ¹¹	Natural England
	SSSI IRZ (residential development listed as a land use of risk) ¹²	Natural England
	WeBS Core Count Areas	British Trust for Ornithology
	Local nature conservation sites ¹³	Natural England (LNR / RIGS / LGS) Wirral MBC (LWS / pLWS)
	Ancient woodland ¹⁴	Natural England
	Priority Habitat ¹⁵	Natural England (national priorities) MEAS (local priorities within the Ecological Network)
	Local Geological Sites	Wirral MBC
	Nature Improvement Areas (NIAs)	Merseyside Environmental Advisory Service (MEAS)

Data limitations

The following issue was identified as a data limitation under Core Theme 2:

Functionally linked habitats:

- The nature and extent of functionally linked habitat is dependent on the lifecycle requirements of the qualifying features in question and may change depending on land use (such as cyclic changes in agricultural land use). In the absence of spatial data identifying functionally linked habitat, the BTO WeBS Core Count boundaries¹⁶ (used by Wirral MBC as a proxy to inform Habitat Regulations Assessment (HRA) Screening) has been used as preliminary representation of functionally linked habitats for the purposes of this assessment.
- It is recognised that the core count boundaries may not capture all functionally linked habitats. Their inclusion in this assessment reflects a consistent approach with that of Wirral MBC's current decision-making process in relation to legal and policy protection of habitats. This dataset is also transparent in recognising where the extent of this caveat applies.
- It is recommended that the assessment is reviewed when, in due course, functionally linked land spatial data is available. It is recognised that a greater area of land may be then identified as high sensitivity across Wirral (owing to

¹⁰ European Habitats Directive (92/43/EEC), Conservation of Habitats & Species Regulations 2017

¹¹ Wildlife & Countryside Act 1981 (as amended)

¹² Data used to inform EIA Scoping under the Town & Country Planning (Environmental Impact Assessment) Regulations 2017; and as a supplement to inform HRA Screening under The Conservation of Habitats & Species Regulations 2017

¹³ Wildlife & Countryside Act 1981 (as amended), (Revised) NPPF 2012, (Revised) PPG 2016

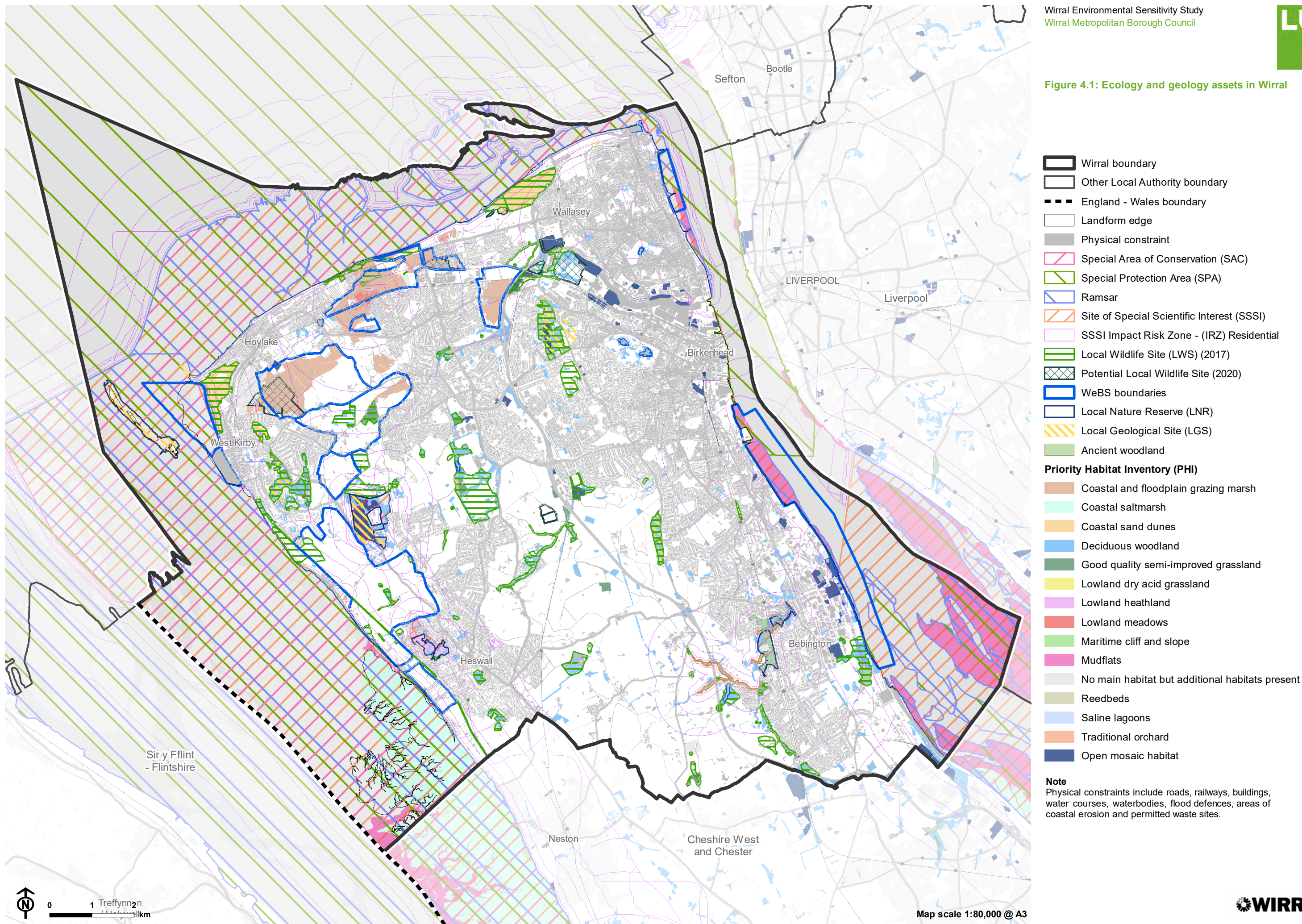
¹⁴ Natural Environment & Rural Communities Act 2006 (as amended), (Revised) NPPF 2012, (Revised) PPG 2016

¹⁵ Natural Environment & Rural Communities Act 2006 (as amended), LCR Ecological Network Mapping 2015

¹⁶ British Trust for Ornithology Wetlands Birds Survey Core Counts use standard methods as part of national wetland monitoring. Counts are completed principally during the wintering period of September to March.

the importance placed on functionally linked land through the HRA process, which cannot otherwise be attributed to the core count data).

Figure 4.1: Ecology and geology assets in Wirral



Sub Theme 2.1: Biodiversity and geodiversity

Why are these assets important?

4.6 Biodiversity has intrinsic importance and at a global scale, its preservation is vital to the continued functioning of complex ecosystem interactions which underpin the habitability of the planet and provide a host of services to humans. Examples of these 'ecosystem services' include provision of food, fuel and fibre; purification of air and water; provision of a 'bank' of genetic resources which are a key input to new crop varieties and medicines; maintenance of soil fertility through nutrient cycling and decomposition of wastes. Biodiversity also has an important role to play as an indicator of the health of the region's natural environment since thriving biodiversity provides evidence that other environmental factors (e.g. water resources, water quality, air quality, soil fertility etc.) are in good condition.

4.7 Geodiversity relates to landform and geology, which underpin the landscapes and types of habitat that the Borough supports. It can also provide cultural services, for example Wirral's surrounding coastline. Water assets are intrinsically linked to both biodiversity and geodiversity and provide valuable provisioning, supporting and regulating services, for example flooding and erosion regulation, as well as fresh water.

4.8 Biodiversity and geodiversity assets are dynamic and subject to changes that might have natural and man-made components, for example flooding, erosion, deposition, and climate change. In some cases, areas may need to be safeguarded to manage or allow these processes of change.

Legislation

4.9 The treatment of biodiversity and geodiversity assets is set out in European and UK legislation; key components are described below.

4.10 The Habitats Directive (92/43/EEC) forms part of the European legislation and requires Member States to maintain, restore and provide protection to the natural habitats and species listed in Annexes of the Directive so that they are in favourable status. The Directive was transposed into UK law in 1994. Amendments to the UK law are consolidated by the Conservation of Habitats and Species Regulations 2017. The purposes of the 'Habitat Regulations' are to designate and protect European sites and species and to ensure that planning policy and other mechanisms support these

protected sites. It is through the Habitat Directive that Special Areas of Conservation (SAC) are designated.

4.11 The Birds Directive (2009/147/EC) aims to protect all European wild birds and the habitats of listed species, notably through designation of Special Protection Areas (SPA). The Birds Directive was transposed to UK law via the Wildlife & Countryside Act 1981. SPA and SAC together form the Europe-wide network of sites referred to as Natura 2000. Complimenting these designations, Ramsar sites are wetlands of international importance designated under the criteria of the Ramsar Convention on Wetlands 1971.

4.12 The European Water Framework Directive (2000) became part of UK law in 2003, through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. It acts in relation to river basin districts. The Framework has been amended by The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations 2017. The Environment Agency is the lead body on the Water Framework Directive, but all organisations are expected to help deliver it.

4.13 Habitats Regulations Assessment (HRA) is required under the Habitats Directive, Article 6, and, within English law, by the Habitats Regulations 2017. The ultimate aim is to "maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest" (Habitats Directive Article 2.2). It is therefore the qualifying features of a site which lead the focus of an HRA.

4.14 Whilst the boundary of a European site will usually be drawn to include key supporting habitat for a qualifying species, this cannot always be the case where the population for which a site is designated or classified is particularly mobile. Supporting habitat in areas beyond the boundary of a SAC or SPA which are connected with or 'functionally linked' to the life and reproduction of a population for which a site has been designated or classified should be taken into account in an HRA. However, that assessment will need to determine how critical the area may be to the population of the qualifying species and whether the area is necessary to maintain or restore the favourable conservation status of the species. Effects which would not be acceptable within the boundary of a European site may or may not be acceptable if they occur on functionally linked land or sea.¹⁷

4.15 Alongside the Habitats Regulations, the Wildlife & Countryside Act 1981 (as amended) forms the backbone to nature conservation legislation in England, accounting for the

¹⁷ Natural England (2016), Functional linkage: How areas that are functionally linked to European sites have been

considered when they may be affected by plans and projects - a review of authoritative decisions' [Online] Available at: file:///C:/Users/Wallwork_L/Downloads/NECR207_edition_1.pdf

designation of SSSI, National Parks and establishing Public Rights of Way.

4.16 Natural Environment & Rural Communities (NERC) Act 2006, Section 40, requires local authorities to ensure that conserving biodiversity is an integral part of policy and decision making. Section 41 lists the habitats and species of 'principal importance for the purposes of conserving biodiversity'. The NERC Act also cites that local authorities must pay regard to the United Nations Environmental Programme Convention on Biological Diversity of 1992.

4.17 In addition, local authorities must adhere to the commitments made by the Government in its Biodiversity 2020 Strategy whose mission is:

'to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.'

4.18 The Draft Environment (Principles and Governance) Bill 2018 is a landmark bill that sets out to place the ambitions of the 25 Year Environment Plan (YEP) on a statutory footing by creating a new governance framework for the environment. The Bill was introduced to Parliament in 2020 but delayed by the Covid-19 Pandemic.

4.19 Provisions require Biodiversity Net Gain (BNG) to be demonstrated through new development (currently set at 10%). Provision for off-site provision of biodiversity enhancements may also provide an additional funding mechanism for Green Infrastructure improvements. The Bill also supports establishment of Local Nature Recovery Strategies (to be led by Local Nature Partnerships, piloted in 2020/21) and gives communities a greater say in the protection of local trees.

National policy context

4.20 The 25 Year Environment Plan (25YEP) commits to embed the principle of 'environmental net gain' into development, such as housing and infrastructure, and calls for Nature Recovery Areas (delivered by a Natural England-led partnership) as important parts of developing Ecological Networks. Ambitions of the Plan include the restoration of 5% protected sites to favourable condition by 2042, creation or restoration of 500,000ha of wildlife-rich habitat outside the protected site network, increases in woodland cover, soil health and restoration of peatlands.

4.21 In terms of national planning policy, paragraph 170 of the NPPF (2019), states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'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); recognising... 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; and minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'.

4.22 Paragraph 171 of the NPPF states that plans should:

'distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'

4.23 Paragraph 174 of the NPPF states that in order to protect and enhance biodiversity and geodiversity, plans should:

'Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'

4.24 Paragraph 175 of the NPPF states that when determining planning applications, local planning authorities should apply the following principles:

'a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be

permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'

4.25 Paragraph 176 of the NPPF states that the following should be given the same protection as habitats sites:

'a) potential Special Protection Areas and possible Special Areas of Conservation;

b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'

4.26 The revised Planning Policy Guidance (PPG) notes that along with other partners, local authorities should consider opportunities to enhance biodiversity on site as well as connecting to other wildlife habitats as part of the Nature Recovery Network, in individual planning applications.

4.27 Features of the natural environment to be considered within the network range from the underpinning geological and bio-geographical character to the location and extent of designated, priority and irreplaceable habitats; from existing landscape features and potential new corridors that support migration, dispersal and gene flow, to areas identified for habitat enhancement or restoration. By its nature, such a network would help biodiversity adapt to, and increase resilience against, climate change.

4.28 Keepers of Time (2005)¹⁸ provides a statement of policy for England's ancient and native woodland and outlines the Government's commitment and 2020 vision for Ancient Woodland, notably that:

'Ancient woodlands, veteran trees and other native woodlands are adequately protected, sustainably managed in a wider landscape context, and are providing a wide range of social, environmental and economic benefits to society.'

4.29 The document provides a number of key policies relating to the protection and management of Ancient Woodland as it recognises their value and their need for protection.

Local policy context

4.30 Both the Dee Estuary and the Mersey Estuary are home to internationally important wildlife, as well as offering key tourist and recreational destinations; important work by the Council, NGOs and local volunteer groups serves to strike balance between these needs. The entire shoreline of the peninsula is variously designated (both nationally and internationally) for nature conservation and forms an integral part of the wider protected north west coast.

4.31 The Draft North West Marine Plan (produced under Section 51 of the Marine and Coastal Access Act 2009) was published for public consultation on 14 January 2020, at which point it became a material consideration for decision makers, applicants and other users of the north west marine plan areas. The Plan introduces a strategic approach to planning within the inshore and offshore waters between the Solway Firth border with Scotland and the River Dee border with Wales. It aims to inform decision making by marine users and regulators on where activities might take place within the marine plan areas, which extend seawards from the Mean High Water Mark out to the 12 mile limit, split into inshore and offshore Marine areas.

4.32 The saved policies of the Unitary Development Plan (adopted 2000), Section 13: Nature Conservation¹⁹ that recognise and protect designated sites and protected species during the development planning and consent process are listed below.

- Policy NCO1: Principles for Nature Conservation.
- Policy NC1: Protection of Sites of International Importance for Nature Conservation.
- Proposal NC2: Sites of International Importance for Nature Conservation (references the approach to determination of applications in accordance with Policy NC1).

¹⁸ DEFRA & Forestry Commission England (2005) Keepers of Time: A Statement of Policy for England's Ancient & Native Woodland

¹⁹<https://www.wirral.gov.uk/sites/default/files/all/planning%20and%20building/Local%20plans%20and%20planning%20policy/Local%20plans/Unitary%20Development%20Plan/UDP%20Written%20Statement%20Sections/11.%20Nature%20Conservation.pdf>

- Policy NC3: Protection of Sites of National Importance for Nature Conservation.
- Policy NC4: Sites of National Importance for Nature Conservation.
- Policy NC5: Protection of Sites of Local Importance for Nature Conservation.
- Policy NC6: Sites of Biological Importance.
- Policy NC7: Species Protection.
- Policy NC8: Local Nature Reserves.
- Policy NC10: Protection of Sites of Importance for Earth Science.
- Proposal NC11: Sites of Local Importance for Earth Science.

4.33 The Core Strategy (Proposed Submission Draft, 2012), Policy CS33: Biodiversity & Geodiversity addressed the protection and enhancement of natural environmental assets, provision of net gain in biodiversity and delivery of coherent ecological networks. This draft preceded the current aspirations for BNG set out in the Draft Environment Bill. Habitats Regulation Assessment (HRA) of the Draft Wirral Core Strategy was undertaken in 2012 and concluded that a sufficient policy framework existed to enable the avoidance or mitigation of potential adverse effects on sites of international importance within Wirral.

4.34 Consultation on the emerging Wirral Local Plan 2020-2035 Issues & Options was undertaken in 2020. No new Plan policies are yet set out. The Issues and Options document was subject to HRA (AECOM, 2019). Key findings and recommendations are summarised under the subheading of 'Functionally Linked Habitats' below.

4.35 The Liverpool City Region (LCR) Combined Authority is preparing a Recreation Mitigation Strategy (RMS) to address the impact of growth across the region on sites of international importance. It will enable sustainable housing and tourism development, whilst securing sustainable, long term protection of the international site network. A policy setting out Wirral MBC's approach to recreation mitigation will be included in the emerging Local Plan, which will include a recreation avoidance and mitigation mechanism in advance of the LCR RMS publication. The policy is anticipated to require mitigation for recreational disturbance from new residential development within 5km of the coast, funded by a combination of access management, habitat management and provision of alternative recreational space, to be secured through legal agreement before permission is granted.

4.36 Wirral MBC has commissioned a Green and Blue Infrastructure (GBI) Strategy which will identify opportunities for GBI projects and enhancement. Where possible, identified

GBI opportunities will be overlaid with the findings from this study to ensure that GBI opportunity areas are not sterilised or fragmented by development. It is envisaged that GBI opportunities will help to link ecological assets and align with any future Local Nature Recovery Strategy. GBI is multifunctional and so the consideration of GBI opportunities and enhancement projects will be relevant to a number of the themes in this study.

Local biodiversity and geodiversity considerations and current pressures

4.37 Wirral's biodiversity and geodiversity assets are summarised below, along with an indication of current local pressures and how they might be expected to change in the future.

Internationally Designated Sites

4.38 The international SPA and Ramsar sites around the Wirral peninsula are all important for non-breeding birds with the Dee Estuary also being important for some breeding birds. These designations include:

- Mersey Estuary SPA & Ramsar.
- Mersey Narrows and North Wirral Foreshore SPA & Ramsar.
- Dee Estuary SPA & Ramsar.
- Liverpool Bay SPA (extends seaward of the above listed coastal designations).
- The Dee Estuary SAC is important for a range of features including its intertidal sediments, reefs, saltmarsh and sand dunes.

4.39 The Mersey and Dee Estuaries each support significant wintering and passage water bird populations. The Mersey Estuary is relatively linear and supports a wide belt of peripheral salt marsh, intertidal sand and mud flats, rocky shoreline and boulder clay cliffs. Urban and industrial areas of Wirral and Birkenhead front the Estuary designation. This coupled with the more silt-based rather than sand-based substrates in part account for the lower level of recreational use than is seen on the northern coast. Permits control activities including cockle picking. Installation of groynes (part of coastal process management) support additional wetland bird feeding habitats.

4.40 The Mersey Narrows and North Wirral Foreshore SPA extends from the mouth of the Mersey to the Dee and, at the western end, overlaps the Dee SAC. This wide area encompasses saltmarsh, and intertidal sand and mud flats habitat, with limited brackish marsh, rocky shoreline and boulder clay cliffs.

4.41 The Dee Estuary SPA & Ramsar is a funnel-shaped, sheltered estuary that supports extensive areas of intertidal sand flats, mud flats and saltmarsh. The saltmarshes grade into transitional brackish and swamp vegetation on the upper shore²⁰. The section of Wirral coastline along the Dee is less industrially developed than the Welsh section and sees higher levels of recreational access.

4.42 Current pressures on these coastal assets include:

- Recreational pressure, public access and disturbance – dog walking (particularly associated with the main access points/car parks, such as New Brighton and Hoylake), walking, kite surfing (notably at Red Rocks and Hoylake), paddle sports, trail bikes (increasing use at West Kirby/Hoylake to the Hilbre Islands), unauthorised fly tipping and littering.
- Invasive species introduction.
- Social and economic pressures to return the foreshore back to sandy beaches.
- Sedimentation of the foreshore which reduces the available low tide feeding habitat and causes vegetation succession (particularly at North Wirral Foreshore).
- Coastal squeeze and development pressure.
- Climate change.
- Water pollution / run-off.

Functionally Linked Habitats

4.43 The term 'functionally linked habitats' refers to those areas outside of designation, but which are integral to the integrity of the designation and/or favourable conservation status of qualifying species therein. Examples in Wirral principally relate to inland agricultural land, wetlands and grasslands which can support a significant proportion of the wintering wetland bird populations of the coastal SPA and Ramsar sites.

4.44 To reflect their importance, functionally linked habitats are assessed as part of the HRA process. The Interim HRA of Wirral's Local Plan 2020-2035 (AECOM, 2019) recognises that:

'the identification of an area as functionally linked habitat is now a relatively straightforward process. However, the importance of non-designated land parcels may not be apparent and require the analysis of existing data sources to be firmly established. In some instances, data

may not be available at all, requiring further survey work.'

4.45 Wirral MBC uses the BTO WeBS Core count areas as a proxy to inform HRA Screening, providing additional refinement to the SSSI Impact Risk Zones (IRZ). This dataset has been used in the preliminary identification of the functionally linked habitats for the purposes of this assessment.

4.46 The Interim HRA states that:

'Given that Wirral is surrounded by European sites designated for mobile waterfowl, it is possible that the allocation of greenfield sites (i.e. parcels of land without any existing development) would result in the loss of functionally linked habitat. The main concern would be about the loss of greenfield sites in the western part of Wirral, which mostly constitute agricultural land. Many SPA and Ramsar birds, such as golden plover and particularly geese and swans, forage in agricultural stubble in winter. Most notably, the Ribble and Alt Estuaries SPA and Ramsar, along the coast of Sefton is designated for species like pink-footed goose. These species are dependent on agricultural land and are known to travel long distances to their foraging sites. The Cheshire and Wirral Bird Atlas provides winter distribution maps for bird species within the wider area²¹ and the atlas will be consulted as supporting evidence in assessing the impact pathway loss of functionally linked habitat. In addition, the dock system in eastern Wirral which forms much of the Wirral Waters development area, is also functionally linked habitat for a range of qualifying features, including breeding common tern (Mersey Narrows and North Wirral Foreshore SPA and Ramsar) and; cormorant and great crested grebe (part of the waterbird assemblage of several European sites).'

4.47 Potential impacts on functional habitats associated with the international coastal designations around Wirral peninsula primarily relate to recreational pressure, direct land loss, other noise and visual disturbance, and air and water pollution.

4.48 The Interim HRA considers designations within a 10km buffer, reflecting the direct and indirect impacts that residential development within the Borough may have on designations in the wider area. In response to the potential cross-boundary issues flagged in Wirral - and other local Boroughs - HRAs, the LCR local authorities have commissioned a Recreation Mitigation Strategy (RMS) in partnership with Natural England and the National Trust to address current and future pressures

²⁰ Informed by Natural England's Site Improvement Plans
<http://publications.naturalengland.org.uk/publication/6579320399069184?map=true&category=6329101765836800>

²¹ Cheshire and Wirral Bird Atlas
<http://www.cheshireandwirralbirdatlas.org/species/>

on all international designations holistically. The RMS is anticipated to be published by the close of 2020. It is recognised that this environmental sensitivity assessment is drafted in advance of the RMS and may subsequently require iteration, for example, to reflect precise boundaries of functionally linked habitat at the land parcel level, or recommendations for the application of buffers within which specific additional nature conservation planning levies apply.

National Designated Sites

4.49 SSSIs along Wirral's coastline include the Mersey Estuary, New Ferry, Mersey Narrows, North Wirral Foreshore, Dee Estuary and Red Rocks. These sites are all important for their non-breeding birds with some important for features including saltmarsh, intertidal sediment communities, sand dunes and breeding birds. Pressures are as described for the international designations within which they sit (see previous subheading).

4.50 In addition, Dee Cliffs SSSI lies commensurate to the Dee Estuary SSSI. This clay cliff, bank habitat and marl pits support a rich flora and fauna spanning herb-rich neutral grassland, to freshwater, marshy grassland and willow carr. The unit is in unfavourable condition relating principally to water quality.

4.51 Inland SSSIs include:

- Meols Meadows SSSI – damp unimproved neutral grassland, with level fields separated by ditches containing tall fen vegetation. All units in unfavourable condition (some recovering) relate to intensive grazing or lack of appropriate scrub management.
- Thurstaston Common SSSI – lowland heathland of similar character but greater area and botanical diversity than Heswall Dales. This SSSI provides an important habitat for passage, wintering and breeding birds. Recreational pressure is recognised to adversely impact the heath habitats. All units are in unfavourable, recovering condition through appropriate management of scrub colonisation. Water availability is also noted to be of concern.
- Heswall Dales SSSI – lowland heathland including dry heath, damp heath acidic marshy grassland and open watercourse habitats. In addition to recreational pressure, habitat connectivity has reportedly been impacted as a result of local residential development. The unfavourable, recovering condition of vegetation

within this SSSI unit is subject to management measures.

- The Dungeon SSSI – a small wooded ravine, which shows a natural stream section through the Tarporley Siltstone Formation of the Mercia Mudstone Group, of Triassic age. The geological features of this SSSI are in favourable condition.
- Dibbinsdale SSSI – predominantly semi-natural broad-leaved woodland, with reed swamp, fen pasture, neutral grassland and calcareous springs extending along the Dibbinsdale and part of Clatter Brook corridors. Of the six units, five are in unfavourable condition, primarily as a result of invasive species and ash die-back disease.

4.52 Five of the Borough's SSSI (Dee Cliffs, Dibbinsdale, Meols Meadows, Red Rocks and North Wirral Foreshore), are not currently considered to be meeting the Government's Public Service Agreement Target to have at least 95 percent of the SSSI in favourable or recovering condition²².

Locally Designated Sites

4.53 Statutory designated sites include LNRs which are designated for both wildlife and public enjoyment and appreciation thereof. The LNRs are Thurstaston Common, Heswall Dales, Bidston Moss (at the northern end of Wirral docks / Bidston Moss corridor), Hilbre Island, and Brotherton Park & Dibbinsdale.

4.54 Non-statutory designations include the network of Local Wildlife Sites (LWS), potential LWS and Local Geological Sites (LGS), identified and monitored by Wirral MBC. Their condition is assessed by Wirral Wildlife, with updates to the LWS register reflecting those to be added or removed from the designation list. The dataset used for the current study was provided by Wirral MBC in spring 2020.

4.55 The LWS network forms a key component of the Core Biodiversity Areas identified in the Liverpool City Region Ecological Network (described under the subheading 'Priority Habitats' below).

Ancient Woodland

4.56 There are ten areas of designated ancient woodland within the Borough. All are clustered towards the south-east of the area, at Eastham Woods, Plymyard Dale, Stream Wood, Thornton Wood, Intake Wood, Foxes Wood, Footpath Wood, Marfords Wood, Railway Wood and Patricks Wood. Ancient woodland still lines the River Dibbin, much of these areas are

²² Natural England Wirral Monitoring Report 2018 December 2018/<https://designatedsites.naturalengland.org.uk/SiteList.aspx?siteName=&countyCode=28&re>

open to the public and are home to plants such as wood anemones, bluebells and other flowers. These woods are also important for invertebrates, bats and birds.

4.57 Whilst the ancient woodland site network is, to some degree, buffered and connected by deciduous broad-leaved and mixed woodlands, these remain subject to relatively high levels of recreational access by virtue of their close proximity to, and enjoyment by, local residents. Areas of woodland within steeper watercourse valleys which are less accessible may support a more diverse and representative assemblage.

Priority Habitats

4.58 The Priority Habitat Inventory identifies a broad range and distribution of terrestrial and coastal habitats within the Borough, including:

- Large areas of coastal saltmarsh in the Dee Estuary to the south-west and Mersey Estuary to the south-east of the Borough;
- Two notable sites of coastal sand dunes along the northern coast of the Borough;
- A large mudflat area in the Mersey Estuary, with a smaller mudflat area in the Dee Estuary;
- Significant clusters of coastal and floodplain grazing marsh in the north of the Borough;
- A scattering of lowland heathland, mostly towards the western border of the Borough; and
- Small, isolated pockets of wood pasture and parkland throughout the area²³.

4.59 Mapping of local conservation priorities is provided in the 2015 LCR Ecological Network²⁴. The Network comprises:

- Core biodiversity areas (2,599ha within Wirral²⁵) – principally include nature conservation designations and habitats of local conservation priority.
- Linear features – habitat ‘corridors’ of both inherent ecological value and which facilitate connection between core areas. These include rail, road and canal corridors as well as natural features such as rivers.
- Stepping stones (60ha, principally ponds and standing waterbodies) – habitat patches that facilitate movement of species between otherwise distant refuges i.e. increasing the ‘permeable matrix’ of a landscape that is intensively managed and/or of restricted diversity.

- Nature Improvement Areas (NIA) (13,013ha) – large, discrete areas intended to deliver a step change in nature conservation, with significant improvements for wildlife and people through the sustainable use of natural resources. Providing a finer ‘grain’ to the national NE habitat network mapping (based around Priority Habitat mapping), NIA form the foci for strategic habitat reconnection, restoration and creation.

4.60 Both linear features (corridors) and stepping stones can help build resilience within a network by optimising connectivity, restoring natural processes and accommodating dynamism.

4.61 The nature of pressures on the priority habitat network broadly reflects those on the designated assets described above. Additionally, localised loss or fragmentation as a result of development, and intensification of agricultural land use are also of concern.

4.62 It is recognised that an update of the Phase 1 habitat mapping across the Borough (which dates from the 1980s) is to be commissioned, which will in due course inform any future review of the Ecological Network and ensure this most appropriately serves to direct Biodiversity Net Gain delivery in the Borough, complementary to any future Local Nature Recovery Strategy.

Local Geological Sites

4.63 Local geological sites, also known as Regionally Important Geological Sites (RIGS), have been selected locally on the basis of their conservation and education value. Wirral has 15 RIGS, which include a number of former but long-lapsed quarries and cuttings as well as natural formations. These are non-statutory sites but are protected under Policy NC10 of Wirral's Unitary Development Plan. These sites are not replaceable and may be affected by accelerated erosion or climate change.

Nature Improvement Areas (NIAs)

4.64 As part of the Liverpool City Region Ecological Network mapped by MEAS, the NIAs are: *‘large, discrete areas that are intended to deliver a step change in nature conservation, offer significant improvements for wildlife and people through the sustainable use of natural resources, provide opportunities to restore and create wildlife habitats, and enhance connectivity between local sites.’*

4.65 These areas form part of the strategy for the network by helping to understand where the most significant benefits can

²³ Wirral Local Plan 2020 - 2035 Issues and Options January 2020
²⁴ MEAS (2015) Liverpool City Region Ecological Network Report: Final

²⁵ Figures as listed in the (2015) LCR Ecological Network Report, Appendix 2

be achieved, and for targeting where the greatest gains can be achieved through habitat creation. They comprise elements of the Core Biodiversity Areas (designated sites and Priority Habitats), together with habitats and features of strategic importance, linear features such as rivers and canals, stepping stone sites and City Region BAP priority habitats.

4.66 In Wirral, these NIAs focus on: the Dee Estuary; the Mersey Estuary; the River Birket corridor; the East Wirral Heathlands; and Dibbinsdale and Raby Mere.

Sensitivity of assets

4.67 The capacity of each asset to withstand change, their significance and their overall sensitivity is summarised in **Table 4.2**.

Table 4.2: Sensitivity of biodiversity and geodiversity assets

Asset	Capacity to Withstand Change	Significance	Sensitivity
Statutory designations: international sites (SPA / SAC / Ramsar)	Susceptible All of the sites have been identified as being subject to numerous pressures and threats. Pressures relating to residential development include recreational pressure, noise and visual disturbance, air and water pollution.	International Afforded protection at the European level by the EC Habitats Directive, EC Birds Directive, the Convention on Wetlands of International Importance, and the UK laws that transcribe them.	Higher Avoid development
'Functionally linked habitat' supporting international designations (proxy measure)	Susceptible Habitats which lie outside of designation but are integral to the maintenance of populations for which a SPA or SAC is designated.	International Functionally linked habitats are considered within the HRA process, alongside internationally designated sites. Distinct land parcels would be considered on a case by case basis depending on evidence of bird assemblages present throughout the year. At this stage WeBS Core Count boundaries are used as a proxy measure. As this does not have legal recognition, no greater than Moderate sensitivity can be attributed at this stage. If defined boundaries for functionally linked habitat are identified in the future these would be of high sensitivity. ²⁶	Moderate Development would be subject to the highest level of scrutiny.
Statutory designations: national sites	Susceptible As with the internationally designated sites, these are	National Afforded protection at the UK level by the Wildlife &	Higher Avoid development

²⁶ It is recognised that the core count boundaries may not capture all functionally linked habitats and may include some overestimation. Their inclusion in this assessment reflects a consistent approach with that of the council's current decision-making process in relation to legal and policy protection of habitats. It is recommended that the

assessment be reviewed when, in due course, functionally linked land spatial data is available (either from a Natural England study of the wider LCR or a Wirral MBC study). It is recognised that a greater area of land may be then identified as high sensitivity across Wirral (owing

Asset	Capacity to Withstand Change	Significance	Sensitivity
(SSSI)	susceptible to a variety of development pressures and some are currently in unfavourable condition.	Countryside Act 1981, and the CROW Act 2000. Component habitats and species may also be protected under the Habitat Regulations 2017.	
SSSI Impact Risk Zones that identify residential development as a risk	Susceptible A tool to identify locations in which residential development could have an adverse impact on SSSIs, reflecting the sensitivity of qualifying features to the nature of impact/s and the current condition of the designation (i.e. whether this is close to or has already exceeded critical threshold).	National Identified in relation to specific sites that are designated at the UK level.	Moderate Development may be possible in some locations.
Local wildlife sites: (LWS / pLWS / LNR)	Susceptible While these sites tend not to support habitats and species that are as vulnerable to change as nationally or internationally designated sites, they do support populations of badgers, bats, viviparous lizards and newts across Wirral. They also support the core biodiversity areas within the ecological network both across Wirral and connecting to neighbouring Boroughs.	Local Not afforded any statutory protection but protected by local planning policy.	Moderate In accordance with the mitigation hierarchy, development should avoid, or where this is not possible mitigate, any adverse impact. Enhancement of biodiversity would also be required.
Ancient woodland	Susceptible Ancient woodland includes land that has been continuously wooded since at least 1600AD and is therefore irreplaceable. Recognising the importance of soils and seed banks, ancient woodland may be identified on land supporting relatively sparse or young tree cover.	National Whilst not strictly protected under UK law, conservation of ancient woodland is given importance by the NERC Act 2006, by national policy and the supporting tools for implementation, such as the DEFRA Metric 2.0 for BNG as a recognised 'irreplaceable habitat'	Higher Avoid development

to the importance placed on functionally linked land through the HRA process, which cannot otherwise be attributed to the core count data).

Asset	Capacity to Withstand Change	Significance	Sensitivity
Priority Habitats	Susceptible The broad range of terrestrial and aquatic habitat types listed as priority in Wirral incur differing sensitivities to residential development. Impacts include habitat loss and fragmentation, intensification of land use, recreational impact, air and water pollution.	Local The NERC Act 2006 and national planning policy which require local authorities to further the conservation of biodiversity as part of their activities.	Moderate Development may be possible in some locations
Local Geological Sites (RIGS / LGS)	Susceptible Sites supporting geology of local or 'less than national' importance, which may be present as surface features or buried at depth.	Local Not afforded any statutory protection but protected by local planning policy.	Moderate Development should avoid or fully mitigate potential adverse impact on the feature/s of interest
Nature Improvement Areas (NIAs)	Susceptible These areas support the core biodiversity areas within the ecological network both across Wirral and are important in highlighting valuable connections between assets at the landscape-scale.	Local Not afforded any statutory protection but protected by local planning policy.	Moderate Development may be possible in some locations

Sensitivity of biodiversity and geodiversity assets in Wirral

4.68 The sensitivity of the Borough's biodiversity and geodiversity assets has been mapped in **Figure 4.2**.

4.69 Wirral's marine and coastal assets are identified as being highly sensitive. The supporting areas within the 'WeBS core count' boundaries capture the habitats along and inland of the coastal fringe, focused on the north and west of the peninsula, as well as narrow stretches fronting the eastern estuary.

4.70 Inland, areas of high sensitivity are concentrated around vulnerable assets such as the ancient woodland of the Dibbin Valley and at Eastham, the overlapping designated assets around Royden Country Park, and the designated assets within the Heswall Dales, as well as a limited area of SSSI within North Wirral Country Park.

4.71 In addition, there is a more expansive area mapped as 'moderately sensitive' in terms of ecology and geology. Most of this relates to the SSSI Impact Risk Zones (IRZs) designed to safeguard the integrity of the Borough's SSSIs. However, the more sensitive areas within these broader swathes of land generally relate to concentrations of local designations. The majority lie in the west of the Borough – particularly around coastal assets such as Wirral Country Park, areas within the River Birket Corridor and at the Royal Liverpool golf club. However, there are also some areas of higher sensitivity on the outskirts of Birkenhead - around Bidston Moss and Bidston

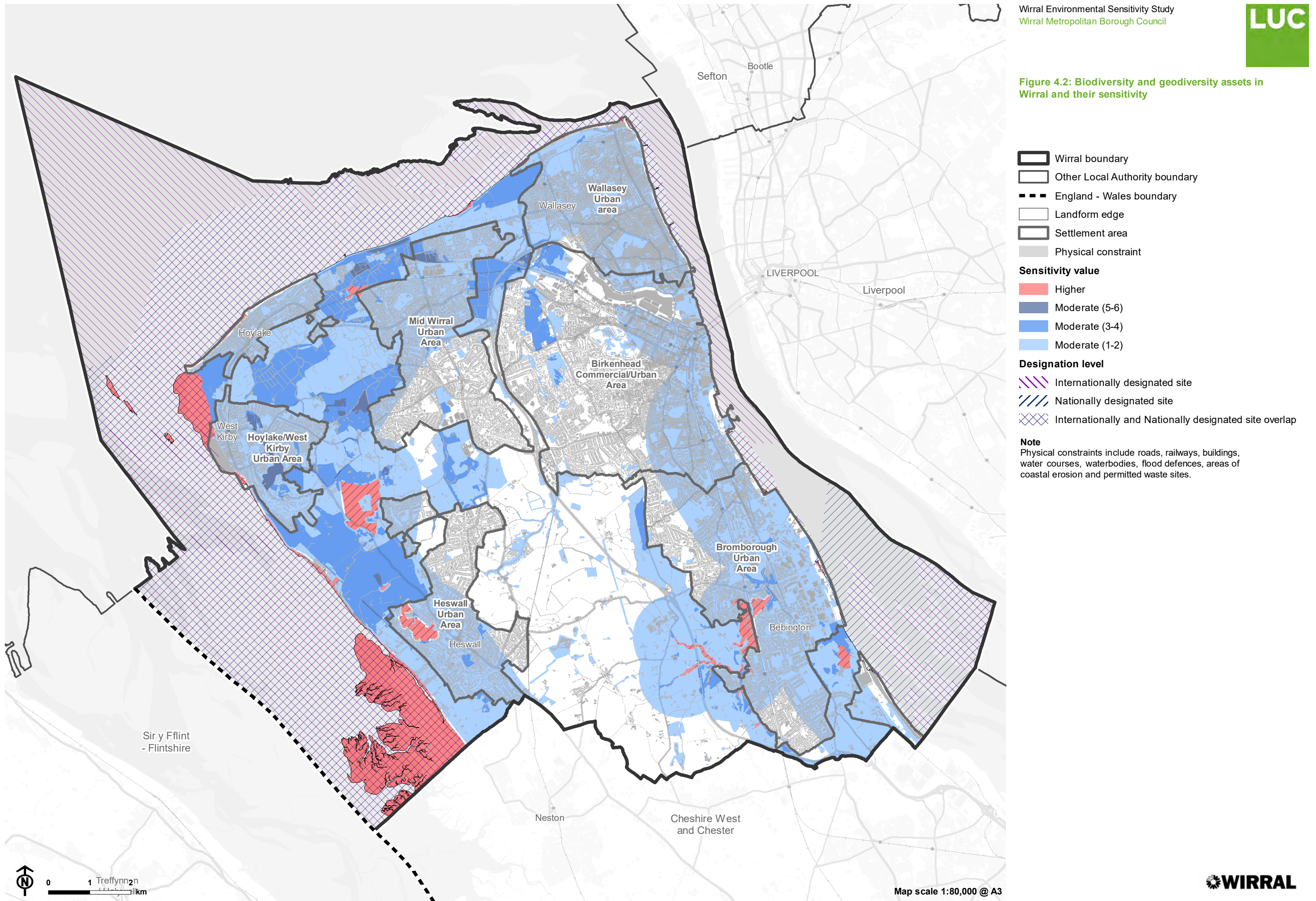
Hill - and further areas in the north at North Wirral Coastal Park.

4.72 **Figure 4.2** shows that, when considering ecological and geological assets, areas of lower sensitivity are largely in the centre of the Borough and located away from vulnerable coastal habitats. However, even in these areas there are pockets of moderate sensitivity, often concentrated along river corridors running through the Peninsula.

4.73 When considering ecological sensitivities in Wirral, it is important to bear in mind the data limitations summarised under **Table 4.1**. In particular, these relate to the role of 'functionally linked habitat' in supporting Wirral's designated assets, and the gaps in the data which allow this study to adequately map where these habitats are located and where they need a greater degree of protection. As a result, pending further studies to clarify the location of these areas, caution should be exercised and qualitative judgement of the need for habitat protection will be an important addition to the quantitative mapping presented here.

4.74 The sensitivity of the Borough as a whole, i.e. presenting the sensitivity of all environmental assets in one composite map, is considered in **Chapter 10**.

Figure 4.2: Biodiversity and geodiversity assets in Wirral and their sensitivity



Chapter 5

Core Theme 3: Applying Sensitivity Values to Water and Coastal Environment Assets

Introduction

5.1 This section considers the environmental sensitivity of water and coastal environment assets in Wirral. For example, the rivers, lakes and coastline across the Peninsula.

Overview

5.2 Two Sub Themes have been identified under Core Theme 3:

- **Sub Theme 3.1:** Water assets and water quality.
- **Sub Theme 3.2:** Flood zones and coastal change.

5.3 For each Sub Theme, the following information is presented:

- Data sources and any limitations.
- The importance of the asset.
- Overview of important legislation/ national planning policy.
- Local policy context.
- Assigned sensitivity ratings.

5.4 Table 5.1 sets out the assets that have been considered; relevant data sets and the source of the data.

5.5 Figure 5.1 maps the assets to show the water and coastal environment baseline of the Borough.

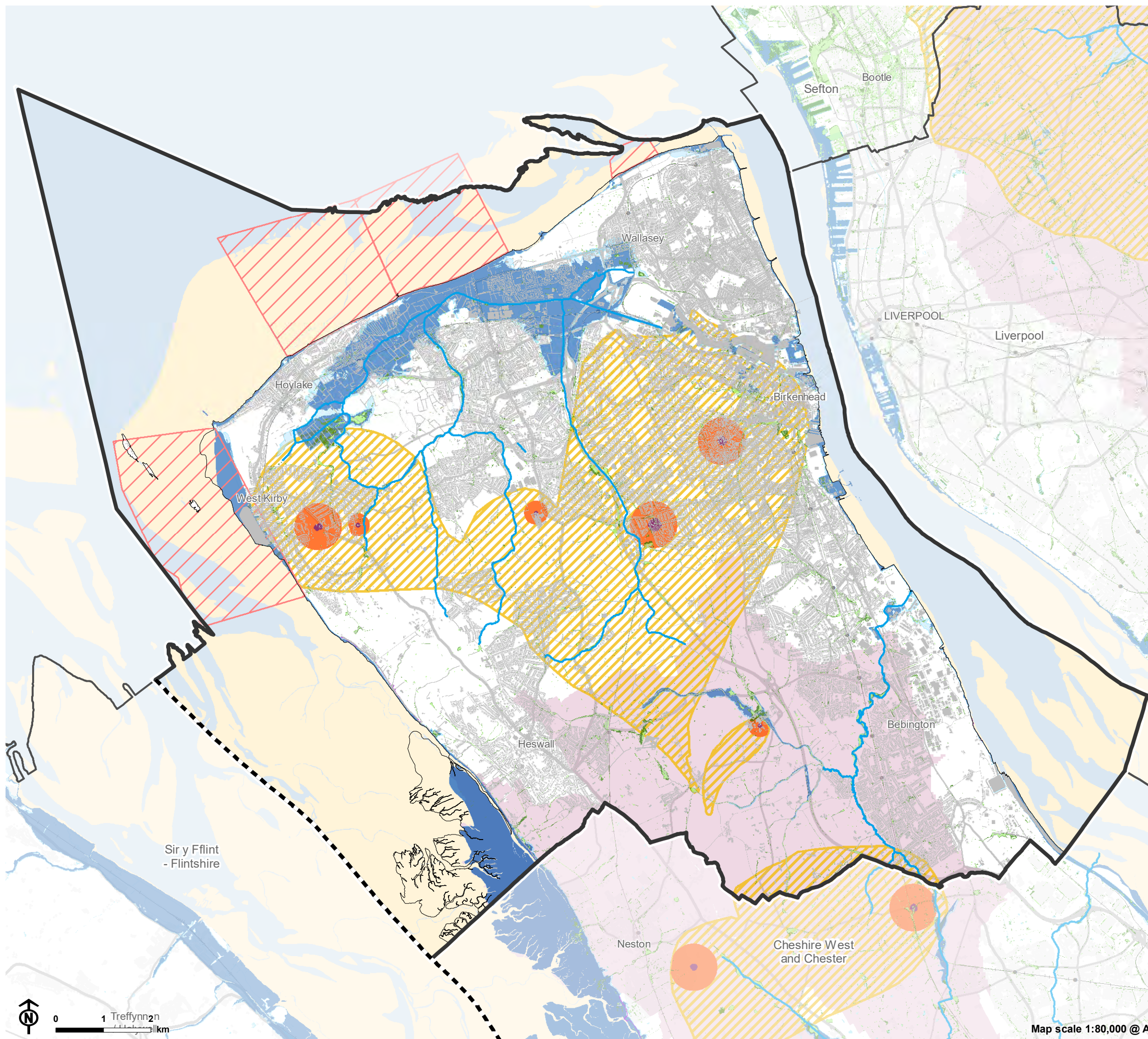
Table 5.1: Water and coastal environment – assets and data sources

Sub Theme	Data Set	Data Source
Water assets and water quality	Water bodies	Wirral MBC and Environment Agency
	Source Protection Zones	Wirral MBC and Environment Agency
	Nitrate Vulnerable Zones	Wirral MBC and Environment Agency
	<i>Data set used for contextual mapping, but not assigned sensitivity ratings</i>	
	Designated Bathing Waters	Environment Agency
Flood zones	Flood zones (2, 3a and 3b), land subject to surface water flooding, and flood storage areas	Environment Agency
Coastal Change	Areas affected by coastal change (National Coastal Erosion Risk Mapping 2018)	Environment Agency

Data limitations

- No significant data limitations identified.

Figure 5.1: Water and coastal environment assets in Wirral



- Wirral boundary
- Other Local Authority boundary
- England - Wales boundary
- Landform edge
- Physical constraint
- Areas affected by coastal change
- Bathing water
- Nitrate vulnerable zone
- Flood zone 2
- Flood zone 3
- Risk of flooding from surface water (1 in 30 year annual chance)
- Risk of flooding from surface water (1 in 100 year annual chance)
- River
- Waterbody

Source protection zone

- 1
- 2
- 3

Note

Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Sub Theme 3.1: Water assets and water quality

Why are these assets important?

5.6 Water is a fundamental natural resource, and the need for clean water to drink is an essential human need. In addition to this most basic of needs, water is required for agriculture, for power generation and to supply industries and homes. Water assets provide provisioning ecosystem services such as fresh water, regulating services such as climate and flooding regulation, supporting services such as water cycling, and cultural services such as opportunities for recreation and tourism.

Legislation

5.7 The European Water Framework Directive (2000) became part of UK law in 2003, through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. It acts in relation to river basin districts. The Framework has been amended by The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations 2017. The Environment Agency is the lead body on the Water Framework Directive, but all organisations are expected to help deliver it.

5.8 Regulation 33 of The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 places a duty on each public body, including local authorities, to 'have regard to relevant River Basin Management Plans when exercising their functions. This means they must ensure they neither undertake nor authorise a project which may jeopardise:

- The current status of a WFD element or cause its deterioration;
- The attainment of good status;
- Pollution reduction measures; and
- Standards and objectives for protected areas.'

5.9 The emerging Environment Bill (2020) references new powers to direct water companies to work together in order to meet current and future water demand and to enable more resilient solutions to drought and flooding. The water measures in the Environment Bill will help to secure long-term, resilient water and wastewater services. It is to set in place a legal framework for water following the UK's exit from the EU.

National policy context

5.10 One of the key aims of the government's 25 Year Environment Plan (25YEP) is to "deliver cleaner air and water in our cities and rural landscapes". As such, one of the key

policies included in the document is to introduce new farming rules for water. The Plan discusses the risk of chemical contamination in our water, from a range of sources – including water treatment plants, use of agricultural pesticides, abandoned infrastructure such as mines, atmospheric deposition and road runoff. Its stated goal is to improve water quality, reverse the deterioration of groundwater, and reduce emissions of harmful substances.

5.11 The 25YEP also addresses the need beyond our coastlines to "do more to protect the seas around us and marine wildlife".

5.12 The Climate Change Act (2008) requires the Government to compile, every five years, its assessment of the risks and opportunities arising for the UK from climate change. The 2017 Risk Assessment identifies six urgent climate change risks for the UK, including:

- Risk of shortages in the public water supply, and for agriculture, energy generation and industry, with impacts on freshwater ecology.
- Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity.

5.13 Future Water: The Government's Water Strategy for England (2008) outlines the Government's vision for how the water sector will look by 2030 and an outline of the steps which need to be taken to get there. The vision for 2030 proposes that the water sector will have:

- 'Improved the quality of our water environment and the ecology it supports, and continue to maintain high standards of drinking water quality from taps;
- Sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water;
- Ensured a sustainable use of water resources, and implemented fair, affordable and cost-reflective water charges;
- Cut greenhouse gas emissions; and
- Embedded continuous adaptation to climate change and other pressures across the water industry and water users.'

5.14 Addressing the potential adverse impacts of water pollution resulting from development, Paragraph 170 of the NPPF states that:

'The planning system 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.'

5.15 Paragraph 149 requires that:

'Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures.'

5.16 A recent DEFRA report documenting progress on the 25YEP showed that the UK government is not on course to achieve the goals set out in the Environment Plan, and that only 16% of England's surface water bodies are in a 'high' or 'good' condition status (against a target of 75% as soon as practicable), and that this percentage is declining.²⁷

Local policy context

5.17 Policy WA3 (Development and Groundwater Protection) of Wirral's Unitary Development Plan (UDP) states that:

'In considering proposals for development, the Local Planning Authority will have regard to the need to protect sources of groundwater [...] Particular attention will be paid to proposals for mineral extraction, waste disposal, industrial and chemical processes.'

5.18 Policy WA6 (Development within River Corridors) goes on to state that, in considering proposals for development within river corridors:

'the Local Planning Authority will have regard to the need to conserve or enhance the natural character of these watercourses or encourage appropriate water-based or waterside recreation...'

5.19 The Wirral Water Cycle Study (2013) identifies water cycle constraints that may impact on planned housing and employment growth for the Borough up to 2027. It also outlines how these constraints may be overcome. In particular, the study suggests that the sandstone aquifer underlying most

of Wirral is at the limit of available resources without causing adverse impact on rivers and ecosystems that rely on it, hence further abstraction from this resource is unlikely in the future. It highlights that, given appropriate management, the three growth scenarios assessed are likely to be fully catered for by the provision of supply set out in the Water Resource Management Plan (WRMP). However, it will be prudent to promote higher levels of water efficiency in new homes and commercial buildings, to reduce water demand and achieve the sustainable use of water.

5.20 The Ecological Assessment which forms part of the water cycle study shows that growth is unlikely to jeopardise achievement of the Water Framework Directive (WFD) for all identified designated sites, provided certain measures are employed, which should be considered as part of the HRA process.

Local water body considerations and current pressures

5.21 Wirral's water body assets and water quality issues are summarised below, along with an indication of current local pressures on these assets and how they might be expected to change in the future.

5.22 Both the Dee Estuary and the Mersey Estuary are home to internationally important wildlife, as well as offering key tourist and recreational destinations; important work by the Council, NGOs and local volunteer groups serves to strike a balance between these needs. The entire shoreline of the peninsula is designated both nationally and internationally for nature conservation and forms an integral part of the wider protected north west coast.

Rivers

5.23 Across Wirral's Operational Catchment there are 42km of waterways made up of five rivers – the River Birket (including Arrowe Brook and Fender), and Dibbinsdale and Rivacre Brooks to the south. These rivers are fed by a number of small tributaries and all of these rivers flow into the River Mersey. Land use in the operational catchment is a mixture of agricultural and urban. According to the Environment Agency, this is reflected in the water quality issues experienced across Wirral including diffuse pollution from a combination of road run-off and rural diffuse pollution.²⁸

5.24 Of the three water bodies (all rivers, canals, or surface water transfers) in Wirral defined by the Environment Agency, in 2016, two of these were assessed as being of 'moderate' ecological status and one as being 'poor'. All were assessed as having 'good' chemical status. The reasons for not

²⁷ DEFRA (2020), 25 Year Environment Plan Progress Report (April 2019 to March 2020)

²⁸ Environment Agency (accessed July 2020), 'Wirral – Summary' [Online] Available at: <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3540/Summary>

achieving good status (RNAGS) were predominantly related to agriculture and land management, however 'urban and transport' influences were stated as a secondary reason.

5.25 River geomorphology is also a noted concern, given the extensive physical modifications and disconnections of Wirral's rivers,²⁹ particularly along the Birket and Fender. This relates to the interactions between the physical shape of rivers, their water and sediment transport processes, and the landforms they create. Physical modifications can cause flow issues and habitat degradation.

Other water bodies

5.26 There are a number of natural, semi natural and manmade ponds and small lakes within Wirral's Operational Catchment area. There are also extensive coastal areas which lie within the Borough's administrative boundary.

Source Protection Zones (SPZs)

5.27 Areas above the bedrock aquifers have been defined as Source Protection Zones (SPZs); these are areas in which polluting activities pose the highest risk to drinking water sources, with the inner zones being the most sensitive. Pollution risks to groundwater include industrial sources and nitrates from agricultural activity. There are a number of SPZs present across Wirral.

Nitrate Vulnerable Areas (NVZs)

5.28 Nitrate Vulnerable Zones (NVZs) are areas designated as being at risk from agricultural nitrate pollution – they include around 55% of land in England.

5.29 In Wirral, extensive parts of the south and west of the Borough are designated as NVZs, including a stretch along the Dee Estuary, meaning that landowners must follow rules including using nitrogen fertiliser and storing organic manure. However, an NVZ itself does not constrain the location of future residential development, but rather the scale and nature of the development and how the land is managed.

Bathing Waters

5.30 There are four areas designated for Bathing Water along Wirral's coast. Three of these (West Kirby, Meols and Moreton) are rated as 'excellent' by the Environment Agency, and one (Wallasey) is rated as 'good'. These are an important part of Wirral's environmental context; however, they have not been assigned a sensitivity value and will not be mapped as they are not themselves within developable zones. Instead, they are likely to be indirectly affected by any development in proximity to them (via runoff). However, it is not possible at this stage to determine a suitable 'safeguarding distance' for these areas without further detailed assessment.

Sensitivity of assets

5.31 The capacity of each water asset to withstand change, their significance and their overall sensitivity is summarised in **Table 5.2**.

Table 5.2: Sensitivity of water assets and water bodies

Asset	Capacity to Withstand Change	Significance	Sensitivity
Water bodies	N/A – mapped as a physical constraint to development. Unable to be developed upon. The catchments of sensitive water bodies are also protected by assets described elsewhere (SPA/Ramsar designation, SSSI IRZs and flood zones) e.g. Dibbinsdale Brook SSSI and Clatter Brook SSSI.		
Nitrate vulnerable zones	N/A - not mapped as an environmental constraint to development None of Wirral's main rivers have good ecological status, in part due to the impacts of agricultural management and road-run-off. This will not constrain the location of future residential development, but it could constrain the overall number of homes that the Borough can support if mitigation cannot be brought forward.		
Source Protection Zones (SPZs) – Zone 1	Susceptible These assets are sensitive to residential development, given that	Local	Moderate Residential development may be possible in some

²⁹ Environment Agency (accessed July 2020), 'Wirral – Summary' [Online] Available at: <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3540/Summary>

Asset	Capacity to Withstand Change	Significance	Sensitivity
	polluting activities pose a risk to drinking water sources, particularly in Zone 1.	The asset is primarily of local importance.	locations subject to appropriate mitigation.

Sub Theme 3.2: Flood zones and coastal change

Why are these assets important?

5.32 Biodiversity, geodiversity and water assets are part of dynamic natural systems. Natural processes such as flooding and erosion are an essential part of these systems, although their scale and frequency can be affected by human activity, for example as a result of climate change or changes in land use. In order to allow natural processes to occur and to mitigate extreme natural events, land may need to be safeguarded from development.

5.33 Floodplains and flood storage areas provide storage for water during flooding, slowing down the speed of flow and reducing flooding elsewhere in the catchment. Development within floodplains, as well as being vulnerable to flooding, can reduce the capacity of the floodplain and increase flooding elsewhere. The ability of a catchment to manage flooding also affects coastal landforms and habitats, for example those sensitive to siltation or scouring. The coastline is also sensitive to erosion and deposition from the sea and therefore areas may be unsuitable for development where the coastline is expected to retreat.

Legislation

5.34 The principal legislation relating to management of flood risk and coastal change are summarised below, although many more laws also relate to water and coastal management, to a lesser extent.

5.35 The EU Flood Directive (2007) has been transposed into UK law as the Flood Risk Regulations 2009. These require local authorities to undertake strategic flood risk assessments, to map areas of flood risk and plan for managing floods.

5.36 The Regulations are complimented by the Flood and Water Management Act 2010, which aims for the sustainable management of coastal risk and flooding from all sources. The Flood and Water Management Act 2010 updates and brings together aspects of older legislation, including the Coast Protection Act 1949. The 2010 Act identifies responsibilities for producing flood risk and coastal management strategies, and for carrying out coast protection works.

5.37 The emerging Environment Bill 2020 is also set to enhance flood and coastal erosion risk management by addressing barriers to the expansion of existing, or creation of

new, internal drainage boards, through amendments to the Land Drainage Act 1991.³⁰

5.38 The Climate Change Act (2008) requires the Government to compile every five years its assessment of the risks and opportunities arising for the UK from climate change. The 2017 Risk Assessment identifies six urgent climate change risks for the UK, including:

- Flooding and coastal change risks to communities, businesses and infrastructure.

National policy context

5.39 The Government's 25 Year Environment Plan (25YEP) promises to 'work with nature to protect communities from flooding, slowing rivers and creating and sustaining more wetlands to reduce flood risk and offer valuable habitats.'

5.40 The DEFRA National Adaptation Programme³¹ sets out a strategy for adapting both to the climate change impacts that are already evident, and that which we might see in the future.

5.41 The Environment Agency's Preliminary Flood Risk Assessment (PFRA) (2009) provides an approach to managing flood risk across Europe, through a six-year planning cycle based on a four-stage process. Lead Local Flood Authorities (Unitary Authorities or County Councils) are responsible for undertaking a PFRA for local sources of flood risk, primarily from surface runoff, groundwater and water courses.

5.42 With regard to planning policy, section 14 of the NPPF (Meeting the Challenge of Climate Change, Flooding and Coastal Change) states at paragraph 149 that:

'Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.'

New development should be planned for in ways that [...] avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed

³⁰ DEFRA (2020), 'Environment Bill 2020 policy statement' [Online] Available at: <https://www.gov.uk/government/publications/environment-bill-2020/30-january-2020-environment-bill-2020-policy-statement>

³¹ DEFRA National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting: Making the country resilient to a changing climate report (2018)

through suitable adaptation measures, including through the planning of green infrastructure.'

5.43 It also sets out the process by which development will be directed away from areas at highest risk of flooding by taking a strategic approach to flood risk assessment.

5.44 Addressing the issue of coastal change in particular, paragraph 167 states that:

'plans should reduce risk from coastal change by avoiding inappropriate development in vulnerable areas and not exacerbating the impacts of physical changes to the coast. They should identify a Coastal Change Management area in any area likely to be affected by physical changes to the coast'

5.45 Paragraph 168 goes on to say that development in a Coastal Change Management Area will only be appropriate where it is demonstrated that:

- a) *'It will be safe over its planned lifetime and not have an unacceptable impact on coastal change;*
- b) *The character of the coast including designations is not compromised;*
- c) *The development provides wider sustainability benefits; and*
- d) *The development does not hinder the creation and maintenance of a continuous signed and managed route around the coast.'*

5.46 Additional guidance on flooding is provided in the NPPF and National Planning Practice Guidance (PPG). It is expected that Local Authorities' Strategic Flood Risk Assessments will adopt a Sequential Test (NPPF paragraph 157) to steer development to areas with the lowest probability of flooding. Where it is not possible to locate development in areas of low flood risk, an Exception Test can be applied (NPPF paragraph 159). The Exception Test must demonstrate that the benefits of the development outweigh the risk and that a site-specific Flood Risk Assessment demonstrates that the development will be safe for its lifetime and will not increase flood risk elsewhere (paragraph 160).

5.47 The PPG defines areas of flood risk as:

- **Zone 1 Low Probability:** Land having a less than 1 in 1,000 annual probability of river or sea flooding. Suitable for all types of development;
- **Zone 2 Medium Probability:** Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual

probability of sea flooding. Exception Test required for development classed as 'highly vulnerable' (includes basement dwellings and residential caravans, mobile homes and park homes);

- **Zone 3a High Probability:** Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. Not suitable for 'highly vulnerable' development and Exception Test required for 'essential infrastructure' and 'more vulnerable' (includes all other dwelling types) uses; and
- **Zone 3b The Functional Floodplain:** This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. Suitable only for 'water compatible' uses, although 'essential infrastructure' may be permitted following Exception Test.

5.48 The PPG states that essential infrastructure may be appropriate within a coastal change management area but, for other types of development:

- Within the short-term risk areas (i.e. 20-year time horizon) only a limited range of types of development directly linked to the coastal strip, such as beach huts, cafes/tea rooms, car parks and sites used for holiday or short-let caravans and camping – all with time-limited planning permissions.
- Within the medium (20 to 50-year) and long-term (up to 100-year) risk areas, a wider range of time-limited development, such as hotels, shops, office or leisure activities requiring a coastal location and providing substantial economic and social benefits to the community, may be appropriate. Other significant development, such as key community infrastructure, is unlikely to be appropriate unless it has to be sited within the coastal change management area to provide the intended benefit to the wider community and there are clear, costed plans to manage the impact of coastal change on it and the service it provides.
- Permanent new residential development will not be appropriate within a coastal change management area.
- In terms of flood risk and coastal change, the lifetime of residential development should be considered for a minimum of 100 years, unless there is specific justification for considering a shorter period.

5.49 The National flood and coastal erosion risk management strategy for England (2010) sets out the Government's

intention for partnership working to identify and manage flooding and erosion risks and identifies roles and means of implementation of management measures, including funding.

5.50 The DEFRA Surface Water Management Action Plan (2018)³² outlines the impact that surface water flooding has on society. It occurs when rain from heavy storms overwhelms local drainage capacity.

5.51 Surface water flooding is a growing challenge with climate change bringing more frequent heavy storms, new developments increasing the need for drainage, and ageing infrastructure. The risks are amplified in more urban areas.

5.52 Managing surface water risks involves ensuring that water drains effectively from homes and gardens, roads, fields, businesses and public spaces. As well as making sure new properties have good drainage, it requires careful maintenance of the existing networks sewers, ditches and underground culverts to ensure that water can flow smoothly. Sustainable Urban Drainage Systems (SuDS) will need to play an increasing role in managing surface water.

Local policy context

5.53 Policy WA1: Development and Flood Risk of Wirral's Unitary Development Plan (UDP) states that:

'planning permission will only be granted for new development which would not be at risk from fluvial or tidal flooding, or which would not increase these risks to other developments.'

5.54 Policy WA2 (Development and land drainage) goes on to say that, in assessing development proposals, the Local Planning Authority will:

'seek to maintain and enhance the natural character of wetlands, groundwaters, ponds, rivers and their margins. In particular, the culverting of watercourses will be discouraged, in order to preserve the natural storage provided and to avoid future maintenance difficulties.'

5.55 The EU Flood Directive and UK Flood and Water Management Act 2010 are implemented at a local level by the following:

- Wirral's Preliminary Flood Risk Assessment Report.

- Wirral's Level 1 Strategic Flood Risk Assessment (SFRA) (2019).

- Wirral's Local Flood Risk Management Strategy (2016).

5.56 Section 20 of the Unitary Development Plan (2000) for Wirral includes a number of policies relating to the Coastal Zone. Policies within this section of the Plan guide the use and development of this important area of Wirral's Peninsula. Of principal consideration for this study are policies CO5 'Development Requiring Additional Coastal Defence Works' and CO6 'Development within Areas at Risk of Coastal Erosion'. Map 9 'Land Liable to Erosion by the Sea' illustrates the areas liable to coastal erosion at Thurstaston Cliffs along the River Dee and New Ferry Cliffs along the River Mersey³³.

5.57 The coastline of Wirral is covered by the North West England and North Wales Shoreline Management Plan (SMP2) (2010), which provides a large-scale assessment of the risks associated with coastal processes and defines a preferred shoreline management policy for each 'Policy Unit' defined along Wirral's frontage. Management policy options recommended a range across; 'Hold the line', 'Advance the Line', 'Managed Realignment' and 'No active intervention'. The SMP2 aims to achieve sustainable risk management by working with natural processes wherever possible. The recommendations for Wirral are illustrated in **Figure 5.2**.

5.58 The Wirral Coastal Strategy (2013) supplements the SMP by providing a strategic level assessment of coastal hazards across Wirral, both present and future, helping to identify how strategic SMP policies might be best implemented locally. It is based on the need to identify sustainable arrangements for the future management of flood and coastal erosion risk and identifies a preferred set of management arrangements for Wirral. This is done by dividing Wirral's coast into the following three primary frontages:

- **Strategy Frontage West** – the River Dee shoreline, from the Borough boundary at Gayton to Red Rocks at Hoylake;
- **Strategy Frontage North** – the North Wirral shoreline, from the Red Rocks at Hoylake to Fort Perch Rock at New Brighton; and
- **Strategy Frontage East** – the River Mersey shoreline, from Fort Perch Rock at New Brighton to the Borough boundary at Eastham.

³²https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/725664/surface-water-management-action-plan-july-2018.pdf

³³ More information is available at: <https://www.wirral.gov.uk/sites/default/files/all/planning%20and%20bui>

[Local%20plans%20and%20planning%20policy/Local%20plans/Unitary%20Development%20Plan/UDP%20Written%20Statement%20Sections/18.%20The%20Costal%20Zone.pdf](https://www.wirral.gov.uk/sites/default/files/all/planning%20and%20bui/Local%20plans%20and%20planning%20policy/Local%20plans/Unitary%20Development%20Plan/UDP%20Written%20Statement%20Sections/18.%20The%20Costal%20Zone.pdf)

Figure 5.2: Shoreline management plan for Wirral



Local flood zone and coastal change considerations and current pressures

5.59 Wirral's peninsular landform leads to a significant and increasing risk of flooding in some areas of the Borough, particularly along the coast. As a result of climate change, the risk of flooding to local communities is expected to rise, especially along the North Wirral foreshore, therefore the importance of steering more vulnerable development to areas at low risk of flooding, as stated in the NPPF and SFRA, is recognised by the Council.

5.60 The Borough has extensive residential areas near the coast and inland watercourses. As such, Wirral's Coastal Strategy was produced in response to a need to identify

sustainable arrangements for the future management of flood and coastal erosion risk.

5.61 Approximately 11% of the Borough's land area is currently at risk from flooding from the sea and/or watercourses, including river valleys associated with the Fender, Birket, Arrowe Brook and Dibbin. Inland, major areas of risk are centred around the River Birket and River Fender in the north of the Borough, to the south of the settlement of Hoylake. However, Wirral's Level 1 SFRA (2019)³⁴ highlights that the Borough also has extensive residential areas near the coast and inland watercourses along the Mersey coast and east of the M53.

5.62 The SFRA also highlights significant risk of coastal flooding.

5.63 In particular, there have been the following recent incidents of flooding in Wirral:

- August-September 2015, across various locations in Wirral following severe rainfall.
- Widespread coastal flooding during a flood incident in December 2013, with the towns of West Kirby and New Brighton particularly affected;
- An extreme storm event in September 2012, following an extended period of intermittent heavy rain, across various locations.

5.64 Wirral's Coastal Strategy highlights four areas for Prioritised Works, two of which are designated as 'moderate urgency':

1. West Kirby (provision of new flood prevention measures)
2. Meols Parade (sea wall toe and refurbishment work)

5.65 A further two are designated as 'low urgency':

1. Rock Park (river wall refurbishment work)
2. Wallasey Embankment (additional embankment toe protection)

5.66 Wirral MBC is responsible for 19 miles of sea and river walls between the Borough boundaries at Eastham and Heswall. In 2018 the Environment Agency agreed to part fund a new flood defence wall along the South Parade in West Kirby in order to protect homes and businesses and given the growing number of tidal and surge flooding episodes.

5.67 However, beyond engineered solutions, there is support in local policy for working with natural processes to alleviate flood risk where appropriate. The Mersey Estuary Nature Improvement Area (NIA) can play a role in helping to deliver

³⁴ Wirral MBC Level 1 Strategic Flood Risk Assessment (June 2019)
JBA Consulting

coastal protection through enhanced saltmarsh areas, reducing coastal erosion and flooding.

5.68 Salt marsh, wetlands flooded and drained by the tides, is a common habitat in estuaries like those flanking either side of the Peninsula. Research has shown that salt marshes can be an effective tool as a natural flood defence in times of severe weather, acting in a similar way to wind blowing through a forest in 'buffering' the effect of waves.³⁵ In Wirral, the majority of coastal saltmarsh is found in the Dee Estuary between Parkgate and Heswall, with small areas occurring at West Kirby and at New Ferry on the Mersey. In some areas, such as Heswall, saltmarsh is rapidly accreting.³⁶

5.69 Wirral's Preliminary Flood Risk Assessment 2011 (and 2017 update) highlight that there has been no historically significant surface water flooding in the Borough but there have been some instances following high intensity storm events, or extended periods of heavy rain, where the public sewerage system has been overloaded as a result.

5.70 National policy allows residential development within Flood Zone 2 (albeit following an Exception Test for caravans, mobile homes and park homes). However, Wirral's Level 1 SFRA (2019) considers the likely impacts of climate change and considers the chance that those sites currently located within Flood Zone 2 may, by 2080 (or longer term), be located within Flood Zone 3a. This is within the 100-year lifetime for residential development specified in Planning Policy Guidance. Therefore, residential development may not be appropriate in Flood Zone 2 without suitable flood mitigation measures or flood resilient/resistant houses.

5.71 Policy recommendations within Wirral's Level 1 SFRA (2019) outline the need to follow a sequential approach to site allocations. The aim of this approach seeks to steer new development to Flood Zone 1, where no available sites exist in Flood Zone 1 the vulnerability of land uses and reasonably available sites in Flood Zone 2 should be considered (applying the Exception Test if required). Only where there are no reasonably available sites in Flood Zones 1 and 2 should the suitability of sites in higher risk Flood Zone 3a be considered.

5.72 The Wirral Sustainable Drainage & Surface Water Management Technical Guidance for Developers introduces a range of new powers, duties and responsibilities for Wirral Council as a Lead Local Flood Authority (LLFA). The guidance states that to manage flood risk all development, regardless of development type, flood zone and development size, must give priority use to the use of SuDS.

Sensitivity of assets

The capacity of each asset to withstand change, their significance and their overall sensitivity is summarised in **Table 5.3**.

³⁵ Moller et al (2014), 'Wave attenuation over coastal salt marshes under storm surge conditions', *Nature Geoscience* 7, p727-731

³⁶ Cheshire Wildlife Trust (2018), 'Coastal saltmarsh: Local Biodiversity Action Plan' [Online] Available at:

<https://www.cheshirewildlifetrust.org.uk/sites/default/files/2018-06/Coastal%20salt%20marsh.pdf>

Table 5.3: Sensitivity of flood zone areas

Asset	Capacity to Withstand Change	Significance	Sensitivity
Flood storage areas	N/A – would be mapped as a physical constraint to development, however none are present in Wirral.		
Flood Zones 3b	Susceptible Flood zone 3b is the functional floodplain and is an essential area in which water is stored in times of flood.	National National planning policy does not permit residential development ('more vulnerable') in flood zone 3b	Higher Avoid development
Flood Zones 3a	Susceptible Flood zone 3a has a high probability of flooding; development in this location would interfere with flood storage capacity. Development on land where there is a high probability of flooding from surface water is likely to be at significant risk and potentially increase the risk of flooding elsewhere.	National National planning policy will only permit residential development ('more vulnerable') in zone 3a if it passes the 'exception test'.	Higher Avoid development (as per Environment Agency guidance and consultation comments)
Flood Zone 2	Susceptible Flood zone 2 has a medium probability of flooding; development in this location would interfere with flood storage capacity. Development on land where there is a moderate probability of flooding from surface water is likely to be at risk and potentially increase the risk of flooding elsewhere.	National (i.e. higher than local) National policy does permit residential development in flood zone 2 (subject to an Exception Test in some cases). Policy recommendations of Wirral's Level 1 SFRA (2019) outline the need to follow a sequential approach to site allocations.	Moderate Development may be possible in some locations with appropriate mitigation. The sequential approach must be followed.
Surface Water Flooding - 1 in 30 year event area (3.3% Annual Chance)	Susceptible An area prone to a 1 in 30 year surface water flooding event is likely to prove more challenging to develop within.	National National planning policy identifies that surface water flooding be considered in a similar way to fluvial flood risk. Therefore, in the 1 in 30-year event area it is likely that residential development ('more vulnerable') will only be permitted if it passes the 'exception test'.	Moderate Development may be possible in some locations with appropriate mitigation. The sequential approach must be followed.
Surface Water Flooding - 1 in 100 year event area (1% Annual Chance)	Susceptible An area prone to a 1 in 100 year surface water flooding event has a medium probability of flooding; development could	National National planning policy identifies that surface water flooding be considered in a similar way to fluvial flood risk.	Moderate Development may be possible in some locations with appropriate mitigation. The

Asset	Capacity to Withstand Change	Significance	Sensitivity
	be impacted. Development on land where there is a moderate probability of flooding from surface water is likely to be at risk and potentially increase the risk of flooding elsewhere.	In the 1 in 100 year event area the sequential approach to the location of development will need to be applied.	sequential approach must be followed.
Areas at risk of coastal change (coastal change management areas)	n/a - mapped as a physical constraint to development PPG states that "Permanent new residential development will not be appropriate within a coastal change management area." Land affected by coastal change is therefore mapped as a physical constraint in this study.		

Sensitivity of water and coastal environment assets in Wirral

5.73 The sensitivity of the Borough's water and coastal environment assets is mapped in **Figure 5.3**.

5.74 The areas of highest sensitivity in relation to this Core Theme – where development is unlikely to be appropriate – relate to areas designated Flood Zone 3. These areas are concentrated along the River Birket corridor in the north of the Borough, stretching between the settlements of Hoylake and Wallasey. However, some smaller areas of land along the Mersey Estuary and within the Birkenhead urban area are also identified as being highly sensitive for this reason.

5.75 In addition, there are expansive areas of moderate sensitivity shown in the mapping. These relate to the presence of Source Protection Zones (SPZs) and Nitrate Vulnerable Zones (NVZs).

5.76 SPZs are areas in which polluting activities pose the highest risk to drinking water sources – for example from

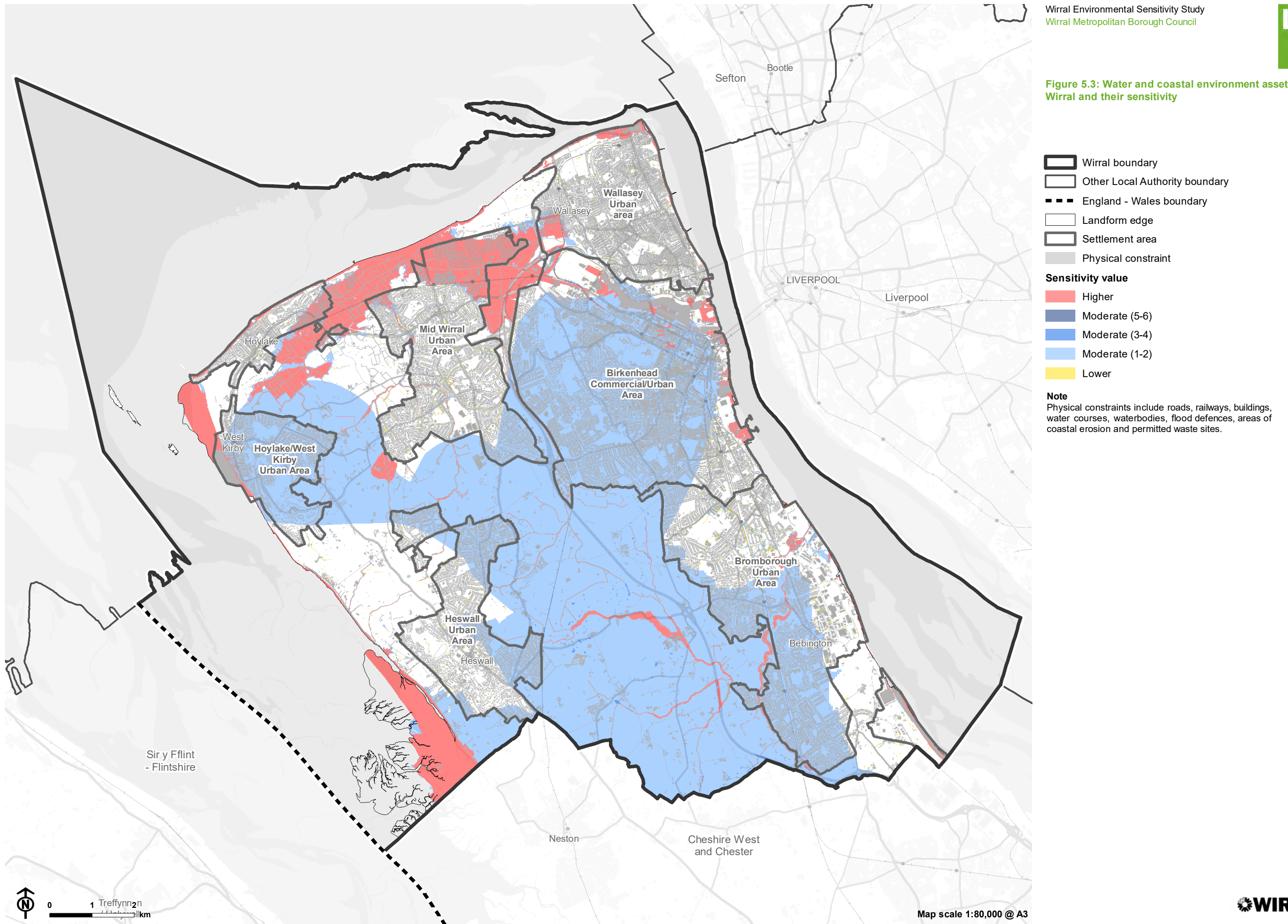
industrial sources and agricultural activity, however it is possible for this risk to be managed through the type, scale and design of development.

5.77 Nitrate Vulnerable Zones (NVZs) are areas designated as being at risk from agricultural nitrate pollution, and it is common for them to cover extensive areas of land. However, these risks can be mitigated, and as such do not indicate high sensitivity.

5.78 Finally, scattered across the Borough are small-scale areas of heightened sensitivity (but not 'high sensitivity') which indicate areas at increased risk of surface water flooding. However, it is acknowledged that there is scope to mitigate for surface water flood risk through the installation of appropriate measures for example SuDS.

5.79 The sensitivity of the Borough as a whole, i.e. presenting the sensitivity of all environmental assets in one composite map, is considered in **Chapter 10**.

Figure 5.3: Water and coastal environment assets in Wirral and their sensitivity



Chapter 6

Core Theme 4: Applying Sensitivity Values to Landscape and Cultural Heritage Assets

Introduction

6.1 This section considers the landscape and cultural heritage assets that contribute to 'sense of place' within Wirral. For example, historic landscapes and areas of particular landscape sensitivity.

Overview

6.2 Two Sub Themes have been identified under Core Theme 4:

- **Sub Theme 4.1:** Landscape (including tranquillity).
- **Sub Theme 4.2:** Historic Environment.

6.3 For each Sub Theme, the following information is presented:

- Data sources and any limitations.
- The importance of the asset.
- Overview of important legislation/ national planning policy.
- Local policy context.
- Assigned sensitivity ratings.

6.4 Table 6.1 sets out the assets that have been considered; relevant data sets and the source of the data.

6.5 Figure 6.1 maps landscape character areas (from the Wirral Landscape Character Assessment 2019).

6.6 Figure 6.2 and **Figure 6.3** illustrate the baseline data for 'tranquillity' in Wirral (from CPRE).

6.7 Figure 6.4 maps historic environment assets in Wirral.

Table 6.1: Landscape and cultural heritage – assets and data sources

Sub Theme	Data Set	Data Source
Landscape	Local Landscape Designations (LLD), reviewed and updated in 2020 ³⁷	Wirral MBC
	<i>Data sets used for contextual mapping, but not assigned sensitivity ratings</i>	
	Landscape Character Areas	Wirral MBC
	'Night Blight' mapping 2016 (Light pollution)	CPRE
	Tranquillity mapping	CPRE
Historic Environment	Scheduled monuments	Historic England
	Listed buildings	Historic England
	Conservation areas	Wirral MBC
	Registered parks and gardens	Historic England
	Registered battlefields	Historic England
	Areas of archaeological importance	Merseyside Historic Environment Record (MHER)
	Historic environment records	Merseyside Historic Environment Record (MHER)
	Historic Landscape Character areas	Historic England and Cheshire County Council

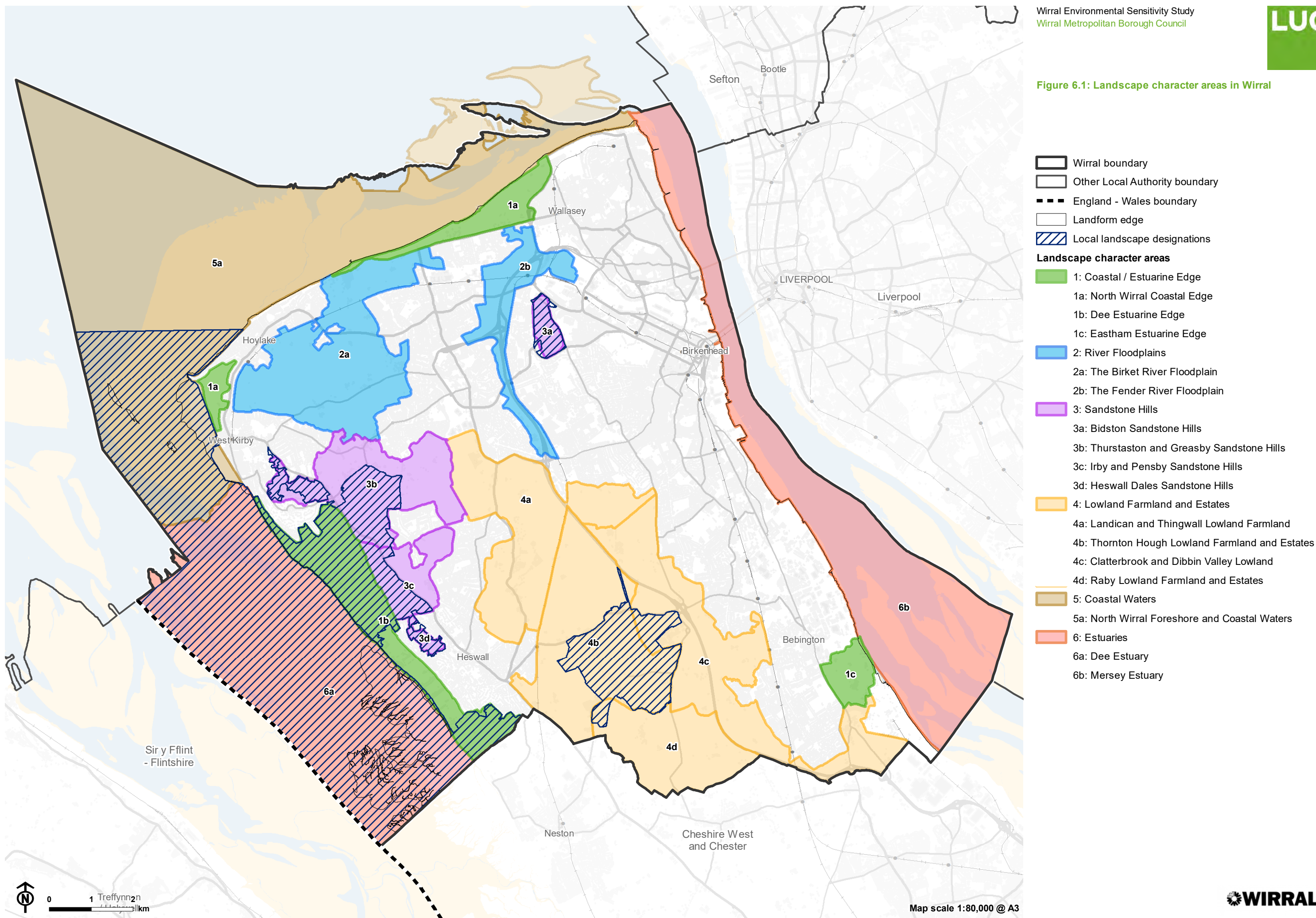
Data limitations

The following issues were identified as data limitations under Core Theme 4:

- **Setting of Heritage Assets:** This study has only been able to use data identifying the location and extent of heritage assets. While this is valuable, in order to fully understand the sensitivity of these assets to development it is necessary to understand the extent of their setting and the contribution the setting of an individual asset makes to its heritage significance. This detail of analysis is beyond the scope of this study.
- **Landscape Sensitivity:** As detailed above, at the start of this study there was no available Landscape Sensitivity Assessment (LSA) comprehensively covering the Borough of Wirral (previous studies have been limited to specific/identified parcels of land). Given the importance of landscape sensitivity across Wirral's Peninsula, this study has undertaken additional work to address this data gap by carrying out a high level desktop landscape sensitivity assessment of remaining landscape character areas across the Borough – the results of this assessment have been combined with existing LSA data and presented within **Chapters 9, 10, 12 and 13**. Limitations of the original LSA study are discussed in **Chapter 9**.

³⁷ Wirral MBC (2020), Wirral Local Landscape Designations: Review and Recommendations.

Figure 6.1: Landscape character areas in Wirral



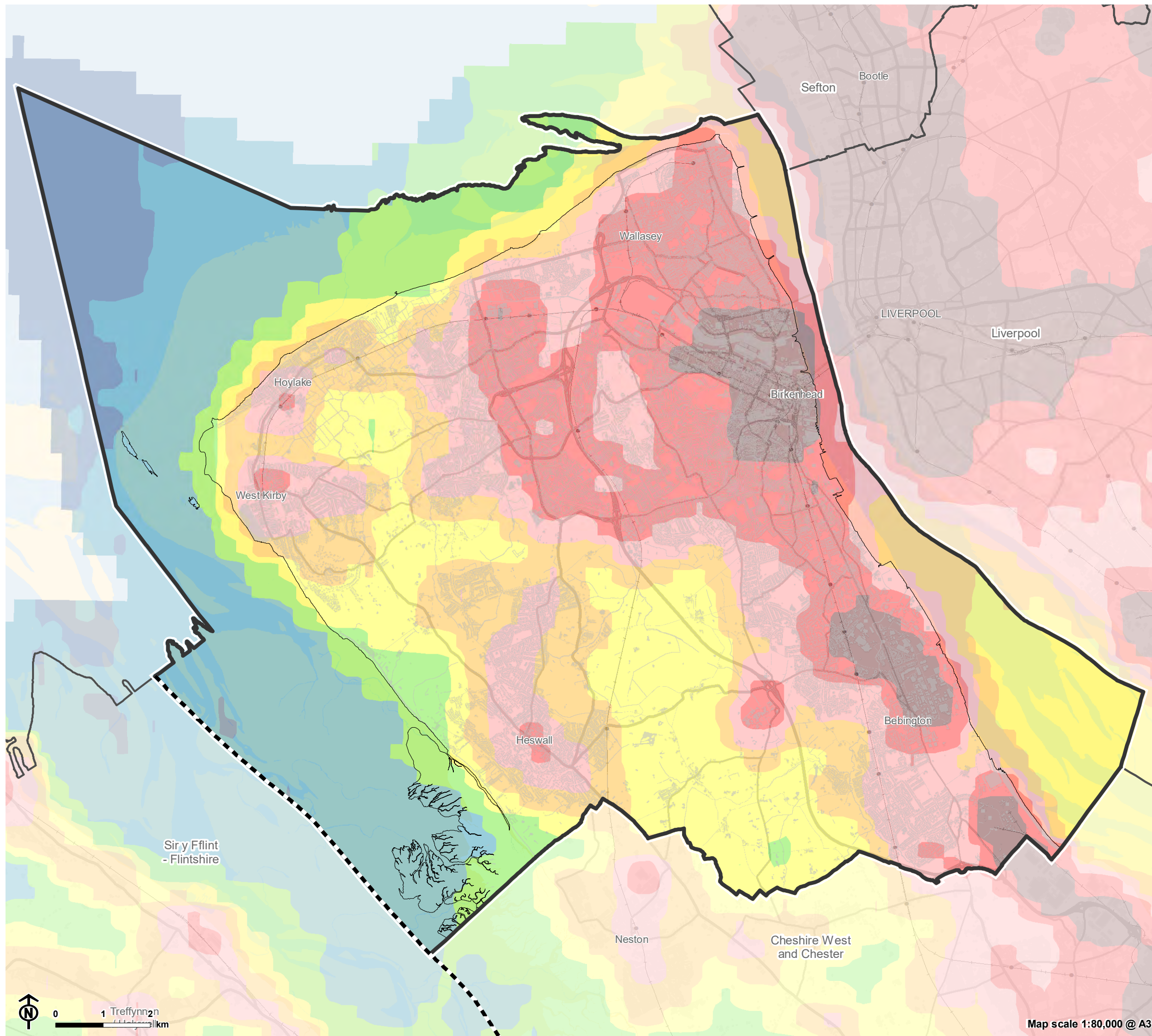
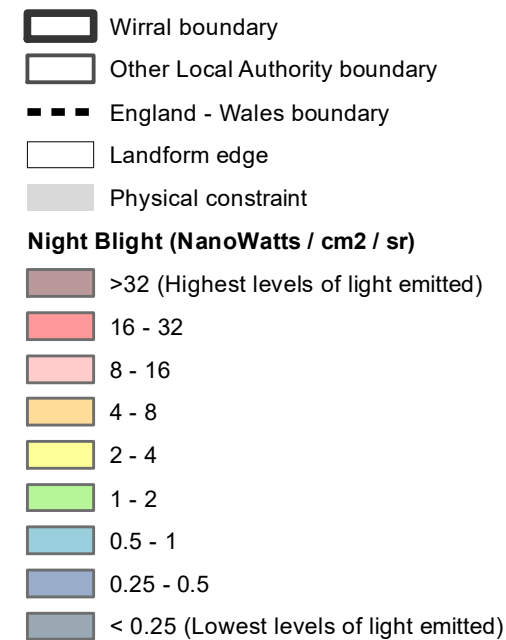
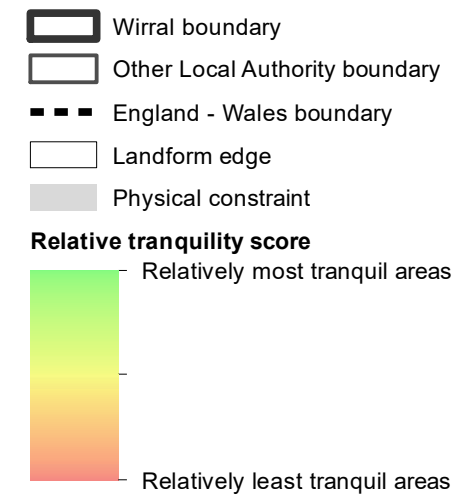
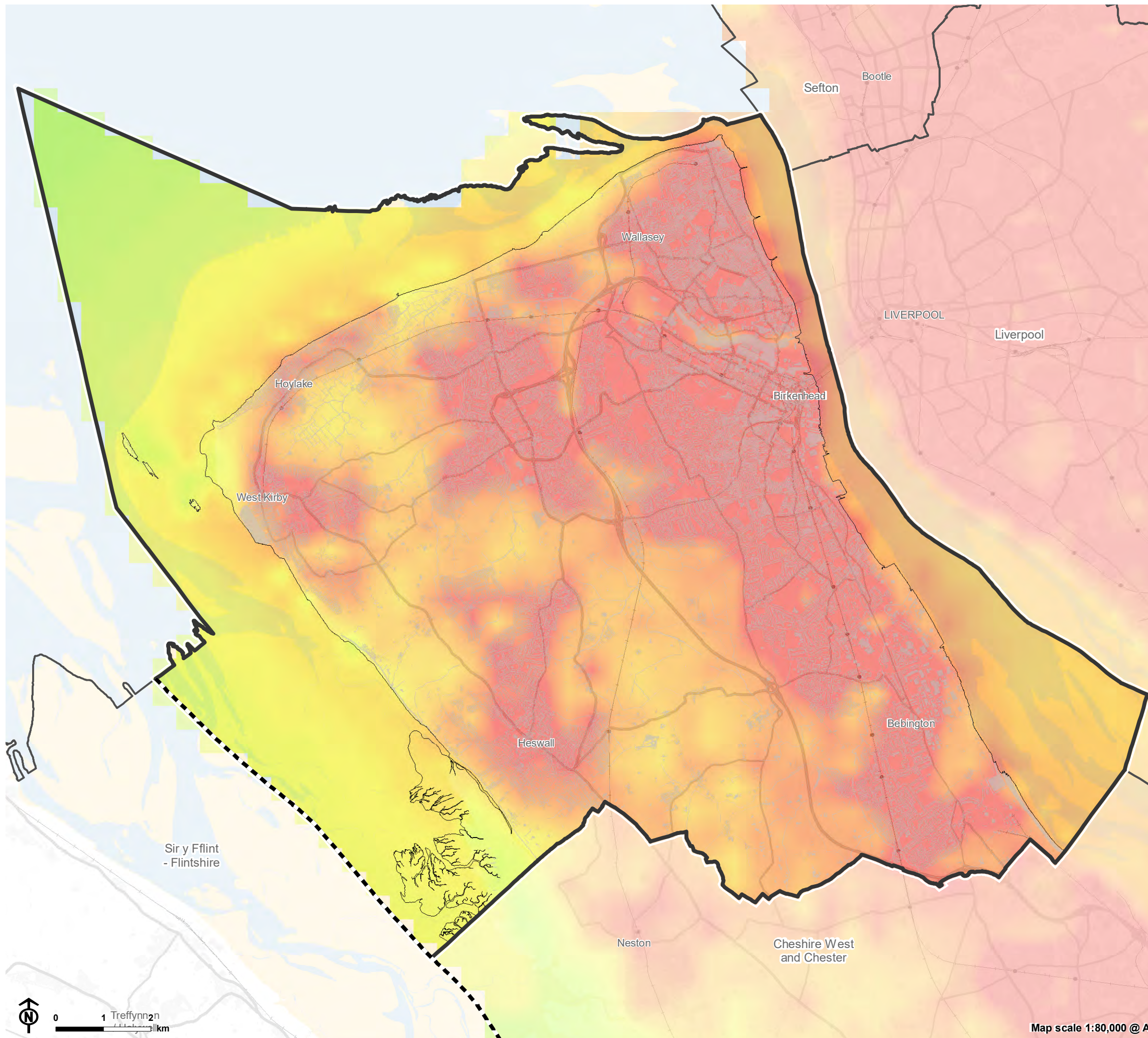


Figure 6.2: 'Night Blight' mapping of light emission in Wirral



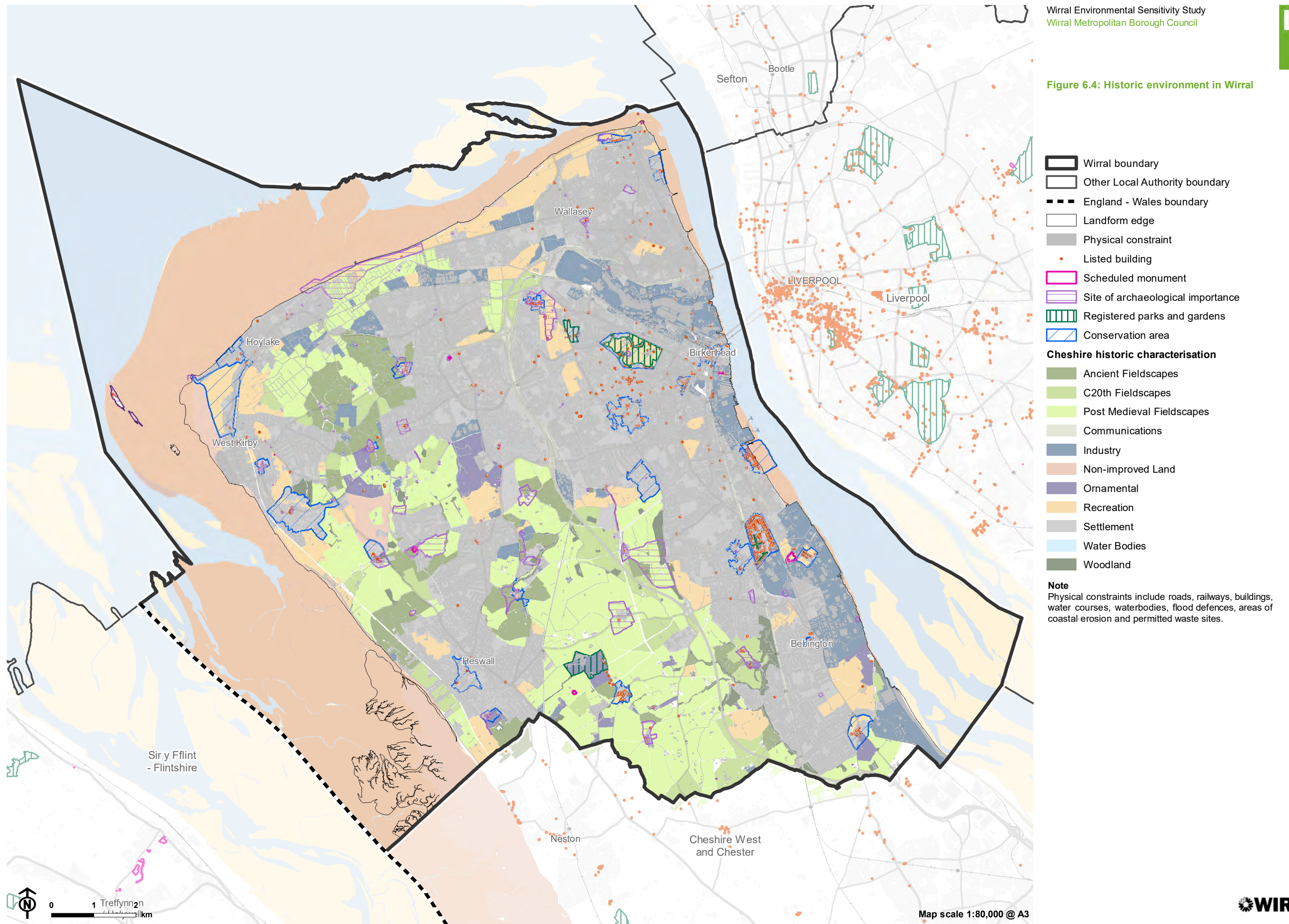
Note
Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Figure 6.3: Areas of 'tranquility' in Wirral



Note
Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Figure 6.4: Historic environment in Wirral



Sub Theme 4.1: Landscape (and tranquillity)

Why are these assets important?

6.8 Landscape, whether it is rugged coastline, peri-urban greenspace or an urban park, is the setting for every aspect of our lives. It serves a variety of cultural functions and provides not just aesthetic pleasure but also contributes to sense of place and tranquillity. An appreciation of how today's landscape was formed can also inform an understanding of its management over time and contribute to future land use planning. Understanding of landscape character and sense of place is also important in providing a sense of identity and community.

6.9 Landscape is also vitally important as it provides us with a wide variety of goods and services/benefits. It is therefore an essential cornerstone of quality of life for people and communities, and of sustainable development which fits within environmental limits – an ultimately finite resource which needs careful management if it is to retain its ability to provide the fullest range of services, whether provisioning (food/fuel), cultural/social, environmental or economic. There is strong cross-over between areas of landscape value and areas of heritage value, particularly when assessing the setting of identified historic assets. This issue is considered further under Sub Theme 4.2 (Historic Environment).

6.10 Although not a landscape designation, the overall function of a Green Belt relates to landscape as it can contribute significantly to openness of land, as the NPPF (paragraph 133) states:

'The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence.'

6.11 It must be noted however, that 'land within the Green Belt is not protected for its landscape qualities' and 'openness is not the same as landscape character'. Openness relates to a lack of built development.

6.12 The allocation of Green Belt land is a locally determined planning designation and is not linked to the environmental sensitivity of the land. The Green Belt in Wirral is not therefore considered in this environmental sensitivity assessment. The potential harm to the Green Belt associated with the release of land for development will however be considered further by the Council if future site selection work within the Green Belt is undertaken by the Council, and in accordance with the requirements of national policy as set out in Section 13 of the NPPF.

6.13 'Tranquillity' is a consideration closely related to landscape. With continued expansion of urban populations, there is a growing importance attached to urban parks and green spaces, as well as tranquil countryside as a focal point of tranquillity and peace.

6.14 There is no universally accepted definition of 'tranquillity', however definitions generally include descriptions such as 'calm', 'peaceful' or 'without noise'. The Campaign to Protect Rural England (CPRE) provides the following definition, by relating this sense of calmness to experiencing the sights and sounds of nature:

'The quality of calm experienced in places with mainly natural features and activities, free from disturbance from manmade ones.'

6.15 As such, tranquillity depends upon intrusion by manmade activities including both noise and light.

Legislation

6.16 The European Landscape Convention recognises the importance of the cultural, ecological, environmental and social value of landscape. The convention provides a platform for landscape to be considered at all stages; planning, protection and management in order to achieve sustainable development.

National policy context

6.17 The revised NPPF is explicit in its requirement for development plan policies to protect and, where appropriate, enhance the natural environment.

6.18 Section 15 of the NPPF (Paragraph 170) states that:

'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.'

6.19 The national Planning Practice Guidance (PPG) section on the Natural Environment further outlines that:

'Where landscapes have a particular local value, it is important for policies to identify their special characteristics and be supported by proportionate evidence. Policies may set out criteria against which proposals for development affecting these areas will be assessed. Plans can also include policies to avoid adverse impacts on landscapes and to set out necessary mitigation measures, such as appropriate design principles and visual screening, where necessary. The cumulative impacts of development on the landscape need to be considered carefully.'

6.20 The PPG also promotes the preparation of Landscape Character Assessments (LCAs) in order to compliment Natural England's National Character Area Profiles. To help assess the type and scale of development that might be able to be accommodated without compromising landscape character, a Landscape Sensitivity and Capacity Assessment can be completed.

6.21 Referring to tranquillity, Paragraph 180 of the NPPF states that:

'Planning policies and decisions should 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) Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

B) Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation'

6.22 Paragraph 100 also refers to tranquillity in relation to sites designated as Local Green Spaces, highlighting that the designation may be used where the site is:

'demonstrably special to a local community and holds a particular local significance, for example because of its beauty, historic significance, recreational value (including as a playing field), tranquillity or richness of its wildlife.'

Local policy context

6.23 Wirral's Unitary Development Plan (UDP) deals with landscape through Policy LAN1 (Principles for Landscape), which states that:

'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:

- *Protect landscapes of special character, identified as areas of special landscape value; and*
- *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.'*

6.24 Further, Policy LA1 (Protection for Areas of Special Landscape Value) states that:

'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:

- *Introduce new intrusive development within an otherwise open setting, especially along a prominent skyline or undeveloped coast; or*
- *Result in the loss of erosion of distinctive features, such as woodlands, hedges or trees, without appropriate replacement provision; and*
- *Other proposals which, in terms of their siting, form and external appearance, would detract from the appearance of the Area or intrude within important views into or out of the Area.'*

6.25 On the basis of this policy, Wirral MBC defined a series of locally designated Areas of Special Landscape Value (ASLV), as a non-statutory conservation designation. It also identified four Areas Requiring Landscape Renewal (ARLR), referring to areas of degraded landscape. These ASLV designations were reviewed in 2020, resulting in a revised series of Local Landscape Designations (LLDs), backed up by up to date evidence and in line with current best practice. The ARLRs have effectively been supplanted by Wirral's identified Landscape Character Areas (LCAs).

6.26 Wirral's Landscape Character Assessment (2019) provides an assessment of all land outside defined settlements and is intended to inform future work on policy development and development management, and to guide

development and land management that is sympathetic to local character and the special qualities of the Borough.

6.27 Wirral's Landscape Sensitivity Assessment (2019) provides an assessment of the extent to which the character and quality of Wirral's landscape would, in principle, be susceptible to change as a result of the introduction of built development. It considers the landscape sensitivity of 53 sites identified for further investigation by the Council within the 2018 Development Options Review. The Wirral Addendum to the study considers the sensitivity of a further five areas, identified in the Wirral Green Belt Review 2019. These studies do not, however, provide a comprehensive assessment of the sensitivity of all landscape areas within the Borough to development. A comprehensive high-level assessment of remaining areas of landscape sensitivity was therefore undertaken as part of this study. This was informed by the existing landscape character areas – which were subdivided as necessary to indicate the variations in sensitivity to development (see **Chapter 9** and **Appendix C** for further details on this work).

6.28 Tranquillity is not specifically referenced within Wirral's Unitary Development Plan (UDP), and light pollution is not listed among 'potentially polluting development' under Policy PO1 (Potentially Polluting Development) but is regulated under Policy RE9 (Criteria for Floodlighting at Sports Facilities).

Local landscape (and tranquillity) considerations and current pressures

6.29 Wirral's landscape assets are summarised below, along with an indication of how they might be expected to change in the future.

6.30 The Borough's Landscape Sensitivity Assessment (2019) describes Wirral as:

'a mixture of rural areas, formal landscapes of former large country estates, natural coastal scenery and wooded sandstone ridges. Urban and industrial areas of Birkenhead lie east of the M53 and the mid-Wirral sandstone ridge, while to the west a rich pastoral landscape is interspersed with smaller settlements.'

6.31 The Landscape Character Assessment (LCA) divides the Borough into the following Landscape Character Types:

- **Coastal/Estuarine Edge:** flat or sloping land with a strong relationship with the coast and estuary. Sand dunes, clay cliffs, mudflats, and saltmarsh border the coast, and provide an open naturalistic landscape.
- **River Floodplains:** flat low-lying land, draining into a linear pattern of streams and engineered watercourses,

surrounded by wetland habitats. The areas themselves have a sparse settlement pattern although industry, infrastructure and settlement are common along the edges.

- **Sandstone Hills:** Prominent sandstone ridgelines interspersed with rolling farmland. The ridgelines often have exposed sandstone pavements and contain important woodland and heathland habitats.
- **Lowland Farmland and Estates:** Gently rolling farmland in mixed arable and pastoral use with a strong estate character around historic country houses. Frequent semi-natural woodland and settlement is limited to small villages and scattered farmhouses, with a strong vernacular of red sandstone.
- **Coastal Waters:** Land surrounding estuaries and coastal waters off Wirral's coast. Extensive areas of coastal sand dunes, saltmarsh and inter-tidal mudflats, provide internationally important habitats for breeding and overwintering birds.
- **Estuaries:** Estuary waters to the east and west of Wirral. The Dee and Mersey estuaries contain mudflats, sandflats and saltmarsh, and are internationally important habitats for overwintering and breeding birds.

Local Landscape Designations (LLDs)

6.32 There are no nationally defined landscape designations within Wirral, such as Areas of Outstanding Natural Beauty (AONB). However, Policy LA2: Areas of Special Landscape Value (ASLV) of Wirral's Unitary Development Plan (UDP) identified the following four ASLVs:

- Bidston Hill
- Dee Coast (including Heswall Dales, Thurstaston Common and Royden Park)
- Caldy Hill (including Stapledon Wood)
- Thornton Hough

6.33 Three of these areas had previously been designated as 'heritage landscapes', as they were considered to represent outstanding landscapes of County-wide significance which merited special protection. They are seen as making a positive contribution to the distinctiveness of the Peninsula. Bidston Hill was added later as part of the Wirral UDP (2000), described as a 'distinctive ridge of high ground, clothed in woodland, visually prominent across a wide area'.

6.34 These ASLVs were reviewed and updated in 2020, to result in a series of Local Landscape Designations (LLDs), which are used within this study.

Areas of Landscape Sensitivity

6.35 The Borough's 2019 Landscape Sensitivity Assessment assessed the relative landscape sensitivities of a number of sites to 'notional residential and/or employment development. The areas assessed as 'high sensitivity' were those where:

'Landscape and/or visual characteristics of the assessment unit are very susceptible to change and/or its values are high or moderate-high and it is unable to accommodate the relevant type of development without significant change or adverse effects. Thresholds for significant changes are very low.'

6.36 The coverage of the Borough's existing Landscape Sensitivity Assessment (LSA 2019) was only partial (assessing 53 selected sites across the Borough) and so through this study an additional high-level desktop LSA was produced to extend this coverage (details of this work are provided at **Appendix C** of this report). The 2019 LSA work was also amended to more clearly illustrate any variations in sensitivity within the sites identified in that study. This ensured that the 2019 and 2020 LSA studies were consistent in their approach and presentation for use in this study. The LSA (2020) undertaken through this study, coupled with the existing LSA (2019) work now provides comprehensive coverage of all areas of Wirral.

6.37 It should be noted that the landscape sensitivity assessment (2019 and 2020) identifies which areas within the Borough are more or less sensitive to development. It does not however provide a definitive statement on the landscape impacts of specific sites in the absence of details regarding the specific location, layout and design of a proposed development. The findings of the LSA are therefore not considered in this chapter as a potential constraint to development i.e. in **Table 6.2**. Rather, they are presented through **Chapter 9** and overlaid with the results of the composite mapping of environmental sensitivity analysis in **Chapter 10**. The findings are used to inform the overall commentary on the sensitivity of the Borough to development and the assessment of Strategic Spatial Options and Settlement Areas.

Historic Landscape Characterisation (HLC)

6.38 Historic landscape characterisation is a method of identification and interpretation of the varying historic character within an area. It looks beyond individual heritage assets and takes into account an understanding of the whole landscape or townscape area. As such, it is of central importance to an assessment of landscape sensitivity. However, for the purposes of this study, HLC is considered further within Sub Theme 4.2 - Historic Environment.

Areas of tranquillity

6.39 Wirral is not affected by any of the International Dark Sky Reserves within the UK. Given the significantly urbanised nature of Wirral, light pollution mapping by the CPRE (see **Figure 6.2**) also shows that there are no areas of particularly dark skies on the Peninsula – no areas of the Borough are assessed as 1 NanoWatts/cm²/sr or below (the lowest three categories used to measure dark skies).

6.40 However, the tranquillity of various parts of the Borough are recognised by Wirral's Landscape Character Assessment (2019) as intrinsic parts of the perceptual quality of certain areas. An overview of the Borough's perceptual landscape notes that, away from settlements and main roads:

'... whether through their distance from large settlements or as a result of containment from urbanising influences by woodland cover, they enjoy relatively high levels of tranquillity'

6.41 Particular areas of tranquillity highlighted in the assessment include:

- The Raby Lowland Farmland and Estates, which is described as having 'high levels of tranquillity characterised by the calling of wading birds.'
- The North Wirral Coastal Edge, noted for its tranquillity when looking out to sea, but where the presence of recreational facilities and proximity to urban areas reduce the sense of remoteness.
- The Dee Estuarine Edge, described as 'relatively tranquil, particularly along the coastline', where the 'rural character of the lanes... provides a sense of tranquillity and enclosure.'
- Parks and green spaces within the Eastham Estuarine Edge, which provide 'valued local tranquillity'.
- The Birket River Floodplain, with 'strong perceptions of tranquillity away from the settlement edge.'
- Thurstaston and Greasby Sandstone Hills, which has 'strong naturalistic qualities and tranquillity despite the proximity of urban settlement.'
- The Heswall Dales, as 'a tranquil area, with a sense of isolation and separation from urban areas despite their proximity.'
- Landican and Thingwall Lowland Farmland and Estates, which has 'increasing tranquillity away from settlement edges.'

- Thornton Hough, as 'a rural and tranquil landscape despite its proximity to the M53 and large urban areas to the east.'

6.42 The assessment also notes that strategic road improvements could threaten the landscape character of Wirral through a loss of tranquillity, as could increasing visitor pressure at certain locations. This is particularly noted within the Clatterbrook and Dibbin Valley Lowland Farmland and Estate, where the noise of the motorway through the area is noted as decreasing tranquillity.

6.43 The CPRE 'Mapping Tranquillity' project (2005) provides a useful contextual picture of levels of tranquillity in Wirral (see **Figure 6.3**). The project outlines how, 'Tranquillity is seen as an indicator of environmental quality, but most environmental indicators focus on tangible, quantifiable attributes such as the length of hedgerows, water quality or the accessibility of green space. Qualitative, experiential aspects of landscape are far harder to account for'.

6.44 The mapping work produced for Wirral therefore identify areas that have more or fewer of the important characteristics

that were associated with tranquillity. It is important to note that the mapping study does not identify areas of absolute tranquillity as 'many environmental qualities, such as tranquillity, vary over space and time and do not exist within neatly defined and geographically limited areas.'

6.45 Instead 'relatively tranquil areas are characterised by a low density of people, minimal levels of artificial noise and a landscape that is perceived as relatively natural, with fewer overt signs of human influence.'

6.46 The impact of noise pollution on environmental sensitivity is considered further under Sub Theme 5.2 (Noise Exposure).

Sensitivity of assets

6.47 The capacity of each asset to withstand change, their significance and their overall sensitivity is summarised in **Table 6.2**.

6.48 Given that no area of Wirral benefits from protected Dark Sky Reserves, areas protected by national or local policy, or that might be described as 'intrinsically dark landscapes', it is not considered necessary to assign levels of sensitivity to areas identified as more 'tranquil'. Light pollution and tranquillity will nevertheless remain an important contextual factor when assessing the 'planning balance' for new development and environmental sensitivity on a site-by-site basis.

Table 6.2: Sensitivity of landscape assets

Asset	Capacity to Withstand Change	Significance	Sensitivity
Local Landscape Designation (LLD)	<p>Susceptible</p> <p>LLDs are designated where development is not permitted which would introduce intrusive development within an otherwise open setting e.g. a prominent skyline or undeveloped coast, or where it would result in the loss of distinctive features such as woodlands, hedges or trees. As such, these assets are considered fragile and would not be expected to recover within a reasonable period.</p>	<p>Local</p> <p>LLDs are locally designated by the Local Authority and do not have the same level of protection as nationally designated landscapes e.g. AONBs.</p>	<p>Moderate</p> <p>Residential development may be possible in some locations with appropriate mitigation.</p>

Sub Theme 4.2: Historic environment

Why are these assets important?

6.49 The historic environment is the result of past human interactions with the natural landscape. It is a finite irreplaceable resource that plays a vital role in defining an area's unique character and identity, providing communities with a sense of place that can enhance their quality of life. The historic environment is not just about the past; it impacts all those who interact with it and can also bring wider cultural, economic and environmental benefits³⁸ providing places for recreation and learning, as well as contributing to the local and regional economy through employment, tourism, regeneration and sustainable development.

6.50 The historic environment is the sum of its components: heritage assets. These can be designated (protected by legislation) or non-designated. Heritage assets include buildings, monuments, sites, places, areas, or landscapes identified as having a degree of significance meriting consideration in planning decisions, because of their heritage interest or value (i.e. the qualities that people attach to them) to current and future generations. The following considerations are important for understanding heritage value:

- **Assessing heritage significance:** Heritage interest (or value) is typically defined as archaeological, historical, architectural, and artistic, in accordance with the NPPF, or evidential, historical, aesthetic, and communal, in accordance with Historic England's (2008) Conservation Principles guidance. The sum of an asset's heritage interest or value is its heritage significance, which may lie in one, or any combination, of these values.
- **Understanding setting:** Heritage values stem from the physical form and nature of the asset and how it is perceived and understood. As such, 'setting' - the surroundings in which a heritage asset is experienced - can also contribute to, detract from, or have a neutral effect on the heritage significance of an asset, or the ability to appreciate that significance. An asset's setting - and the contribution that it makes to the asset's heritage significance - is not fixed and can change over time. Setting is often discussed with reference to views and visibility, but also includes a range of experiential qualities including noise, light, smell, etc.

Legislation

6.51 There is national legislation and guidance relating to the protection and treatment of the historic environment within the development process. These identify the historic environment

as a non-renewable, fragile, and finite resource and place a priority on its conservation. The key pieces of legislation are the Ancient Monuments and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) Act 1990, as amended.

6.52 The 1979 Act permits the scheduling of archaeological sites that meet the criteria for being nationally important. Scheduling protects monuments against ground disturbance. The 1990 Act similarly provides legal protection for nationally important buildings by listing and provides local authorities with the power to determine and designate areas of special historic or architectural interest as conservation areas. The 1990 Act places a number of duties on decision makers, key amongst these are:

- a. Section 66 which states that, in considering applications affecting Listed Buildings, '*special regard*' will be had 'to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.' and
- b. Section 72 which states that, in considering applications affecting Conservation Areas, '*special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area.*'

6.53 In the operation of this law, the concept of 'preservation' referred to in Sections 66 and 72 has been interpreted as 'to do no harm'.

6.54 In addition to these, the 1983 National Heritage Act (as amended) also made provision for the creation of a register of parks and gardens and battlefields. These are not afforded the same legal protection as other statutory designated assets, but registration is a material consideration in the planning process (see below).

6.55 Finally, under the 1997 Hedgerow Regulations, hedgerows may qualify for protection if deemed 'important', depending on whether they met certain statutory criteria for length, location, and importance.

National policy context

6.56 The application of the above legislation and national policy covering the effects of development on the historic environment are outlined in Section 16 of the NPPF where Paragraph 185 states that:

'Local planning authorities should set out in their Local Plan a positive strategy for the conservation and

³⁸ NPPF (2019) paragraph 185

enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. In doing so, they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance.'

6.57 Paragraphs 193-194 of the NPPF outline the requirements for considering the potential impact of plans on heritage assets stating that:

'When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.'

'Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:

- *grade II listed buildings, or grade II registered parks or gardens, should be exceptional;*
- *assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

6.58 Paragraph 197 also requires that the effect of development on non-designated heritage assets be considered and footnote 63 of paragraph 195 highlights that non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

6.59 Paragraph 199 of the NPPF also states that:

'Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.'

Local policy context

6.60 Wirral's historic environment is considered in the Borough's existing Unitary Development Plan (UDP) under 'Part 1' Policy CH01: The Protection of Heritage, which says:

'In considering all development proposals the local planning authority will pay particular attention to the protection of:

- i) buildings, structures and other features of recognised architectural or historic importance;*
- ii) historic areas of distinctive quality and character; and*
- iii) important archaeological sites and monuments.*

Proposals which would significantly prejudice these objectives will not be permitted.'

6.61 The policy justification clarifies that:

'Such heritage is vulnerable to change. Once lost or altered it cannot be adequately replaced and it is important that the most valuable sites and structures are not needlessly or thoughtlessly destroyed. Policy CHO1, therefore, specifically provides for the best examples of Wirral's cultural heritage to be preserved and seeks to ensure that the case for preservation is fully considered when assessing all proposals for new development.'

6.62 The 'Part One' policy is supported by a suite of more specific policies, which cover:

- Development affecting listed buildings and structures (CH1).
- Development affecting Conservation Areas (CH2).
- Demolition Control Within Conservation Areas (CH3).
- Policies relating to individual Conservation Areas (CH4 – CH23).
- Development affecting Scheduled Ancient Monuments (CH24).
- Development affecting Non-Scheduled Remains (CH25).
- The Preservation of Historic Parks and Gardens (CH26).

6.63 Policy CS43 (Design, Heritage and Amenity) of the Proposed Submission Draft Core Strategy (December 2012) requires all new development to enhance the character, quality and distinctiveness of the area in which it is located, and to preserve and enhance the character, integrity and setting of any identified heritage assets and safeguard the future of heritage at risk.

Local historic environment considerations and current pressures

6.64 Human activity on the peninsula can be traced back as far back as the Mesolithic (8,000-4,000BC), with evidence for hunter gatherers in the form of worked flint tools being recovered at Greasby and Thurstaston. Settled farming began in the Neolithic (4,000 - 2,500BC) and as a result woodland began to be cleared to make way for agriculture. This process of clearance and enclosure continued through the Bronze and Iron Ages and has been attested archaeologically at Irby. In addition to this pattern of domestic settlement there is evidence for a major coastal trading centre at Meols, where a number of finds dating from the prehistoric to post-medieval periods have been recovered.

6.65 The port at Meols continued to be important during the Roman period (AD43 to 410) and sections of a road leading south to Chester, where the Romans established legionary fortress in the later 1st century AD, has been attested archaeologically. Otherwise, settlement in Wirral peninsula during this period continued to be rural as evidenced by the farmstead at Irby.

6.66 As with much of England and Wales, little is known of Wirral in the early post Roman years. Place-name evidence suggest that there may have been an early Christian church at Landican, and the circular churchyard at Overchurch is probably the source of a 9th century decorated runic stone. Place-name evidence also indicates the presence of Saxons in Wirral, from the late 7th century onwards, and similarly the Vikings from the 9th century onwards. Many academics believe that the Battle of Brunanburh, fought in 937 between the Saxons and the allied forces of the Scots and Vikings, took place near Bromborough. Further investigations are currently ongoing.

6.67 By the medieval period (1066 – 1485) the area had become more settled and the Domesday Book (written c.1085) records over twenty manors in north Wirral, and a number of small village settlements have origins in the medieval period - these include Upton, Bidston, West Kirby, Greasby, Woodchurch, Poulton, Moreton and Bromborough.³⁹ Wirral contains several nationally important medieval monuments, with the extant priory buildings being the oldest standing structures on Merseyside. Other medieval buildings in Wirral include several parish churches, Storeton Hall and the tower house at Brimstage. The area also contains examples of carved 'hogback' (Viking) grave markers.

6.68 Throughout the early post-medieval period farming continued as the principal occupation of the population though maritime activities, including fishing and seafaring were

important along the coast. As early as the 14th century, silting in the Dee caused the increased use of small anchorages along Wirral shore. With the introduction of improved transport links there was a radical change in character of some parts of Wirral, especially the western bank of the Mersey where industry began to develop. Shipbuilding became a major industry and major docks opened in Birkenhead and Wallasey.

6.69 The peninsula's fresh air, open countryside and wide sea views also made it an attractive place for wealthy Liverpool merchants and businessmen to make their homes, and there are notable concentrations of villa, detached and semi-detached housing located towards the north, north-western, central (around Birkenhead Park) and southern-most parts of the Peninsula. It also made the area popular for coastal recreation leading to the establishment of seaside resorts at New Brighton, Hoylake and West Kirby.

6.70 Development of the peninsula was accompanied by a huge increase in population with terraced housing spreading to the west of Birkenhead and in the north central, central and south-central parts of Wirral. However, much of the current urbanisation took place between the 1920s and 1970s.

6.71 In the late 20th century both the industry and the population started to decline. 'Deeside Wirral' has retained its affluence, with well-to-do communities such as Heswall, West Kirby and Hoylake interspersed with open rural areas and pretty villages. To the east the dense urban and industrial belt fronting the Mersey has, until recent years, faced decline since the 1950s.

6.72 The national Heritage at Risk Register shows that as of 2019, 13 of Wirral's designated historic assets are at risk from neglect, decay or inappropriate development. These assets include two conservation areas (Flaybrick Cemetery, Bidston and Hamilton Square, Birkenhead), two registered parks and gardens (Thornton Manor, Bebington and Flaybrick Memorial Gardens), two scheduled monuments (Storeton Hall, Bebington and Moated site 400m NE of New Hall) and seven listed buildings, most of which are churches. There is currently no local Heritage at Risk Register for Wirral, meaning that the threat of such risks to grade II designated and non-designated assets is not documented.

6.73 Environmental factors such as climate change, sea level rise and erosion are also likely to put pressure on the Borough's historic assets and a recent LUC study on behalf of Historic England, identified a small number of listed buildings in Birkenhead that were at risk of short-term sea level rises and a larger number of listed buildings along the northern and eastern coasts, especially in Rock Park, that are sensitive to

³⁹ Merseyside Historic Characterisation Project Wirral Report 2011

more medium and long term climate change, particularly coastal erosion.⁴⁰

Scheduled monuments

6.74 Scheduled monuments are legally protected archaeological sites of national importance but unlike listed buildings or registered parks and gardens are not subject to grading. The Schedule of Monuments, maintained by Historic England, has almost 200,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites.

6.75 The Historic England NHLE data indicates that there are nine scheduled monuments within Wirral, and all bar one are of medieval date. These medieval monuments include three moated sites, two standing crosses and a priory, which has associated structures listed as Grade I, Grade II* and Grade II. The final scheduled monument is a post-medieval mariners beacon, which stands on the site of an earlier windmill.

Listed buildings

6.76 Listed Buildings are legally protected structures of national importance and may be categorised at one of three grades:

- exceptional interest – Grade I
- more than special interest - Grade II*
- special interest – Grade II

6.77 The NHLE dataset indicates that there are over 1,800 listed structures of all grades within Wirral. These buildings, which tell the story of Wirral's social, cultural, and aesthetic history, mostly stand within urban areas and are often associated with conservation areas or registered parks and gardens.

Conservation Areas

6.78 A conservation area is a statutory designation that can be proposed by a local authority or the Secretary of State. They are defined as: 'an area of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance.'

6.79 The character of these areas helps to determine the 'sense of place' as the designation considers elements beyond just that of building quality; it encompasses the historic form of an area including the layout of historical transport routes and boundaries and use of materials. Conservation areas thereby recognise the special architectural and historical

interest and character of a whole area. Development is not prevented within these areas, but they are afforded legal protection to preserve their special interest and character.

6.80 Local authority data indicates that there are 26 conservation areas in Wirral. Four of these conservation areas are of national importance. These include Birkenhead Park and Flaybrick Memorial Gardens, both of which are also designated as Registered Parks and Gardens (RPGs). Port Sunlight similarly includes a Grade II RPG, as well as 900 Grade II listed buildings and is generally considered to be a nationally important example of town and country planning as a model industrial village by the Lever Brothers with a highly intact planned design. Finally, the 18th century Hamilton Square – designed by the eminent architect G. E. Greyson - is nationally important, containing the most Grade I listed buildings outside of London. The other conservation areas in Wirral include many old village centres like Bidston, Bromborough, and West Kirby, as well as high quality suburbs, such as those within Oxton, Prenton and Hoylake, which may be more generally considered to be of less than national importance.

Registered parks and gardens

6.81 The Historic England 'Register of Parks and Gardens of Special Historic Interest in England', established in 1983, currently identifies over 1,600 sites assessed to be of significance. The emphasis of the Register is on gardens, grounds, and other planned open spaces, such as town squares. Although registration is only a material planning consideration, they are graded - I, II* and II – like listed buildings, depending on the level of their national importance.

6.82 The NHLE dataset indicates that there are four registered parks in Wirral:

- Birkenhead Park (Grade I)
- Thornton Manor (Grade II*)
- Flaybrick Memorial Gardens (Grade II*)
- Port Sunlight (Grade II)

Registered Battlefields

6.83 Registered battlefields are the sites of engagements of national significance that are capable of close definition on the ground. Currently, Historic England's Register of Historic Battlefields identifies 46 important English battlefields. None of these are located within the Borough. However, there is strong evidence that the Battle of Brunanburh – fought between the Anglo-Saxon King Athelstan and a combined force of Northern

⁴⁰ Historic England (2019), 'Coastal Risk and Priority Places' [Online] Available at:

<https://research.historicengland.org.uk/redirect.aspx?id=7915|Coastal%20Risk%20and%20Priority%20Places>

Scots, Strathclyde British and Norsemen from Ireland - occurred in Wirral.

6.84 The Battle of Brunanburh is recorded in a near contemporary poem in the Anglo-Saxon Chronicle which gives the location of as 'Dingesmere'. This is now thought to mean 'Things – mere or – marr', the wetland or marshland associated with the 'Thing' (the Viking parliament), at Thingwall on Wirral. The victory went to Athelstan and as a result the boundary between England and Scotland was consolidated and England was established as a unified kingdom.

6.85 According to Historic England guidelines published in December 2017: 'If the site of a battle is to merit registration it has, notwithstanding any other claims, to have been an engagement of national historic significance, and to be capable of secure location on the ground.' The principal criteria are as follows:

1. The battle must be of historic significance.
2. The battle's location must be securely identified.

6.86 Additional criteria which will be considered are:

1. Topographic integrity (e.g. The survival of the character of the landscape at the time of the battle).
2. Archaeological potential.
3. Documentation (historic and modern).
4. Evidence of military innovations.
5. Biographic associations.
6. Commemoration.

6.87 An initial study of the battle site on behalf of Wirral MBC has concluded that the evidence collected for Brunanburh to date, offers potential for a listing as not only does the conflict have national historic significance, but parts of the local landscape are undeveloped and lie within Green Belt offering good topographic integrity.

6.88 The report concludes that the case for designation therefore rests with archaeological discoveries. To date, much material has been recovered but there are issues with the quality of data that they provide. Better quality archaeological data is therefore deemed to be required to meet the criteria for listing. In the current absence of this data, the site has not been considered as a designated asset but as a regionally important area of archaeological importance as it more clearly meets these criteria at present.

Locally listed buildings

6.89 The Council does not maintain a list of locally listed buildings, although a list of locally significant buildings is

included in Appendix 1 of the Hoylake Neighbourhood Plan. As this data is not digitised and has yet to be formally assessed against the relevant criteria it has not been included in this study. The historic core of Hoylake is designated as a conservation area and is likely to include many of these buildings. Furthermore, there will be an opportunity to identify and consider non-designated historic structures in subsequent stages of assessment by the Council.

Locally listed parks/ landscapes

6.90 The Council does not maintain a list of locally listed parks or landscapes, other than the LLDs addressed within Sub Theme 4.1 (Landscape). There will be an opportunity to identify and consider non-designated parks/ landscapes in subsequent stages of assessment by the Council.

Areas of archaeological importance

6.91 Areas of Archaeological Importance (APIs) are areas defined by the local authority where, according to existing information, there is significant known archaeological interest or particular potential for new discoveries

6.92 Wirral's dataset for areas of archaeological importance includes 275 entries for four broad categories of site:

- Former archaeological building;
- Archaeological building;
- Archaeological site; and,
- Archaeological area.

6.93 These non-designated assets are a material consideration in accordance with the NPPF. For the purposes of this assessment (and in the absence of any detailed information of what the sites comprise) they have been classified as being of less than national importance, although it is recognised that some may be of higher importance.

Other historic environment records

6.94 The Merseyside Historic Environment Record (MHER) contains all known non-designated historic assets as well as designated assets and is held on a Geographical Information System (GIS). The NPPF and Historic England guidance require that HERs are consulted as a minimum when identifying heritage assets and their significance, and as non-designated assets they are a material consideration in the planning process.

6.95 There are two main types of record within the HER:

- Monuments (these can define any type of heritage asset, including buildings); and
- Events (fieldwork such as excavation or building survey).

6.96 Only monument records are used in this study as these report the findings of events, as well as assets identified through other means. Monument records are broadly sub-categorised, for example, as buildings, places, sites, findspots and listed buildings. As listed building data has already been obtained from the NHLE and as findspots generally record the location of artefacts that have been removed, these records will be filtered out of the data for the purposes of the mapping exercise in this study.

6.97 The remaining heritage assets in the monument's datasets may range from being locally important to nationally important, even though not formally designated. It is beyond the scope of this study to assign individual importance ratings, however, as there is already some recognition of those heritage assets that are most important via statutory and local designation, they have been assigned a lower importance. It is recognised that some may in fact be of medium or high importance, however, future stages of assessment work following this study should better highlight such assets and their sensitivity to development.

6.98 It is noted as a further limitation that not all MHER monuments will in fact constitute heritage assets, some may relate to place-names or fieldnames, or archaeological assets that have been destroyed. Additionally, some may be duplicates of designated assets (despite the removal of listed buildings). Further to this, another limitation is that not all heritage assets are recorded on the HER and that there is always the risk of unexpected archaeological assets in an area.

Historic Landscape Character (HLC)

6.99 Historic characterisation creates an integrated understanding of place and looks to describe the evolution of the present-day landscape as an aid to understanding the scale of change, the capacity to absorb change and what gives a place its distinctive character and sense of place.

6.100 There are two characterisation datasets available for Wirral: the Cheshire Historic Landscape Characterisation data

(2009), which focuses on rural areas; and the Merseyside Historic Landscape Characterisation data (2011), which focuses on urban areas. As there is already more specific data on various built heritage assets (e.g. listed buildings and conservation areas) and development is more likely to take place on green or brown field sites as opposed to those with existing development, the urban characterisation study is not considered as part of the baseline for this study. However, a review of the rural character areas has been undertaken to identify which ones may be of more than very low heritage value and hence have less capacity for development. Some of these landscapes may already be recognised by designation (e.g. registered landscapes or ancient woodland).

Sensitivity of assets

6.101 Heritage assets are a finite and irreplaceable resource and are highly susceptible to physical change. For the purposes of this study, sensitivity is calculated based on the importance of an asset's significance and the level of constraint that it would represent to development given relevant legislation and policy.

6.102 As discussed above, the contribution that setting makes to an asset's heritage significance can vary. Given the need for some level of individual understanding of an asset's significance, including any contribution made by setting, and the high-level nature of this study, consideration of setting sensitivity has been excluded from this exercise. This means that not all areas of high historic environment sensitivity will be highlighted in this study, but this will be addressed by the Council through further assessment and site assessment work, where more detailed analysis will be undertaken and setting effects can be considered.

6.103 Taking into account the above, the significance of each category of heritage asset, their sensitivity to physical change (as a result of development) and their overall sensitivity to development is summarised in **Table 6.3**.

Table 6.3: Sensitivity of historic environment assets

Asset	Capacity to withstand change	Significance	Sensitivity
Scheduled monuments	Susceptible The heritage significance of scheduled monuments is primarily derived from their archaeological/ evidential value and this is primarily embodied in their physical form meaning that their	National Scheduled monuments are of national importance. They are legally protected from disturbance and the NPPF (para. 194) specifically states that: "Substantial harm to or loss of a (...) notably	Higher Avoid development

Asset	Capacity to withstand change	Significance	Sensitivity
	<p>heritage significance is highly susceptible to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the character of significance and the contribution (if any) made by their surroundings to it.</p>	<p>scheduled monuments (...) should wholly be exceptional". Further to which, the NPPF requires that any harm to a designated asset requires clear and convincing justification (para. 194).</p>	
Listed buildings	<p>Susceptible</p> <p>The heritage significance of listed buildings is primarily derived from their fabric and form meaning that their significance is highly sensitive to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the character of significance and the contribution (if any) made by their surroundings to it.</p>	<p>National</p> <p>Listed Buildings are designated by the Planning (Listed Buildings and Conservation Areas) Act 1990 and it affords all listed buildings the same level of legal protection as nationally important assets. However, the NPPF differentiates between the grade of buildings stating that substantial harm to, or loss of, a Grade I or II* listed building should be 'wholly exceptional' while substantial harm to a Grade II listed building should be 'exceptional'. Further to which, the NPPF requires that any harm to a designated asset requires clear and convincing justification (para. 194).</p>	<p>Higher</p> <p>Avoid residential development of Listed Buildings. Please note that this rating only affects the Listed Building itself and not the setting of a Listed Building. Issues of setting will need to be considered on a site by site basis and some mitigation within an area defined as setting may be possible to limit impacts.</p>
Selected Conservation areas (Port Sunlight; Hamilton Square; Playbrick Memorial Gardens; Birkenhead Park)	<p>Susceptible</p> <p>Conservation areas are of special architectural or historic interest, although they may possess other heritage interest too. This interest is primarily derived from their character and appearance, including their building quality, historic layout, and building materials. A conservation areas heritage significance is, therefore, highly susceptible to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the character of significance and the contribution (if any) made by their surroundings to it.</p>	<p>National</p> <p>Conservation areas are statutorily designated and have legal protection which requires that "special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area." The NPPF (para. 201) also states that the loss of a building (or other element) making a positive contribution to the significance of the Conservation Area should be treated either as substantial harm or less than substantial harm as appropriate, depending on the relative significance of the element affected and its contribution to the significance of the Conservation Area as a whole.</p>	<p>Higher</p> <p>Avoid residential development. For conservation areas of high importance</p>

Asset	Capacity to withstand change	Significance	Sensitivity
		The value of Conservation Areas is variable. For the purpose of this study they have been assigned a high or medium importance, depending on their already recognised national importance.	
Conservation areas (all others)	<p>Susceptible</p> <p>Conservation areas are of special architectural or historic interest, although they may possess other heritage interest too. This interest is primarily derived from their character and appearance, including their building quality, historic layout, and building materials. A conservation areas heritage significance is, therefore, highly susceptible to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the character of significance and the contribution (if any) made by their surroundings to it.</p>	<p>Less than national</p> <p>Conservation areas are statutorily designated and have legal protection which requires that "special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area." The NPPF (para. 201) also states that the loss of a building (or other element) making a positive contribution to the significance of the Conservation Area should be treated either as substantial harm or less than substantial harm as appropriate, depending on the relative significance of the element affected and its contribution to the significance of the Conservation Area as a whole.</p> <p>The value of Conservation Areas is variable. For the purpose of this study they have been assigned a high or medium importance, depending on their already recognised national importance.</p>	<p>Moderate</p> <p>For conservation areas of regional importance, some development may be possible in some locations; however, it would most likely be small-scale infill rather than large-scale development, subject to site-specific circumstances.</p>
Registered parks and gardens	<p>Susceptible</p> <p>The heritage significance of registered parks and gardens is primarily derived from their historical and aesthetic/ artistic/ architectural value, although they may have other heritage interests too. A registered park or garden's heritage significance is, therefore, highly susceptible to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the</p>	<p>National</p> <p>Registered parks and gardens are statutorily designated and are a material consideration in the planning process. The NPPF (para. 194) states that 'substantial harm to or loss of' a grade I or II* registered park and garden should 'wholly be exceptional' and that 'substantial harm to or loss of' a grade II registered park and garden should be 'exceptional'. Further to which, the NPPF requires that any harm to a designated asset</p>	<p>Higher</p> <p>Avoid residential development</p> <p>To accommodate development within them could impact on their nature, characteristics and the very reason for which they have been designated in the first place.</p>

Asset	Capacity to withstand change	Significance	Sensitivity
	character of significance and the contribution (if any) made by their surroundings to it.	requires clear and convincing justification (para. 194).	
Areas of Archaeological Importance (including the Battle of Brunanburh site)	<p>Susceptible</p> <p>As with scheduled monuments, the heritage significance of areas of archaeological importance is primarily derived from their archaeological/ evidential value which is primarily embodied in their physical form. This means that their heritage significance is highly susceptible to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the character of significance and the contribution (if any) made by their surroundings to it.</p>	<p>Less than national</p> <p>These assets are identified by the local authority as being of greater than local importance (e.g. regional). Although non-designated heritage assets are not legally protected, they are a material consideration in the planning process. The NPPF (para 197) requires that the effect of an application on the significance of a non-designated heritage asset should be considered when determining a planning application. It also states (at para 194 footnote 63) that non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.</p>	<p>Moderate</p> <p>Residential development may be possible in some locations and subject to site-specific circumstances.</p>
Merseyside historic environment records	<p>Susceptible</p> <p>The MHER identifies a variety of assets the heritage significance of which will vary greatly. However, the significance of most will primarily be embodied in their physical form. This means that their heritage significance is highly susceptible to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the character of significance and the contribution (if any) made by their surroundings to it.</p>	<p>Less than national</p> <p>The MHER contains a wide range of heritage assets most of which will be of local importance, although some may be of regional or even national importance. Although non-designated heritage assets are not legally protected, they are a material consideration in the planning process. The NPPF (para 197) requires that the effect of an application on the significance of a non-designated heritage asset should be considered when determining a planning application. The NPPF (para. 195 footnote 63) states that where a non-designated heritage asset of archaeological interest is shown to be of national significance it should be subject to the same policies as that for designated assets.</p>	<p>Moderate</p> <p>Residential development may be possible in some locations provided mitigation is undertaken.</p>

Asset	Capacity to withstand change	Significance	Sensitivity
Historic Landscape Character	<p>Susceptible</p> <p>The heritage significance of landscape is typically derived from its historical illustrative and aesthetic value, although some may have evidential value due to their past land use. The significance of historic landscapes is derived from their physical form and character, making them highly susceptible to physical change or loss.</p> <p>The extent to which their heritage significance is susceptible to setting change will vary depending on the character of significance and the contribution (if any) made by their surroundings to it.</p>	<p>Less than national</p> <p>A selection of older and rarer landscapes with of at least local importance have been considered in this assessment. Although non-designated heritage assets are not legally protected, they are a material consideration in the planning process. The NPPF (para 197) requires that the effect of an application on the significance of a non-designated heritage asset should be considered when determining a planning application.</p> <p>Any hedgerows within these enclosures that qualify as important under the historic criteria of the 1997 Hedgerow Regulations would be heritage assets of low value.</p>	<p>Moderate</p> <p>Residential development may be possible in some locations.</p>

Sensitivity of landscape and cultural heritage assets in Wirral

6.104 The sensitivity of the Borough's landscape and cultural heritage assets is mapped in **Figure 6.5**.

6.105 There are only isolated areas of high environmental sensitivity against this Theme in Wirral, which relate to certain Conservation Areas (Port Sunlight, Birkenhead Park, Flaybrick Hill and Hamilton Square) and Registered Parks and Gardens – some of which overlap with the Conservation Areas, but also including Thornton Manor in the centre of the Borough.

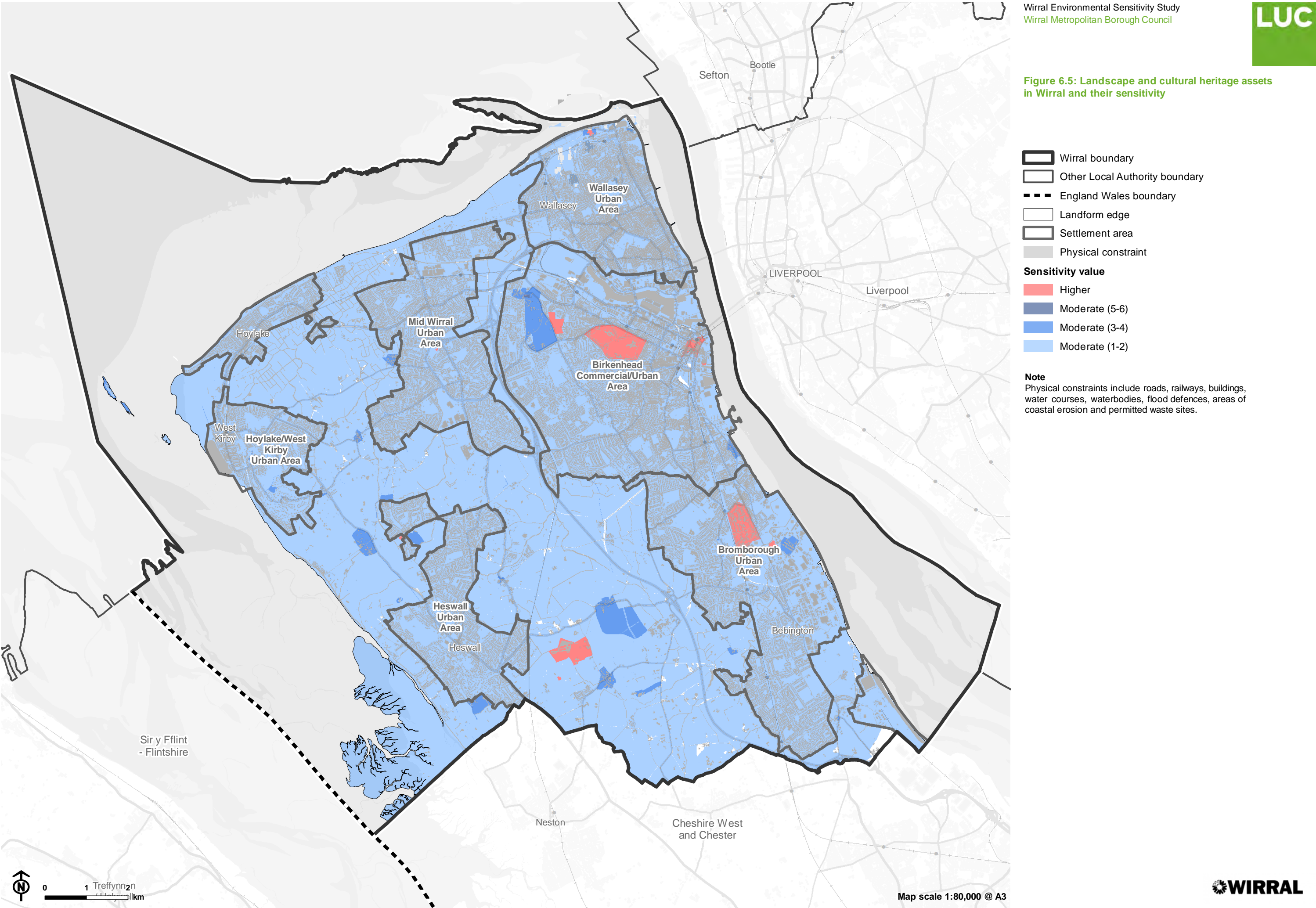
6.106 Areas of moderate sensitivity relate to Local Landscape Designations (LLDs), indicating heightened landscape

sensitivity in these locations. Please note, the findings of the LSA will be considered separately within **Chapters 9, 10, 12 and 13**.

6.107 Other areas of moderate sensitivity relate to heritage assets, including remaining Conservation Areas and Areas of Archaeological Importance (AAPs).

6.108 The sensitivity of the Borough as a whole, i.e. presenting the sensitivity of all environmental assets in one composite map, is considered in **Chapter 10**.

Figure 6.5: Landscape and cultural heritage assets in Wirral and their sensitivity



Chapter 7

Core Theme 5: Applying Sensitivity Values to Green Space, Health and Wellbeing Assets

Introduction

7.1 This section considers the green space assets and health and wellbeing context within Wirral. For example, valued parks as well as considering the impact on environmental health, of areas of high noise exposure and poor air quality.

Overview

7.2 Three Sub Themes have been identified under Core Theme 5:

- **Sub Theme 5.1:** Green space (including recreation).
- **Sub Theme 5.2:** Noise exposure.
- **Sub Theme 5.3:** Air quality.

7.3 For each Sub Theme, the following information is presented:

- Data sources and any limitations.
- The importance of the asset.
- Overview of important legislation/ national planning policy.
- Local policy context.
- Proposed sensitivity rating.

7.4 Table 7.1 sets out the assets that have been considered; relevant data sets and the source of the data.

7.5 Figure 7.1 maps the green space (including recreation) areas of the Borough.

7.6 Figure 7.2 and **Figure 7.3** map areas of high daytime and night time noise exposure in Wirral.

7.7 Figure 7.4 maps the air quality baseline in Wirral.

Table 7.1: Green space, health and wellbeing - assets and data sources

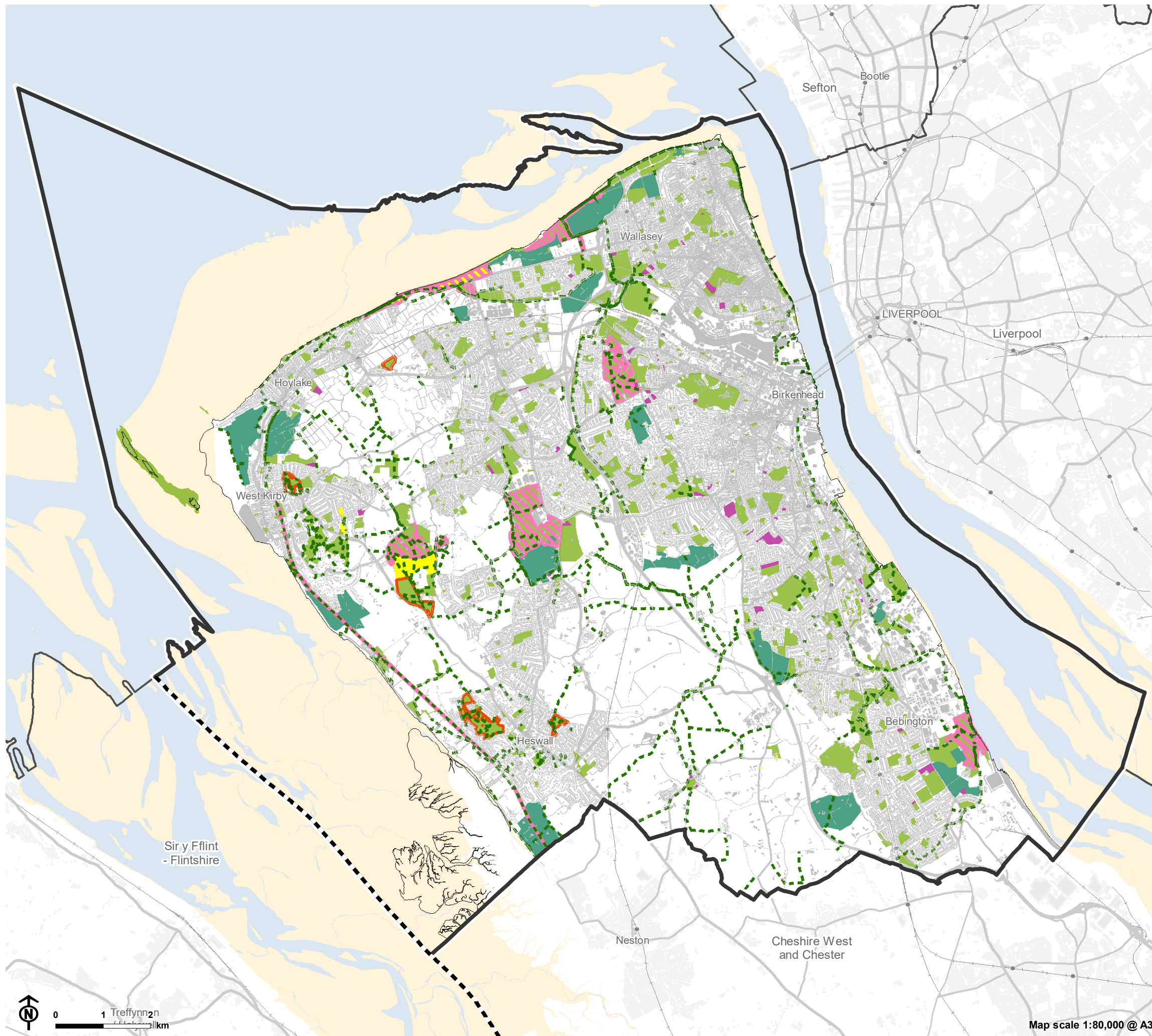
Sub Theme	Data Set	Data Source
Green space	Country Parks	Natural England
	Open access land (including registered common land)	Natural England
	Public parks and green space (including allotments)	Wirral MBC
	Play areas and playing pitches	Wirral MBC
	Designated local green spaces	Wirral MBC
	PROW network	Wirral MBC
	<i>Data set used for contextual mapping, but not assigned sensitivity rating</i>	
	Golf Courses (not publicly accessible)	Wirral MBC
Noise exposure	Daytime and night-time noise data	Defra
<i>Data sets used for contextual mapping, but not assigned sensitivity ratings</i>		
Air Quality	Daily Air Quality Index (PM ₁₀) (PM _{2.5}) (NO ₂)	Daily Air Quality Index (PM ₁₀) (PM _{2.5}) (NO ₂)

Data limitations

The following issue was identified as a data limitation under Core Theme 5:

- Pending final review, finalised data is not yet available on locally designated Local Green Spaces (LGS), which are afforded a greater degree of protection compared to other parts of the open space network. These areas would be of higher sensitivity, but it has not been possible to include and map them within this study.

Figure 7.1: Green space and recreation assets in Wirral



- Wirral boundary
- Other Local Authority boundary
- England - Wales boundary
- Landform edge
- Physical constraint
- Public Right of Way
- Open country
- Registered common land
- Open space
- Allotment
- Golf course
- Country park

Note
Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Figure 7.2: Day time noise exposure in Wirral

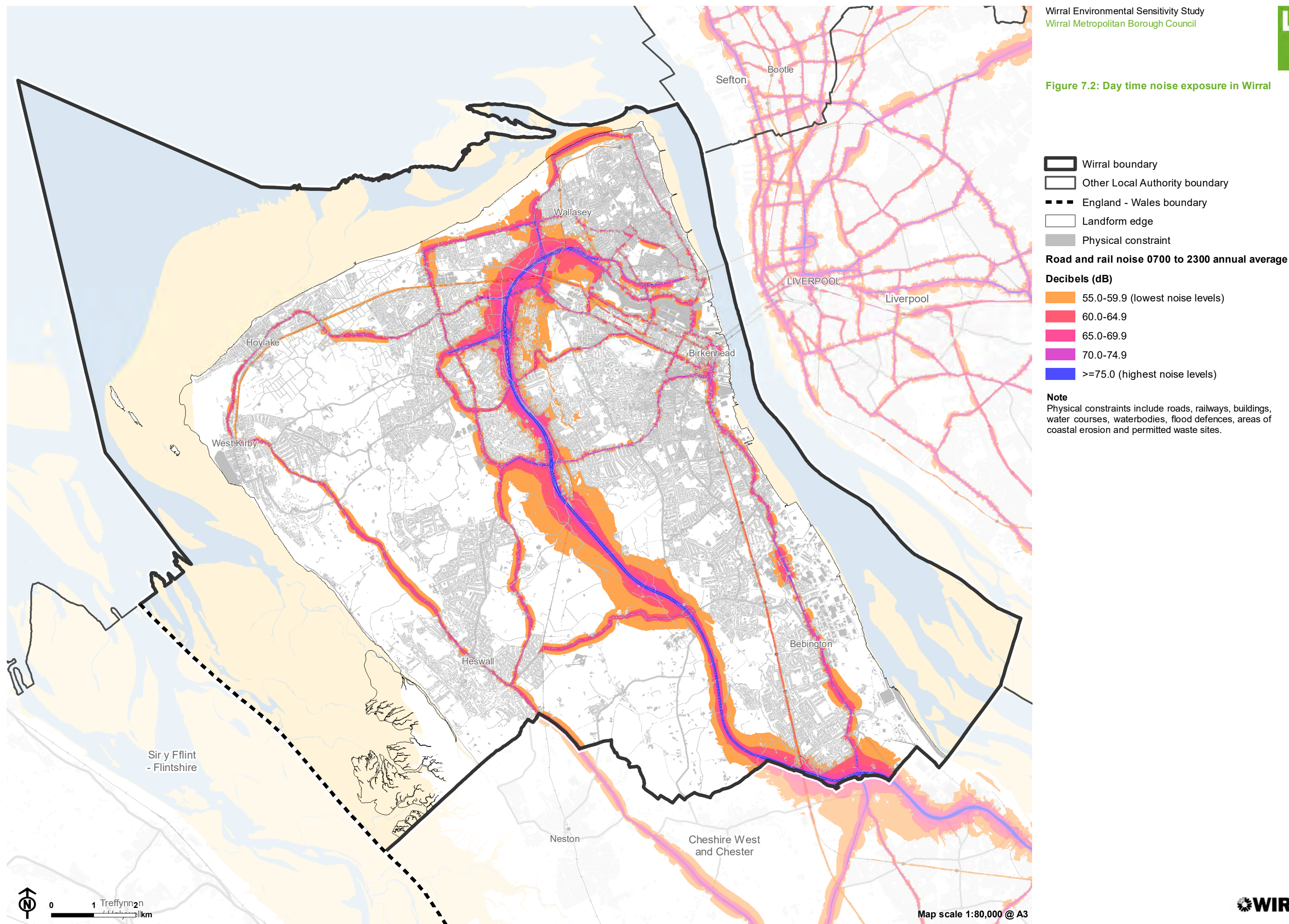


Figure 7.3: Night time noise exposure in Wirral

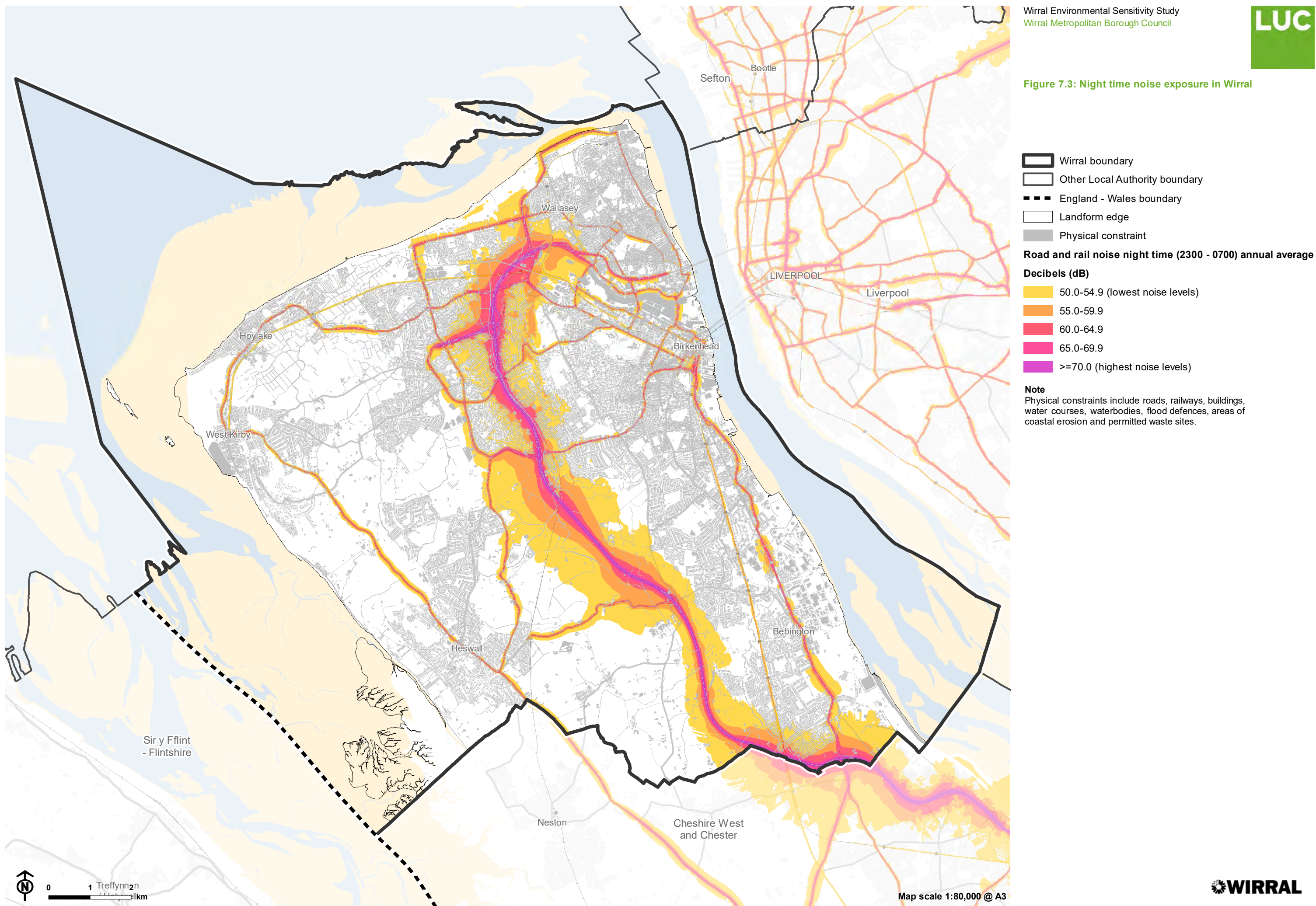
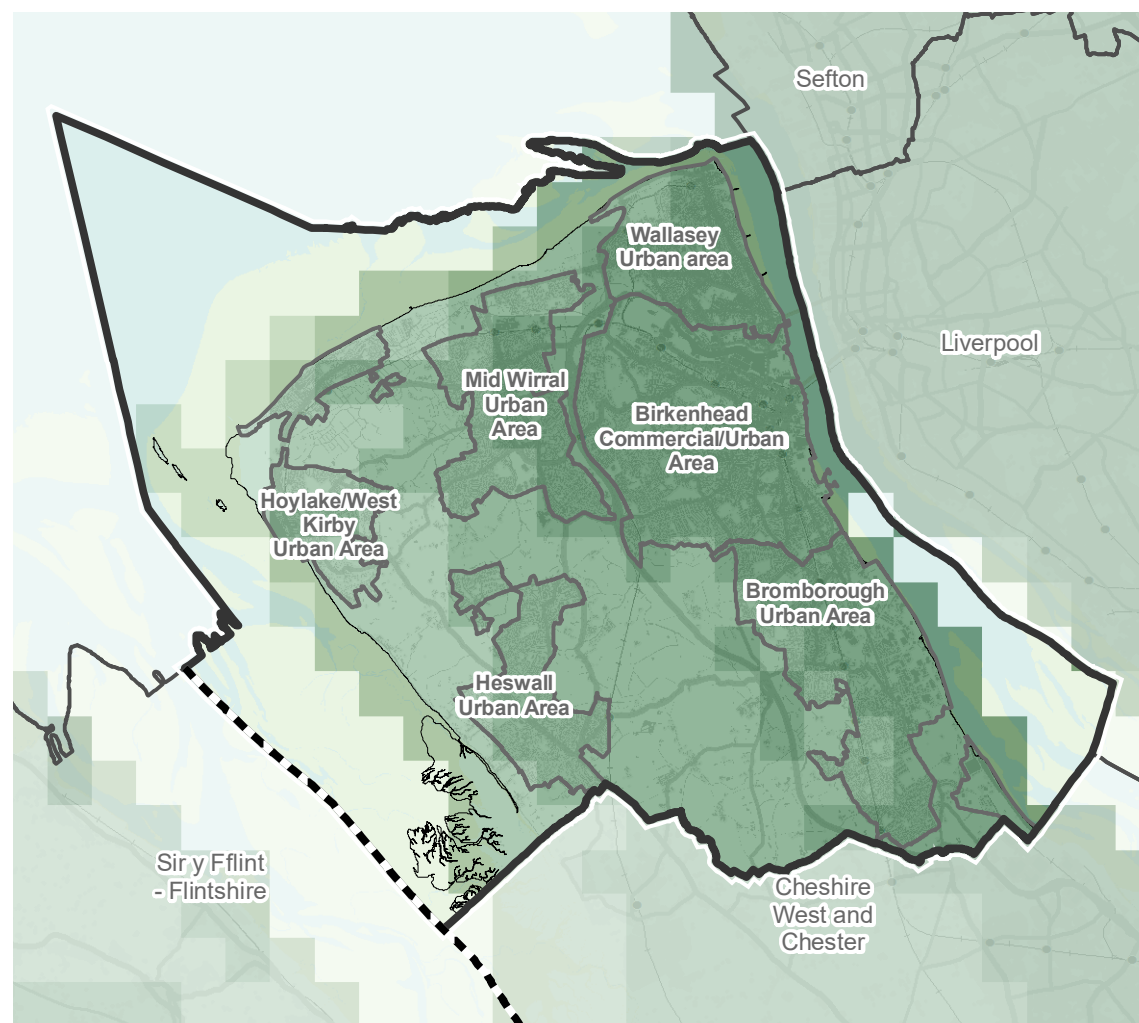
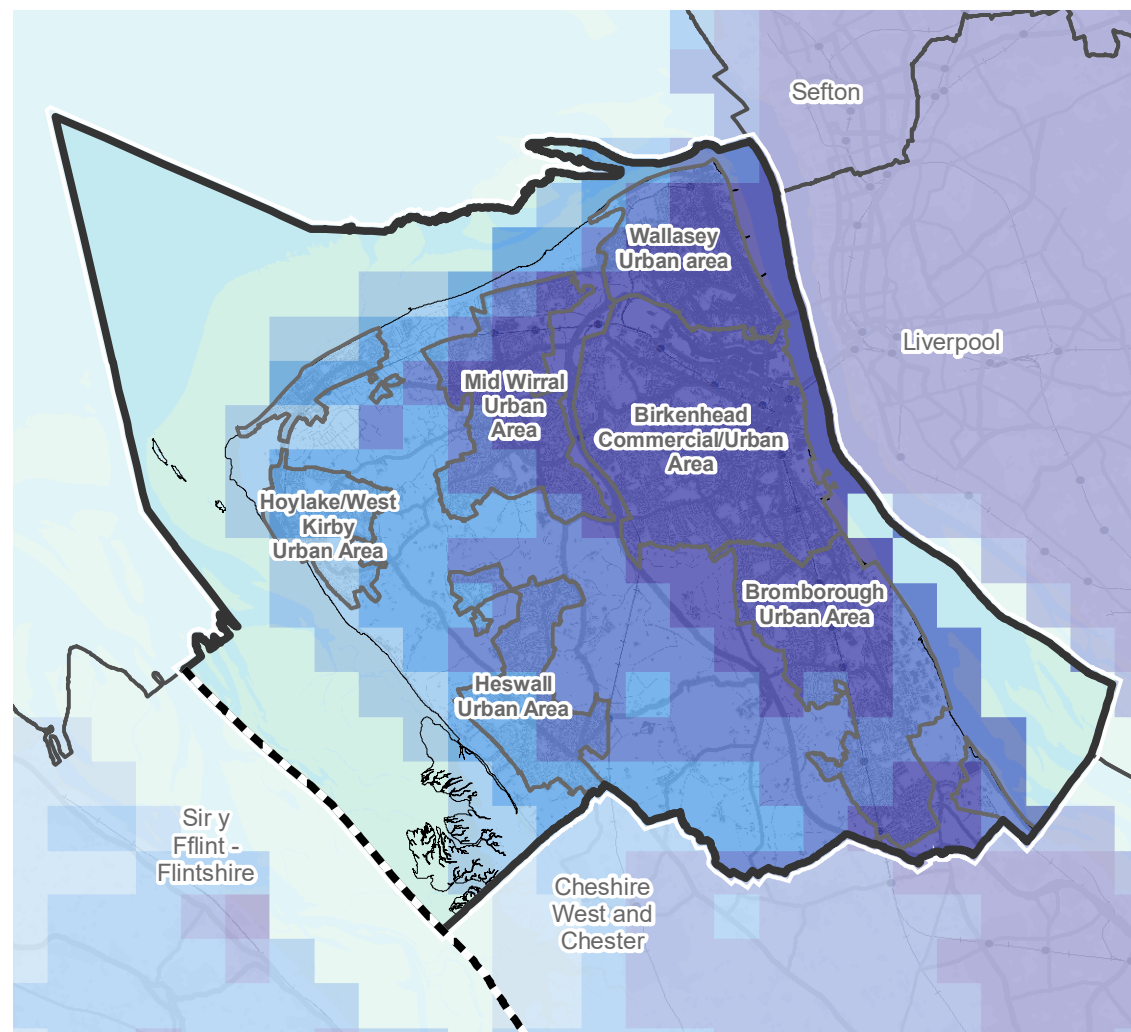
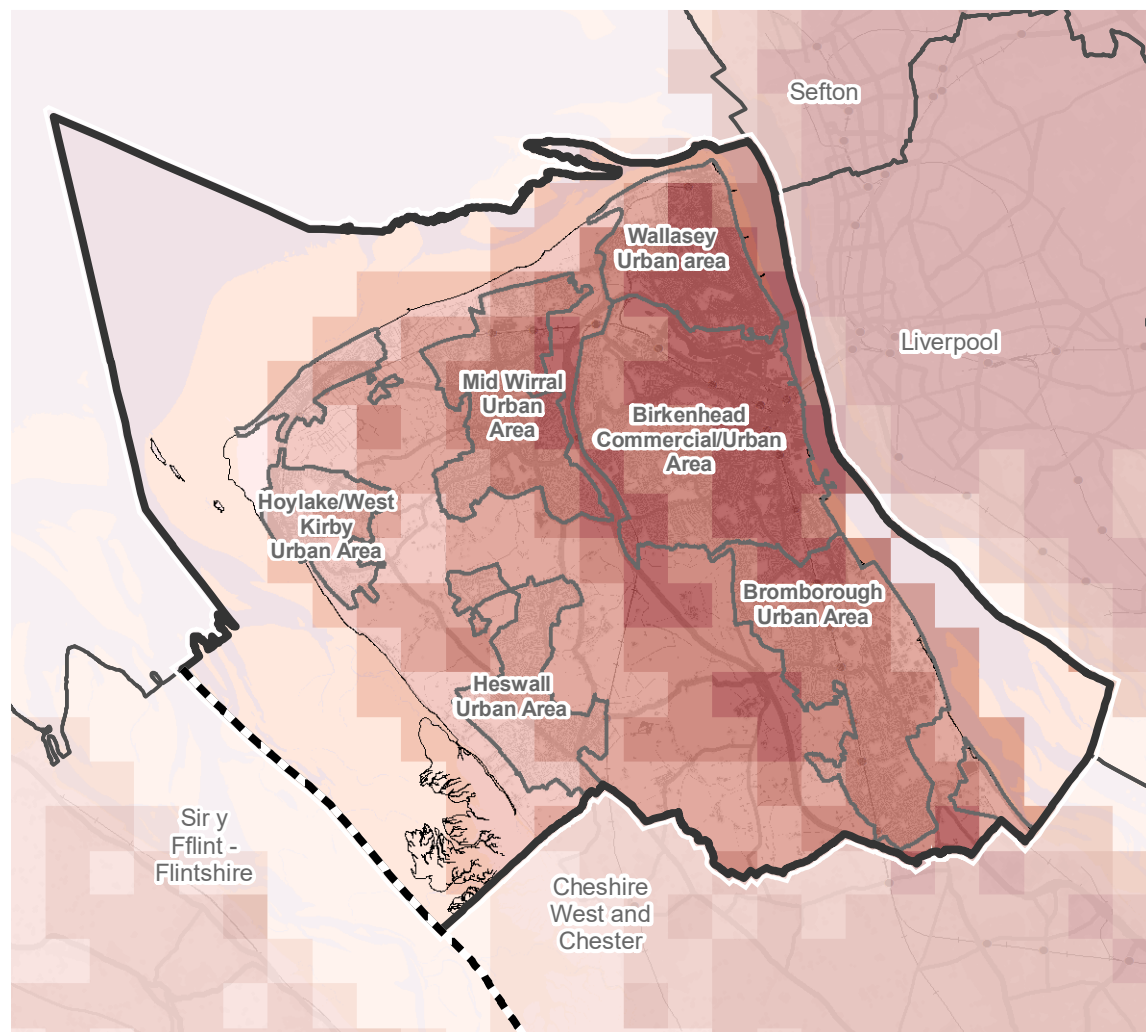


Figure 7.4: Air quality in Wirral



- Wirral boundary
- Other Local Authority boundary
- England - Wales boundary
- Landform edge
- Settlement area
- Physical constraint

Air Quality PM10 (ug/m³ gravimetric) displayed by quantile

Total PM10

- 0 - 8.9 (lower concentration)
- 8.9 - 9.9
- 9.9 - 10.8
- 10.8 - 11.9
- 11.9 - 16.8 (higher concentration)

Air Quality PM2.5 (ug/m³ gravimetric) displayed by quantile

Total PM2.5

- 0 - 6 (lower concentration)
- 6 - 6.5
- 6.5 - 7
- 7 - 7.5
- 7.5 - 12 (higher concentration)

Air Quality NO2 (ug/m³ gravimetric) displayed by quantile

Total NO2

- 0 - 3.9 (lower concentration)
- 3.9 - 5.9
- 5.9 - 7.9
- 7.9 - 11.6
- 11.6 - 30 (higher concentration)

Note

Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.



Map scale 1:170,000 @ A3

Sub Theme 5.1: Green space and recreation

Why are these assets important?

7.8 This section considers open spaces that are an important part of the green infrastructure network and provide a valuable recreational resource for Wirral's population.

7.9 Research increasingly shows that interventions to increase or improve urban green space can deliver positive health, social and environmental outcomes for all population groups, particularly among lower socio-economic status groups.⁴¹

7.10 Greenspaces and the wider green infrastructure (GI) network provide a range of benefits to the environment, society and the economy. These assets provide regulating and supporting services such as areas for primary production, improved air quality and climate regulation through reducing local temperatures and alleviating flood risk. Assets also provide cultural services as spaces for leisure and recreational activities that deliver human health benefits (both physical and mental wellbeing). Economic benefits are gained through increasing the attractiveness of the local area, which is an asset to employers and employees, supporting the tourism sector and reducing healthcare costs.

7.11 Natural environments have been recognised as an important component of 'healthy places', and in particular there is strong and consistent evidence for mental health and wellbeing benefits arising from exposure to natural environments, including reductions in psychological stress, fatigue, anxiety and depression⁴².

7.12 Several of the Sub Themes within this study address the specific functions of landscape and environmental features. However the GI network is defined by its multifunctionality – for example, a high quality and multi-functional green space can serve simultaneously as a valued place of 'escape' for local residents, an area to play, a locus of interaction between members of the same community, a store of carbon and a valuable 'stepping stone' habitat for local wildlife. This Sub Theme in particular will focus on assets which bring recreational value and provide a boost to local health and wellbeing.

Legislation

7.13 There are various forms of legislation relating to the protection of different forms of green space.

7.14 Local communities can make the legal case for designating open green spaces as 'assets of community value' under the Localism Act 2011 or 'Town or Village Greens' under the Commons Act 2006.

7.15 The Commons Act 2006 provides protection against encroachment and severance of common land. The Countryside and Rights of Way Act 2000 (CROW) ensures that the public have the right to use common land and open access land.

7.16 The requirement for Suitable Alternative Natural Green Spaces (SANGs) usually arises as a result of the Habitats and Species Regulations (2017), in order to protect international designated sites (SAC, SPA or Ramsar) from impacts related to recreation associated with new development. The Regulations do not provide any protection for SANGs themselves but paragraph 176 of the NPPF does state that sites identified, or required, as compensatory measures for adverse effects on habitats sites e.g. SPAs, SACs, should be afforded the same protection as the designated sites.

7.17 Section 8 of the Allotment Act 1925 specifies that land purchased or appropriated by local authorities for use as allotments must not be disposed of without Ministerial consent. The Secretary of State must be satisfied that 'adequate provision will be made for allotment holders displaced by the action of the local authority, or that such provision is unnecessary or not reasonably practicable'.

National policy context

7.18 There are no nationally established standards for open space provision, however Paragraph 96 of the NPPF states that:

'Access to a network of high-quality open spaces and opportunities for sport and physical activity is important for the health and wellbeing of communities. Planning policies should be based on robust and up-to-date assessments of the need for open space, sport and recreation facilities (including quantitative or qualitative deficits or surpluses) and opportunities for new provision. Information gained from the assessments should be used to determine what open space, sport and

⁴¹ WHO (2016), 'Urban Green Spaces and Health: A review of evidence' [Online] Available at: https://www.euro.who.int/_data/assets/pdf_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf

⁴² DEFRA and ECEHH (2018), 'Health and the natural environment: A review of evidence, policy, practice and opportunities for the future' [Online]

recreational provision is needed, which plans should then seek to accommodate.'

7.19 Paragraph 97 sets out the only circumstances in which open space can be developed for different uses. It clarifies that existing open space should not be built on unless:

- *'an assessment has been undertaken which has clearly shown the open space to be surplus to requirements; or*
- *the loss resulting from the proposed development would be replaced by equivalent or better provision in terms of quantity and quality in a suitable location; or*
- *the development is for alternative sports and recreational provision, the benefits of which clearly outweigh the loss of the current or former use.'*

7.20 The NPPF provides a mechanism by which Local Authorities can protect some open spaces under a 'Local Green Space' designation (Paragraphs 99-101) and provides high level criteria for such a designation.

7.21 Paragraph 98 of the NPPF also touches on protections for the Public Right of Way (PROW) network, stating that:

'Planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails'

Local policy context

7.22 Within Wirral's existing Unitary Development Plan (UDP), Policy GRE1 – The Protection of Urban Green Space outlines that:

'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, located 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).'

7.23 Paragraphs 8.7 to 8.11 set out existing adopted standards of provision and identify areas of shortfall. Specific sites are listed for protection as Urban Greenspace under UDP Proposal GR2, Urban Allotments under UDP Proposal GR4 and for sport and recreation under UDP Proposal RE6. Policy GR6 sets out the existing adopted standards for provision within new development.

7.24 More recently, Wirral's Draft Open Space Assessment Report (2019) has provided an up to date review of the condition, distribution and overall quality of existing open space in Wirral. It is accompanied by a Draft Open Space Standards Paper (2020), which sets out proposed revised standards for open space provision by identifying deficiencies and surpluses in existing and future provision. The latter recommends the use of the Fields in Trust (FIT) standard, based on existing national benchmarks, for each typology of open space, as well as the Natural England standards for natural and semi-natural space.

7.25 The Wirral Playing Pitch and Outdoor Sports Strategy (2016) provides a strategic framework for the maintenance and improvement of existing outdoor sport pitches. It builds on the findings of Wirral's Playing Pitch and Outdoor Sports Assessment (2016), which is currently being updated.

7.26 The Draft Wirral Local Football Facility Plan (2018) identifies priority projects in Wirral that will enable investment in football facilities to be accurately targeted for the grassroots game.

Local green space, recreation and green infrastructure considerations and current pressures.

7.27 Wirral's open space and recreation assets are summarised below, along with an indication of how they might be expected to change in future.

Country Parks

7.28 Wirral is well known sub-regionally for its leisure facilities and for its provision for coastal and countryside recreation in particular. However, Wirral Country Park is the only nationally accredited Country Park in the Borough – designated for the purpose of people visiting and enjoying recreation in a countryside environment.

7.29 There are a number of Local Nature Reserves (LNRs) in Wirral which are also valued recreational assets. However,

these are dealt with under Core Theme 2 (Ecology and Geology).

Open space: various typologies

7.30 There are currently over 210 parks and open space sites owned by the Council, 32 of which had achieved a Green Flag Award as of the time of writing, following investment in facilities in recent years⁴³. The most popular recreational sites highlighted by the Parks and Open Space Strategy are:

- Wirral's coastline.
- Royden Park.
- Wirral Way walking route.
- Arrowe Park.
- Birkenhead Park.
- Ashton Park.
- Wirral Country Park.

7.31 Open space is frequently divided into a number of 'typologies'. However, in Wirral it is also recognised that the popularity of the coastal areas as a recreational asset means that they may help to meet gaps in other forms of provision.

Table 7.2: (based on data from the Borough's most recent Open Space Assessment in 2019) gives an overview of how the provision of each 'typology' compares to national benchmarks. Despite overall provision being above national benchmarks, the table highlights in orange where there may be quantitative deficiencies across the Borough - in natural and semi-natural green space, provision for children and young people and allotments. However, it should be acknowledged that parks and gardens may themselves include areas of natural and semi-natural green space. There are a number of areas in the Borough where there are long waiting lists for allotments, and it is understood that the 2020 Covid-19 pandemic caused a significant spike in demand.

Table 7.2: Open space - comparison of current provision and national benchmarks

Typology	Hectares per 1,000 population		
	Current provision	National benchmarks	Level of provision
Parks & Gardens	1.80	0.80	Exceeds benchmark
Amenity greenspace	0.70	0.60	Exceeds benchmark

Typology	Hectares per 1,000 population		
	Current provision	National benchmarks	Level of provision
Natural and semi-natural green space	1.78	1.80	Falls short of benchmark
Provision for children & young people	0.03	0.25	Falls short of benchmark
Allotments	0.18	0.25	Falls short of benchmark
Combined	4.49	3.70	Exceeds benchmark

Open access land/Registered Common Land

7.32 Wirral is host to roughly 146 hectares of Open Access Land/Registered Common Land. Members of the public have the 'right to roam' on open access land and so are able to go beyond designated paths.

7.33 The majority of these areas within Wirral are concentrated in the west of the peninsula, around Royden Country Park, Heswall Dales, the outskirts of West Kirby, North Wirral Coastal Park, and a small area of the River Birket Floodplain.

Outdoor playing pitches

7.34 Wirral's Playing Pitch and Outdoor Sports Strategy (2016) highlights the health and social cohesion benefits of pitch sports against a backdrop of financial austerity and public sector budget reductions. It shows that Wirral is an area of significant demand for outdoor sport and a significant growth area for football in particular. The report identifies current and future shortfalls in football provision across most of the Borough, with poor provision hindering growth due to significant demand. A number of clubs report a lack of access to affordable floodlit training facilities, particularly AGPs with a 3G surface. Wirral is a priority area for rugby union and pitches require protection, and a strong hockey area, with demand for additional pitch space. It is also a priority authority for the LTA and ranks within the top ten local authorities nationally for tennis, and there is strong participation in bowling. Wirral is described as a 'cricket hotbed', and existing sites are to be protected, however only minor current and future shortfalls are identified.

⁴³ Source: Green Flag Website
(<http://www.greenflagaward.org.uk/award-winners/>)

7.35 Currently in Wirral there are 207 football pitches, 39 cricket, 65 rugby pitches, 173 tennis courts and 51 bowling greens.

Local green spaces

7.36 Paragraph 100 of the NPPF gives Local Authorities the powers to designate Local Green Spaces (LGS), giving opportunities for communities to permanently preserve areas of green space. Communities are required to show that these spaces are:

- *'In reasonable proximity to the community they serve;*
- *Demonstrably special to a local community and holding particular local significance, for e.g. because of beauty, historic significance, recreational value, tranquillity or richness of wildlife;*
- *Local in character and not an extensive tract of land'.*

7.37 At the time of writing, Wirral MBC is in the process of reviewing a number of submissions for LGS from members of the community and is due to make a decision on whether to formally designate any of these spaces later in 2020.

Public Rights of Way (PROW) network

7.38 Wirral's Public Rights of Way (PROW) network provides a major recreational resource, helping people to access the

countryside from urbanised areas. It provides an important resource for short journeys between both urban and rural areas.

7.39 The Wirral Way and Wirral Circular Trail in particular are well-used and valued route around the coastal edge of Wirral. A significant upcoming initiative will involve the upgrading of coastal routes around the peninsula over 2020 to form a section of the England Coastal Path, which when completed will be the longest coastal path in the world.

Waterside routes

7.40 The Environment Agency (EA) recommends that an 8-metre buffer is applied to the edges of rivers and waterbodies, in order to safeguard these areas as valued environmental assets.

Sensitivity of assets

7.41 The capacity of each asset to withstand change, their significance and their overall sensitivity is summarised in **Table 7.3**.

Table 7.3: Sensitivity of open space and recreation assets

Asset	Capacity to Withstand Change	Significance	Sensitivity
Country Parks	<p>More Robust</p> <p>The primary purpose of these designations is to offer strategic leisure and recreation opportunities available to local population centres, however they also often have biodiversity value.</p> <p>Parts of Wirral's Country Parks may overlap with designations such as ancient woodland, which are more susceptible, the areas outside these designations are considered to be more robust.</p>	<p>National</p> <p>Country Parks are statutorily declared and managed by local authorities in England and Wales under the Countryside Act 1968.</p>	<p>Moderate</p> <p>Development may be possible in some locations, outside areas designated for biodiversity value etc, provided compensatory space is provided elsewhere.</p>
Parks and gardens	<p>Susceptible</p>	<p>Local</p>	<p>Moderate</p>

Asset	Capacity to Withstand Change	Significance	Sensitivity
	These are located to meet the needs of specific settlements and as such may be difficult to replace.	Overall levels of provision afforded protection by UDP policies, the Borough's Open Space Strategy and the draft Open Space standards.	Development may be possible in some locations, provided sufficient space is provided elsewhere.
Amenity greenspace	Susceptible These are located to meet the needs of specific communities and as such may be difficult to replace.	Local Overall levels of provision afforded protection by UDP policies, the Borough's Open Space Strategy and the draft Open Space standards.	Moderate Development may be possible in some locations, subject to local standards and provided sufficient space is provided elsewhere.
Publicly accessible natural and semi-natural green space	Susceptible These are likely to meet the needs of specific communities and as such may be difficult to replace.	Local Overall levels of provision afforded protection by UDP policies, the Borough's Open Space Strategy and the draft Open Space standards.	Moderate Development may be possible in some locations provided sufficient space is provided elsewhere.
Provision for children & young people	Susceptible These are located to meet the needs of specific communities and as such may be difficult to replace.	Local Overall levels of provision afforded protection by UDP policies, the Borough's Open Space Strategy and the draft Open Space standards.	Moderate Development may be possible in some locations provided sufficient space is provided elsewhere.
Allotments	Susceptible These are located to meet the needs of specific communities and as such may be difficult to replace.	National Section 8 of the Allotments Act 1926 specifies that land purchased or appropriated by local authorities for use as allotments must not be disposed of without Ministerial consent.	Moderate Development may be possible in some locations, subject to local standards and provided sufficient space is provided elsewhere.
Playing pitches and other outdoor sports facilities	Susceptible These are located to meet the needs of specific communities and as such may be difficult to replace in a nearby location.	Local Overall levels of provision afforded protection by UDP policies, the Borough's Playing Pitch and Outdoor Sports Strategy.	Moderate Development may be possible in some locations provided sufficient space is provided elsewhere.
Local green spaces	Susceptible These are likely to meet the needs of specific communities and as such may be difficult to replace.	National The NPPF allows designated LGSs to be protected for reasons including setting and nature conservation.	Moderate Once a designated LGS is in place, it is subject to the same strong development restrictions as Green Belt, largely ruling out new development except in special circumstances and on a case by case basis.

Asset	Capacity to Withstand Change	Significance	Sensitivity
Open access land (including registered common land)	<p>More robust</p> <p>Open access land may coincide with other biodiversity or heritage features, but the designation itself refers to how the land is used, which could be accommodated elsewhere.</p> <p>However, common land designations can be complex and related to historic rights that cannot easily be accommodated elsewhere.</p> <p>As the two datasets are combined, open access land has been classed as 'more robust' as development may be possible in some areas.</p>	<p>National</p> <p>Open access land is designated by the Countryside and Rights of Way Act 2000.</p> <p>The Commons Act 2006 provides strict control of development on common land. Consent must be sought from the Planning Inspectorate on behalf of the Secretary of State for Environment, Food and Rural Affairs for any works on Common Land and residential development is unlikely to be acceptable.</p>	<p>Moderate</p> <p>Development is unlikely to be acceptable on open access land / common land, but this may depend on the nature of historic rights on the area of land in question.</p>
Public Rights of Way network	<p>Susceptible/More robust</p> <p>The PROW network is susceptible to development which could threaten its integrity and enjoyment, particularly if there was an impact on strategic routes such as Wirral Way. However, routes can be temporarily closed or diverted if required and so can also be considered as being more robust to change.</p>	<p>National</p> <p>PROW benefit from national statutory protection which protect the right to walk, ride, cycle and drive along PROW in the countryside, and are listed and described in Definitive Maps and Statements (legal records of public rights of way).</p>	<p>Moderate</p> <p>Development may be possible in some locations, providing appropriate mitigation is provided e.g. Preservation or diversion of the PROW running through a site.</p>
8-metre buffer around water bodies	<p>Susceptible</p> <p>The loss of waterside space can lead to fragmentation of valued routes along waterways and can limit access to nature for local communities.</p>	<p>Local</p> <p>There is no explicit level of national protection afforded to waterside space, however it is encouraged by the Environment Agency (EA).</p>	<p>Moderate</p> <p>Development may be possible in some locations, providing appropriate mitigation is provided or design of development is suitable.</p>

Sub Theme 5.2: Noise exposure

Why are these assets important?

7.42 Noise can have an effect on health, wellbeing, productivity and the natural environment.

7.43 High levels of noise are also recognised by the WHO as an important public health issue, with high noise exposure having negative impacts on human health and wellbeing. The WHO highlights this as a growing concern.

7.44 With increasing levels of urbanisation in Europe, exposure to excessive noise is becoming recognised as a significant environmental health concern. Estimates suggest that 65% of Europeans living in major urban areas are exposed to high noise levels exceeding Lden 60Dba, and that more than 20% are exposed to night-time noise levels exceeding 55 dBA (the level at which there is an increased risk of adverse health effects occurring, according to the WHO).⁴⁴

7.45 In the UK, it has been estimated that the annual social cost of urban road noise in England is £7 to 10 billion. This places it at a similar magnitude to road accidents (£9 billion) and significantly greater than the impact on climate change (£1 to 4 billion).⁴⁵ As such, it is important that the impacts on noise are fully considered in decision making and policy making.

Legislation and Global Guidelines

7.46 The WHO Environmental Noise Guidelines for the European Region provide guidance on protecting human health from harmful exposure to environmental noise. They set health-based recommendations on average environmental noise exposure of five relevant sources of environmental noise. These sources are road traffic noise; railway noise; aircraft noise; wind turbine noise and leisure noise. The guidelines aim to support the legislation and policy-making process on local, national and international levels.

- For average noise exposure, the guidelines strongly recommend reducing noise levels produced by road traffic below 53 decibels (dB) Lden, as road traffic noise above this level is associated with adverse health effects.

- For night noise exposure, the guidelines strongly recommend reducing noise levels produced by road traffic during night time below 45 dB Lnight, as night-time road traffic noise above this level is associated with adverse effects on sleep.

7.47 The EC Environmental Noise Directive, 2000 includes a main target for integrated noise management, in order to avoid, prevent or reduce the harmful effects of environmental noise.

National policy context

7.48 The Government's policy on noise is set out in the Noise Policy Statement for England⁴⁶ which seeks to 'promote good health and a good quality of life through the effective management of Government Policy on sustainable development.'

7.49 In 2019 DEFRA published a Noise Action Plan for Agglomerations (Urban Areas),⁴⁷ applying to relevant authorities within the 65 Environmental Noise Directive agglomerations, defined in 2017. The Plan aims to promote good health and good quality of life (wellbeing) through the effective management of noise. DEFRA is required to undertake strategic noise mapping of agglomerations – charting the level of noise from industry and transport sources in urban areas, and the number of people exposed to it – including one covering the Birkenhead Urban Area.

7.50 Paragraph 170 of the NPPF requires that planning policies should prevent 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.'

7.51 Further, Paragraph 180 requires policies to 'avoid noise giving rise to significant adverse impacts on health and quality of life'.

7.52 The UK's Planning Practice Guidance (PPG) goes on to explain that:

⁴⁴ European Commission (2015), 'Science for Environmental Policy. THEMATIC ISSUE Noise impacts on health' [Online] Available at: <https://ec.europa.eu/environment/integration/research/newsalert/pdf/47si.pdf>

⁴⁵ HM Government (2013), 'Noise pollution: economic analysis' [Online] Available at: <https://www.gov.uk/guidance/noise-pollution-economic-analysis>

⁴⁶ DEFRA (2010), Noise Policy Statement for England [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

⁴⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813663/noise-action-plan-2019-agglomerations.pdf

*'noise needs to be considered when development may create additional noise, or would be sensitive to the prevailing acoustic environment'*⁴⁸

7.53 It also clarifies that:

*'it is important to look at noise in the context of the wider characteristics of a development proposal, its likely users and its surroundings, as these can have an important effect on whether noise is likely to pose a concern.'*⁴⁹

7.54 Giving guidance on how noise impacts can be determined, the PPG goes on to say that plan making needs to identify whether the overall effect of the noise exposure is, or would be, above the 'significant observed effect level and the lowest observed adverse effect level for the given situation'.⁵⁰

Local policy context

7.55 Regarding noise pollution, Policy PO3 (Noise) of Wirral's Unitary Development Plan (UDP) only permits development where:

'noise arising from the proposal will not cause unacceptable intrusion or persistent nuisance'

7.56 In considering such proposals, the Local Planning Authority will have particular regard to:

- '(i) the location of the proposal in relation to noise-sensitive development or land-uses;*
- (ii) the existing overall level of background noise within the locality;*
- (iii) the level, tone, duration and regularity of noise likely to be emitted by the proposal, including any subsequent increase that may be expected in the foreseeable future; and*
- (iv) the provision made within the proposals for the mitigation or insulation of noise.'*

7.57 Policy PO3 also discusses the role that appropriate mitigation can provide in managing noise levels on site.

7.58 Policy PO4 proposes requirements for noise-sensitive development, stating that the LPA will have particular regard to:

- '(i) the likely level, tone, duration and regularity of noise exposure and any likely increase in the foreseeable future;*
- (ii) the existing level of background noise within the locality;*
- (iii) the extent to which the effects of noise on the proposal can be mitigated through measures such as alterations to layout, provision of noise insulation or restriction of operating hours; and*
- (iv) the noise exposure category of a site for proposed residential development which is near an existing transport-related noise source.*

7.59 In all cases, noise sensitive development will only be permitted in locations which are not expected to become subject to unacceptably high levels of noise, or where 'adequate protection against noise can be achieved by means of planning conditions or planning obligations.'

7.60 The UDP also sets out a number of general policies addressing noise and disturbance through criteria-based policies for individual types of development (such as Policy HS15 – Non-Residential Uses in Primarily Residential Areas).

7.61 The Baseline Natural Capital Assessment for the Liverpool City Region⁵¹ identifies that environmental noise is the second largest environmental health risk in Western Europe (after air pollution). 'Major roads, railways, airports and industrial areas can be sources of considerable noise but use of vegetation can screen and reduce the effects on surrounding neighbourhoods. Complex vegetation cover such as woodland, trees and scrub are considered to be most effective, although any vegetation cover is more effective than artificial sealed surfaces, and the effectiveness of vegetation increases with width.'

7.62 The report details that woodland is by far the most effective habitat at absorbing noise, but that the greatest demand for regulating noise is in the urban centres close to major roads, where there are few if any trees. In Wirral areas with the greatest noise regulation demand are located along

⁴⁸ Paragraph: 002 Reference ID: 30-002-20190722 (Revision date: 22 07 2019)

⁴⁹ Paragraph: 002 Reference ID: 30-002-20190722 (Revision date: 22 07 2019)

⁵⁰ Paragraph: 003 Reference ID: 30-003-20190722 (Revision date: 22 07 2019)

⁵¹ Natural Capital Solutions and Liverpool John Moores University (2019), 'Baseline natural capital assessment for the Liverpool City Region' [Online] Available at: <https://www.liverpoolcityregion-ca.gov.uk/wp-content/uploads/LCR-Natural-Capital-Baseline-Report.pdf>

key transport corridors within and around urban areas – including along A552, A59 and A5139 in Birkenhead and between junctions 1 and 3 of the M53. Noise regulation capacity in central areas of Birkenhead is considered to be low however areas around Bidston Moss and Bidston Hill are considered to offer higher capacity.

Local noise exposure considerations and current pressures

7.63 The WHO's Night Noise Guidelines for Europe (2009) set guideline values for health protection in terms of the metric set L_{night}, outside which is the average annual noise level in the 8-hour period 2300-0700. The guidelines take account of the fact that the noise levels are measured outdoors but that the receptor (sleeping person) is indoors and that most people prefer to sleep with the window partly open. Adverse health effects begin to be observed when L_{night}, outside is in the range 40-55 dB and when L_{night}, outside is 55 dB or higher, adverse health effects occur frequently and there is a risk of cardiovascular disease.

The DEFRA strategic noise maps illustrate the noise generated by key road and rail routes based on WHO guidelines for noise exposure. This is considered to only be a moderate constraint in acknowledgement that adverse effects associated with noise can potentially be mitigated. **Figure 7.2** and **Figure 7.3** highlight that daytime and night-time noise levels are higher along, and in proximity to, key transport routes across Wirral, with the highest decibel levels recorded along the route of the M53. Higher noise levels are particularly evident in the area where the M53, A554 and A5139 meet and at all motorway junctions.

Sensitivity of assets

7.64 The capacity of each 'area of pressure' (for night time noise) to withstand change, its significance and its overall sensitivity is summarised in **Table 7.4**.

Table 7.4: Sensitivity of environmental health assets in Wirral

Area of pressure	Capacity to Withstand Change	Significance	Sensitivity
Areas above the night time noise threshold of L _{night} ≥ 55.0 dB, or L _{aeq,16} ≥ 60.0 dB	<p>Susceptible</p> <p>Further development in locations of high noise is likely to generate negative impacts on health and wellbeing.</p> <p>However, mitigation is likely to be possible for development located in areas with higher noise levels.</p>	<p>Local</p> <p>The impact of relatively higher areas of noise on public health is assessed as a local consideration.</p>	<p>Moderate</p> <p>Development may be possible in some locations, with appropriate mitigation.</p>

Sub Theme 5.3: Air quality

Why are these assets important?

7.65 Air pollution is associated with a number of adverse health impacts. DEFRA's 2019 Clean Air Strategy recognises it as 'the largest environmental health risk in the UK'. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society, children and older people, and those with heart and lung conditions⁵².

7.66 As well as having direct effects on public health, habitats and biodiversity, pollutants such as fine particular matter, ammonia, nitrogen oxides, sulphur dioxide and non-methane volatile organic compounds can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas). This can be transported great distances by weather systems. Odour and dust can also be a planning concern due to their likely effect on local amenity. In this way, clean air can itself be recognised as an environmental asset, however poor air quality can be seen as a factor which has a detrimental impact on the functioning of a range of other environmental assets including, for example, biodiversity, open space and heritage assets.

7.67 All development plans can influence air quality in a number of ways. One such way is through considering what type of development is appropriate for a particular area and the provision made for sustainable transport. Consideration of air quality issues at the plan-making stage can ensure a strategic approach to air quality and help secure net improvements in overall air quality where possible⁵³.

Legislation

7.68 The Air Quality Directive 2008 - Directive 2008/50/EC on ambient air quality and cleaner air for Europe seeks to avoid, prevent and reduce harmful effects of ambient air pollution on human health and the environment. It sets legally binding limits for concentrations in outdoor air of major pollutants that affect human health such as particulate matter (PM₁₀ and PM_{2.5}) and nitrogen dioxide (NO₂)

National policy context

7.69 The DEFRA Clean Air Strategy (2019) sets out the comprehensive action that is required from across all parts of government and society to meet these goals. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will

support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms. The UK has set stringent targets to cut emissions by 2020 and 2030.

7.70 DEFRA and DfT (2017) 'Improving air quality in the UK: tackling nitrogen dioxide in our towns and cities: Draft UK Air Quality Plan for tackling nitrogen dioxide': provides an overview of actions that the UK Government plans to take to achieve reduction of harmful air pollution, particularly nitrogen dioxide. The plan proposes reducing air pollution via the creation of Clean Air Zones (CAZs) – areas in which emission standards determine whether a vehicle's owner must pay a charge to enter.

7.71 The DEFRA (2017) UK plan for tackling roadside nitrogen dioxide concentrations is a statutory air quality plan for nitrogen dioxide (NO₂), setting out how the UK will be reducing roadside nitrogen dioxide concentrations.

7.72 The Air Quality Strategy for England vol. 1 (2007) sets out a way forward for work and planning on air quality issues by setting out the air quality standards and objectives to be achieved. It introduces a new policy framework for tackling fine particles and identifies potential new national policy measures which modelling indicates could give further health benefits and move closer towards meeting the Strategy's objectives. The objectives of strategy are to:

- Further improve air quality in the UK from today and long term.
- Provide benefits to health, quality of life and the environment.

7.73 Paragraph 103 of the NPPF requires Local Plans to actively manage patterns of growth to reflect existing transport infrastructure – with significant new developments being focussed around locations which are (or can) be made sustainable, limiting the need to travel in the first place whilst also ensuring public and active transport provision to provide modal choice. This can help to reduce congestion and emissions and improve air quality and public health.

7.74 Paragraph 181 goes on to say that:

'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

⁵² Wirral 2020 Air Quality Annual Status Report, Environmental equity, air quality, socioeconomic status and respiratory health, 2010

⁵³ Air Quality Guidance and planning - Ministry of Housing, Communities & Local Government

individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified.'

Local policy context

7.75 Policy PO1 (Potentially Polluting Development) of Wirral's Unitary Development Plan (UDP) discusses criteria that need to be met before the Council will permit potentially polluting development or land-uses and includes noise and air quality considerations. Policy PO2 (Development Near Existing Sources of Pollution) only permits proposals near existing developments which are authorised or licensed under pollution control legislation where:

'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 result 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'

7.76 The Wirral Air Quality Annual Status Report for 2020 provides the most up to date position on air quality in the Borough. The 2020 Air Quality Modelling Study (emerging) provides a further assessment of the nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}), associated with emissions from the transport network, to support further evaluation of the growth options in the draft Local Plan.

7.77 The Baseline Natural Capital Assessment for the Liverpool City Region⁵⁴ notes that all vegetation can be effective at mitigating the effects of air pollution, primarily by intercepting particulates, especially PM_{2.5} (particulate matter 2.5 micrometres or less in diameter), but also by absorbing ozone, SO₂ and NO_x, however trees (depending on species) can be much more effective than grass or low-lying vegetation. Man-made sealed surfaces and water tend to perform poorly at mitigating the effects of air pollution. The study indicates that it is the urban areas of the city region which require the greatest level of air pollution management and air purification demand. Areas within central Birkenhead, Wallasey and Bebington have the greatest air purification demand but some of the lowest air purification capacity (i.e. natural air quality moderating assets such as vegetation and trees/woodland). Areas of higher air purification capacity are predominantly located in rural areas of the Peninsula, around

the edges of main urban areas and/or where natural habitats areas exist.

Local air quality considerations and current pressures

7.78 Wirral MBC has not declared any Air Quality Management Areas (AQMA) in the Borough, as monitoring results have not indicated any breaches of the UK Air Quality Objective levels for air pollution.⁵⁵

7.79 Mapping of air quality 'hotspots' in **Figure 7.4** displays areas of highest PM₁₀, PM_{2.5} and NO₂ concentrations around Birkenhead and on roads and sections of the M53 leading towards and away from motorway junctions. Other built up areas across the Peninsula display medium to higher concentrations of these emissions. However, the 2020 Air Quality Modelling Study notes that:

- the NO₂ national air quality objectives were not exceeded at any monitoring locations in 2018 except for one location at a taxi rank in Liscard;
- monitored NO₂ concentrations between 2014 and 2018 have steadily declined, at most locations, particularly since 2016; and,
- measured PM_{2.5} concentrations (measured at one location in 2018) were well below the national annual mean objective and also below the more stringent World Health Organisation (WHO) objective.

7.80 The Study goes on to present a source apportionment analysis for the entire Wirral road network, to determine the relative contributions of cars and HGVs. This investigated three specific key road links within the Wirral network, A59 Kingsway, M53 junction 1 to junction 7, and A41 New Chester Road (from near King's Square in Birkenhead to the roundabout with New Chester Road to the south).

7.81 All Wirral Road Network - A higher percentage of NO_x emissions is attributed to cars on the more rural and suburban network (i.e. over 70%) whilst the key network including motorways and major A-roads have a lower percentage of NO_x emissions from cars.

7.82 A59 Kingsway - Source apportionment for NO_x, PM₁₀ and PM_{2.5} emissions for the A59 Kingsway, between the Kingsway tunnel and the M53 are discussed in the study – with HGVs estimated to be the largest emitters on this road. This is a major route for freight and heavy good vehicles through the northern area of Wirral connecting the Borough to Liverpool.

⁵⁴ Natural Capital Solutions and Liverpool John Moores University (2019), 'Baseline natural capital assessment for the Liverpool City Region' [Online] Available at: <https://www.liverpoolcityregion.gov.uk/wp-content/uploads/LCR-Natural-Capital-Baseline-Report.pdf>

[ca.gov.uk/wp-content/uploads/LCR-Natural-Capital-Baseline-Report.pdf](https://www.liverpoolcityregion.gov.uk/wp-content/uploads/LCR-Natural-Capital-Baseline-Report.pdf)

⁵⁵ Wirral 2020 Air Quality Annual Status Report

7.83 M53 (junction 1 to junction 7) - Source apportionment for NO_x, PM₁₀ and PM_{2.5} emissions for the M53 motorway, between junction 1 and junction 7 are discussed in the study – with HGVs estimated to be the largest emitters on this road. This is a major route for freight and heavy good vehicles linking the Borough to Chester.

7.84 A41 New Chester Road - Source apportionment for NO_x, PM₁₀ and PM_{2.5} emissions for the A41 New Chester Road (from near King's Square (road) in central Birkenhead to the roundabout with New Chester Road to the south) are discussed in the study – with diesel cars estimated to be the largest emitters on this road. This is a major route linking the docks and industrial areas to the M56 corridor between North Wales and the North-west of England

7.85 The study highlights the link between air quality and socio-economic factors and states that:

'It is broadly understood that people living in more areas of greater socio-economic disparity may be disproportionately sensitive to the cumulative health effects of poor air quality. People in areas with a low IMD (and especially, with low health index scores) are at greatest risk of detrimental effects from poor air quality. For example, where respiratory or cardiovascular disease is already prevalent in a population, the cumulative effects of air pollution are worse than in an otherwise healthy population.'

7.86 The study outlines that it will be essential to apply interventions that improve air quality in locations and discusses potential mitigation measures which can be applied.

7.87 The 'Wirral Clean Air' campaign seeks to encourage people to help improve Wirral's air quality. Measures include, switching from car to walking or cycling, turning off car engines if the car is stationary, encouraging car sharing and taking public transport⁵⁶.

Sensitivity of assets

7.88 Given that no areas of Wirral currently exceed legal guidelines, no areas of the Borough have been assigned levels of sensitivity for air quality, as these levels are unlikely to rule out development in specific areas of the Borough. However, the role of air quality in Wirral's environmental integrity should not be underestimated, given its proven impacts on human health and wellbeing, historic environment assets and biodiversity assets, among others. In particular, the mapping of accessibility to key services and destinations data within **Chapter 11** illustrates where transport related

emissions may be generated. These emissions could also lead to a deterioration in air quality in particular locations within the Borough.

⁵⁶ <https://www.wirral.gov.uk/environmental-problems/pollution-control/wirral-clean-air>

Sensitivity of green space, health and wellbeing assets in Wirral

7.89 The sensitivity of the Borough's green space, health and wellbeing assets is mapped in **Figure 7.5**.

7.90 The mapping of Core Theme 5 does not indicate any areas at the highest level of sensitivity. This is largely because – despite the importance of health and wellbeing assets, they are generally not nationally designated and protected from all development (with the exception of Local Green Spaces), as ecological assets are. In principle, these assets can potentially be compensated for by provision elsewhere. However, it should be noted that areas within identified green spaces may also be assigned higher sensitivity values under other Core Themes – for example, the designated SSSI within Thurstaston Common or the areas of ancient woodland within Eastham Country Park.

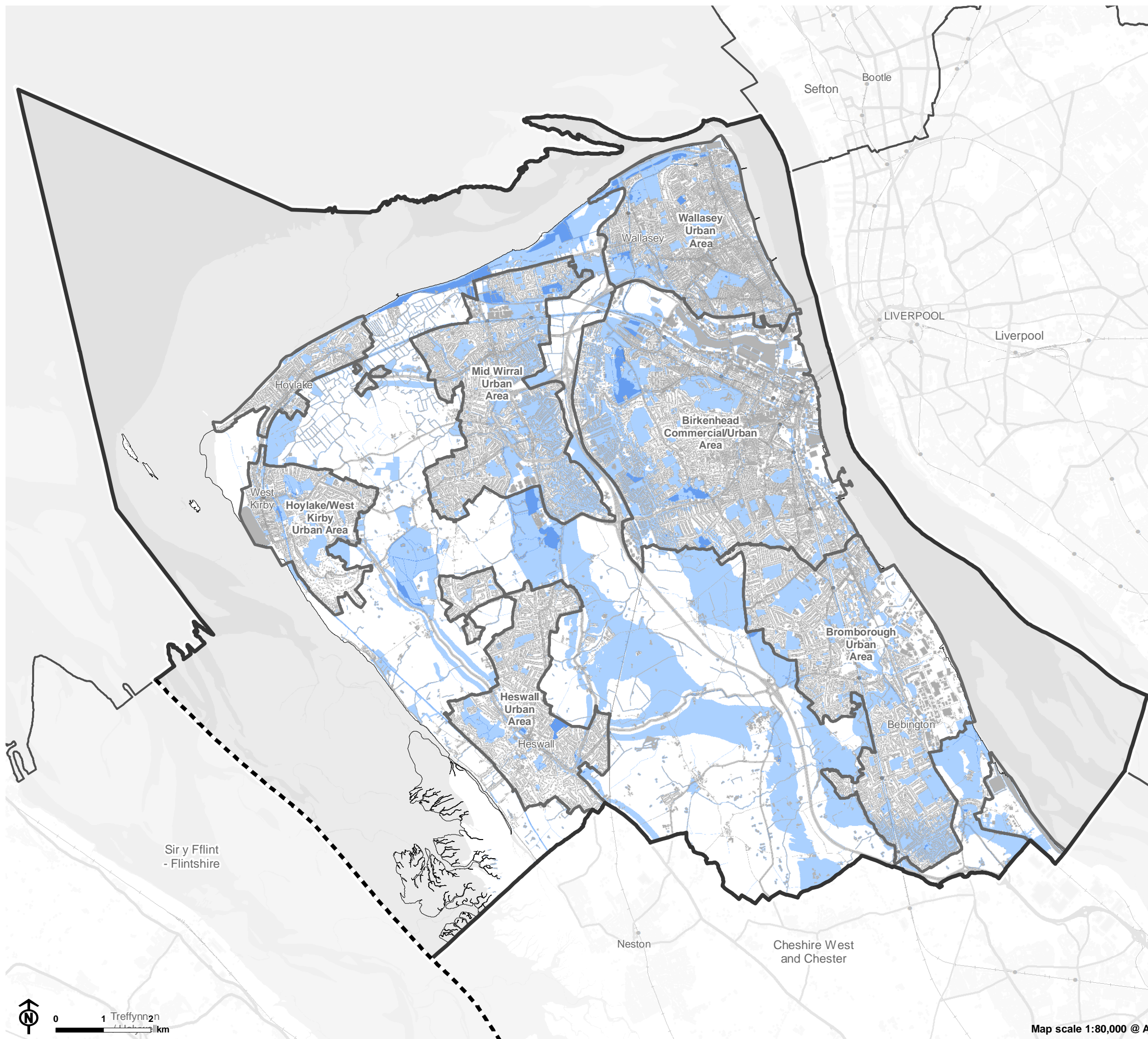
7.91 While the majority of assets within this theme are identified as Moderate Sensitivity there are some areas where

multiple layers of Moderate sensitivity exist, indicating heightened sensitivity related to green space, health and wellbeing. These areas include:

- Parts of North Wirral Coastal Park;
- Bidston Hill;
- Parts of Arrowe Country Park;
- Whitfield Common in Heswall;
- Parts of the green space around Holm Lane in Birkenhead;
- Some areas around Arrowe Park Hospital;
- Parts of the seafront around Hoylake.

7.92 The sensitivity of the Borough as a whole, i.e. presenting the sensitivity of all environmental assets in one combined map, is considered in **Chapter 10**.

Figure 7.5: Green space, health and wellbeing assets in Wirral and their sensitivity



- Wirral boundary
 - Other Local Authority boundary
 - England - Wales boundary
 - Landform edge
 - Settlement area
 - Physical constraint
- Sensitivity value**
- Moderate (5-6)
 - Moderate (3-4)
 - Moderate (1-2)

Note
Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Chapter 8

Core Theme 6: Applying Sensitivity Values to Carbon Storage Assets

Introduction

8.1 This section considers the capacity of the Borough's landscape assets to boost Wirral's resilience to climate change through its ability to store carbon by 'drawing it down' from the atmosphere.

Overview

8.2 Only one Sub Theme has been identified under Core Theme 6:

- **Sub Theme 6.1:** Carbon Storage.

8.3 It is acknowledged that the capacity for carbon storage within the Borough's landscape is only one dimension of how Wirral can address the challenges of climate change through the planning system. In particular the potential for generation of carbon emissions due to an area's access to services is considered in more detail through Task 6 in **Chapter 11**.

8.4 For this single Sub Theme, the following information is presented:

- Data sources and any limitations.
- The importance of the asset.
- Overview of important legislation/ national planning policy.
- Local policy context.
- Assigned sensitivity ratings.

8.5 Table 8.1 details the data sets that have been considered for this Core Theme and the source of the data.

8.6 Figure 8.1 provides an overview of land use cover types across Wirral.

Table 8.1: Carbon Storage – assets and data sources

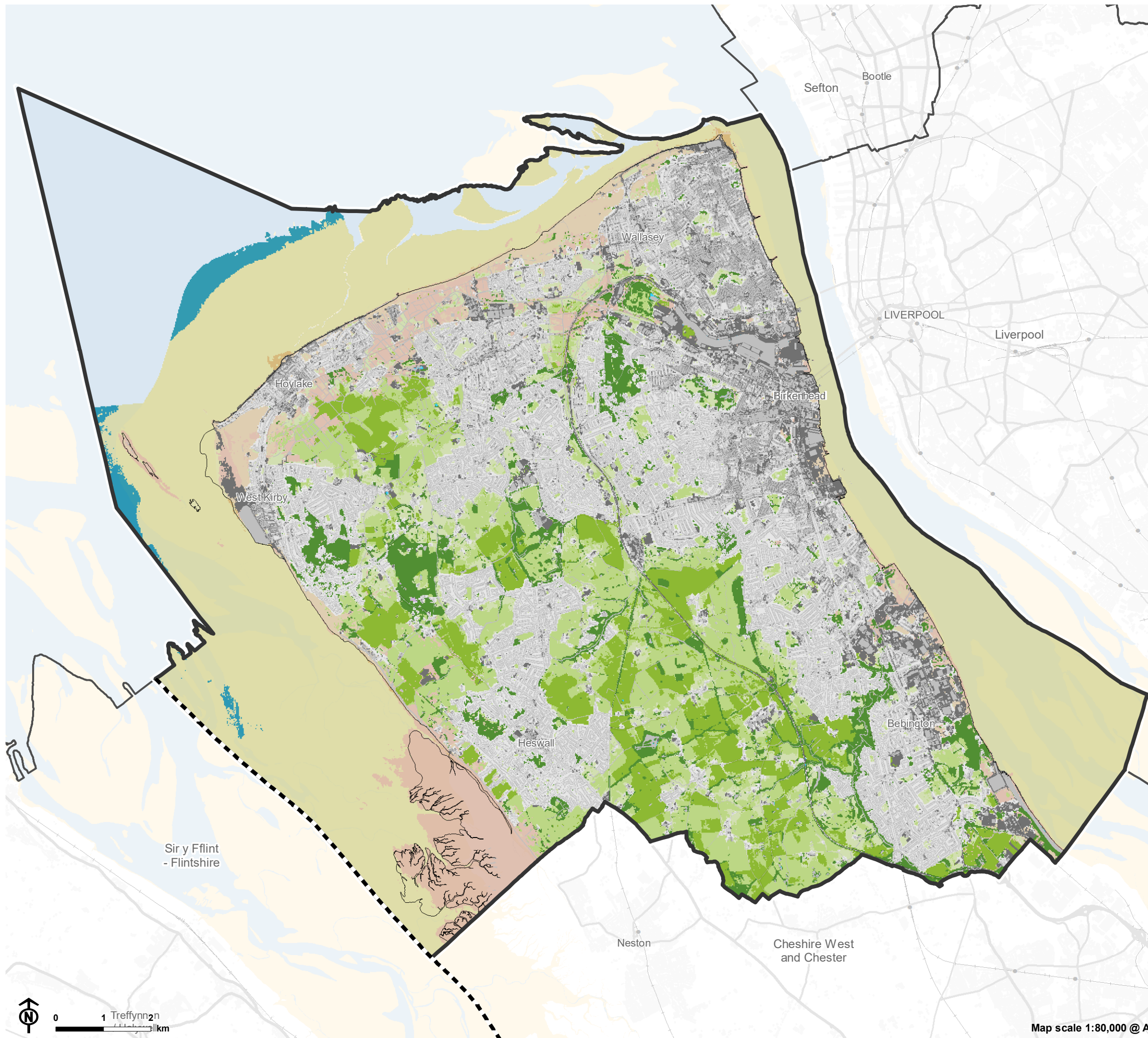
Sub Theme	Data Set	Data Source
Carbon Storage	CEH Land Cover 2019	UK Centre for Ecology and Hydrology

Data limitations

The following issue was identified as a data limitation under Core Theme 6:

- **Carbon storage potential:** The most reliable way of assessing the potential of different land uses to store carbon is to use Phase 1 Habitat data. However, the current Phase 1 Habitat data for Wirral dates back to the 1980s, which limits its reliability for this study. As such, it was considered that the higher level CEH data set was the most appropriate data set to indicate the potential for carbon storage in the Borough.

Figure 8.1: Land use cover types in Wirral



- Wirral boundary
- Other Local Authority boundary
- England - Wales boundary
- Landform edge
- Physical constraint
- CEH Land cover 2019**
- Broadleaved woodland
- Coniferous woodland
- Arable and horticulture
- Improved grassland
- Neutral grassland
- Acid grassland
- Heather
- Saltwater
- Freshwater
- Supra-littoral sediment
- Littoral rock
- Littoral sediment
- Saltmarsh
- Urban
- Suburban

Note
Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Sub Theme 6.1: Carbon storage

Why are these assets important?

8.7 The UK's 'journey to net zero' not only focusses on reducing emissions through the transport, energy generation, industrial and agricultural sectors, but also exploiting opportunities to 'draw down' carbon from the atmosphere by using appropriate habitat types. This is because ecosystems help to counteract the impacts of climate change by storing carbon within vegetation and soils.

8.8 This is known as 'carbon sequestration' and refers to the ability of marine and terrestrial trees and plants to absorb CO₂, in both above and below ground biomass. As such it is increasingly recognised that, while they cannot replace the need to decarbonise the economy, different kinds of vegetation and land cover - including forests, soil, oceans, grasslands, salt marshes, wetlands and peat - can play an important part in combatting global warming by acting as a 'carbon sink'.

8.9 Research suggests that the potential for carbon storage varies considerably within given habitat types, reflecting characteristic such as soil conditions, climate, latitude and altitude. Habitat age and condition also have a significant bearing on the rate of sequestration and storage.⁵⁷

Legislation

8.10 The Climate Change Act 2008 (2050 Target Amendment) Order 2019 requires the UK Government to reduce the country's net emissions of greenhouse gases by 100% relative to 1990 levels by 2050.

8.11 The emerging Environment Bill, once passed, is set to place the ambitions contained in the 25 Year Environment Plan (25YEP) on a statutory footing by setting legally binding environmental improvement targets, including for restoring habitats. This includes the introduction of a 10% biodiversity net gain (BNG) from new development, which would be likely to bolster carbon stocks in the landscape.

8.12 The emerging Agriculture Bill 2019-21 (passing through Parliament at the time of writing) is set to replace the subsidies provided through the EU Common Agricultural Policy (CAP) now that the UK has left the European Union. It

commits to providing financial assistance to farmers for protecting and improving soil quality, as well as incentives for agro-forestry schemes, which both offer opportunities to boost the amount of carbon stored in agricultural landscapes.

National policy context

8.13 The importance of managing land as a carbon store has been recognised by the Committee on Climate Change (CCC), which has clearly stated that "the UK's net-zero target will not be met without changes in how we use our land" and in January 2020 produced a report providing advice on how the UK's agricultural and land use policies can help deliver the Government's Net Zero greenhouse gas emissions target by 2050.⁵⁸ Recommendations include: low-carbon farming practices; afforestation and agro-forestry; restoring and protecting peatlands; expanding bioenergy crops; and reducing consumption of carbon-intensive foods.

8.14 Regarding tree planting in particular, the UK Government's 25 Year Environment Plan (25YEP) states that:

'We will encourage larger-scale woodland and forest creation, and direct commercial investment in new productive planting towards Forestry Investment Zones... This will help to create the conditions associated with increased carbon sequestration...'

8.15 However, the Plan also recognises the contribution of other habitats to the nation's carbon stores beyond trees, including marine habitats, coastal ecosystems and blanket bogs. In particular it highlights the importance of peatlands as the UK's largest terrestrial carbon store, and outlines plans for a "new ambitious framework for peat restoration in England".

8.16 The UK Government has set a target of planting up to 30,000 hectares of trees per year across the UK by 2025, which will be supported by the Nature for Climate Fund, which is designed to reduce emissions from peat, capture carbon through trees and create connected and improved habitats to deliver a Nature Recovery Network.

8.17 The UK's Peatland Strategy (2018-2040)⁵⁹ recognise that peatlands (mosses, moors, fens and bogs) occupy only 3% of the earth's land surface but are our largest carbon store on land. In the UK, blanket bog is the most widespread

⁵⁷ Scottish Natural Heritage (2018), 'Technical Report: Carbon Storage Service [Online] Available at: <https://www.nature.scot/sites/default/files/2018-06/Publication%202018%20-%20SNH%20Research%20Report%20954%20-%20Technical%20Report%20-%20ES2%20Carbon%20storage.pdf>

⁵⁸ Committee for Climate Change (2020), 'Land use: Policies for a Net Zero UK' [Online] Available: <https://www.theccc.org.uk/publication/land-use-policies-for-a-net-zero-uk/>

⁵⁹ IUCN (2018), UK Peatland Strategy 2018-2040 [Online] Available at: <https://portals.iucn.org/library/sites/library/files/documents/2018-015-En.pdf>

habitat. The Strategy aims to drive and co-ordinate action across the UK and sets a target of two million hectares of peatland being in good condition, under restoration or being sustainably managed by 2040.

8.18 The need to carefully consider carbon storage as a function of land use is also part of National Planning Policy. Under the heading 'Making Effective Use of Land', Paragraph 118 of the National Planning Policy Framework (NPPF) states that planning policies and decisions should:

- *'Encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains - such as developments that would enable new habitat creation or improve public access to the countryside; and*
- *Recognise that some undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production.'*

Local policy context

8.19 Wirral MBC's existing Unitary Development Plan (UDP) does not explicitly refer to the need to protect or expand the Borough's carbon stores, however Strategic Policy NC01 Principles for Nature Conservation states that:

'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.'

8.20 Policy GR7 (Trees and New Development) requires protection to be given to trees on development sites, considering their 'value for nature conservation', noting that where trees are lost, replacement trees should be planted elsewhere on the site 'where this is required in order to protect or preserve local amenity'.

8.21 Cool 2 – 'A strategy for Wirral in response to the global climate emergency' (2019) – supported by Wirral MBC - includes among its key objectives for staying within the Borough's emissions 'budget' to:

'capture more carbon naturally by increased woodland cover in line with national recommendations and by protecting soils and natural habitats'

8.22 The Borough's Trees, Hedgerows and Woodlands Strategy (2020) describes trees as our 'natural armour against climate change', noting their role in carbon sequestration. It sets a target for planting 210,000 trees between 2020-2030, equating to 21,000 trees per year, with a vision of doubling the Borough's canopy cover.

8.23 The 2019 Study of Agricultural Economy and Land in Wirral provides a review of current agricultural practices and land use in Wirral, including a comparison of national trends. It also includes a concise review of published soils and geological information in Wirral.

8.24 The emerging Wirral Green and Blue Infrastructure Strategy (due 2020) will also highlight key opportunities and actions for boosting carbon sequestration within the Borough.

8.25 The Baseline Natural Capital Assessment for the Liverpool City Region⁶⁰ describes carbon storage capacity as being the levels of carbon stored naturally in soil and vegetation and therefore changes in land use can impact on these capacities. Furthermore, carbon sequestration is the uptake of carbon by plants as they grow. While carbon storage measures the stock of carbon in the natural environment, carbon sequestration measures its annual flow. The assessment highlights that, generally speaking, the capacity scores for carbon storage and carbon sequestration across the wider Liverpool City Region are quite low.

8.26 The assessment identifies that the majority of the woodland in the City Region is broadleaved and has the greatest capacity to store carbon - areas of broadleaved woodland are identified in western and south eastern areas of Wirral. Saltmarsh habitat of the Dee Estuary located to the south west of Wirral Peninsula is also considered to have a higher carbon storage potential. Land located within central and southern areas of Wirral is generally considered to offer a medium level of carbon storage potential. Predominantly urban areas such as Birkenhead and arable land covers have a lower carbon storage potential (see Map 3.1 of the Baseline Natural Capital Assessment for more information).

Local carbon storage considerations and current pressures

8.27 Existing woodland cover across Wirral is relatively sparse and fragmented. Overall tree canopy coverage currently

⁶⁰ Natural Capital Solutions and Liverpool John Moores University (2019), 'Baseline natural capital assessment for the Liverpool City Region' [Online] Available at: <https://www.liverpoolcityregion->

[ca.gov.uk/wp-content/uploads/LCR-Natural-Capital-Baseline-Report.pdf](https://www.liverpoolcityregion.gov.uk/wp-content/uploads/LCR-Natural-Capital-Baseline-Report.pdf)

stands at an estimated 13%, below the national average of 16%. However, the 'Trees, Hedgerows and Woodland Strategy' (2020) also cites measures which show that less than 5% of Wirral is in fact woodland. The most densely wooded areas are currently found around the sandstone hills of Thurstaston Hill, Caldys Hill and Royden Park in the west of the peninsula. Other wooded areas include stretches of 'riparian' woodland along the banks of waterways including Dibbinsdale Brook and Clatter Brook.

8.28 The Trees and Woodland Strategy finds that tree cover is not uniform across the Borough, with:

- 9% canopy cover in Wallasey.
- 12.1% canopy cover in Birkenhead.
- 16.5% canopy cover in Wirral West.
- 17.9% canopy cover in Wirral South.

8.29 Wooded areas provide a valuable contribution to the Borough's 'carbon sink' but are under pressure from challenges including: the loss of mature hedgerow trees; agricultural intensification; lack of appropriate management; and the increasing prevalence of pests and diseases. The latter notably includes the threat posed by 'ash dieback', which is now present in Wirral, is projected to have a significant impact on the nation's stocks of ash trees over coming years and requires urgent action. The Trees, Hedgerows and Woodland Strategy expects losses of between 20% and 35% of Wirral's current trees.

8.30 Wirral has partnered with the Mersey Forest initiative on several local and sub-regional projects. The Mersey Forest itself acts as a woodland 'gateway' to connect with the wider initiative of the 'Northern Forest', which seeks to create an unbroken belt of forest from Liverpool to Hull.

8.31 The Forestry Commission grants have also been used in the Borough for major tree planting and landfill restoration schemes, such as those at Cross Lane, the M53 Corridor and Bidston Moss. Advance tree planting has also taken place in and around the Wirral Waters site.

8.32 As discussed, soil is an important store of carbon, but is threatened nationally and globally by soil erosion. This has been exacerbated by the increasingly intensive nature of agriculture. According to the 2019 Study of Agricultural Economy and Land in Wirral, currently just over one-quarter of land in Wirral is used for agricultural purposes - predominantly dairy. The key apparent trend in recent years in agricultural areas is the amalgamation of farms and intensification of the industry. Intensive management of agricultural land, while

playing an important role in food production, can also limit the functions of the landscape for carbon storage.

8.33 As part of the 'blue carbon' ecosystem, coastal wetlands (mangrove and saltmarsh) also play a key role in capturing carbon, due to the high rate at which they generate biomass. Wirral peninsula has extensive saltmarsh resources and opportunities for their expansion. Saltmarsh is one of the habitats that makes up the Borough's 'Coastal/Estuarine Edge' Landscape Character Area⁶¹ and is one of the habitats protected by the Borough's internationally designated coastal sites. Wirral's 2019 Strategic Flood Risk Assessment (SFRA) highlights the opportunities, in some places, for a 'managed realignment' of flood defence on the coast, which would create a more natural coastline and would provide space for the natural roll-back of saltmarsh in response to ongoing coastal change. However, it should be noted that there has been a lack of consensus among local community members over processes of coastal change and the potential for encouraging natural processes.

8.34 The land cover data mapped in **Figure 8.1** shows that there is no significant peat resource within Wirral which is identified in the data – within the wider Merseyside area, lowland raised bogs are largely concentrated further north in Sefton, Knowsley and St Helens⁶². The major land cover types, outside the urbanised area, are arable land, pasture and recreational green spaces, interspersed with blocks of coniferous, mixed and broad-leaved woodland.

Sensitivity of assets

8.35 The amount of carbon stored within the vegetation and top 30cm of soil is known for a wide range of UK land uses and habitat types. This assessment has therefore used carbon storage figures rather than carbon sequestration (the ongoing removal of carbon from the atmosphere) to consider sensitivity to loss. While using simple estimates of carbon storage may have limited interpretation compared to more complex studies which take sequestration into account, it has allowed us to rank importance of ecosystem types and show which have the most capacity or potential to continue to store carbon under appropriate management regimes. This also allows for consistency with the other Core Themes, given that it is physical assets which are being assigned sensitivity ratings, rather than 'flows'.

8.36 As sufficiently up-to-date Phase 1 Habitat data is not available for Wirral, this study will instead rely on CEH Land Cover 2019 data, which assigns a habitat type to each area of

⁶¹ See Wirral Landscape Character Assessment (2020)

⁶² British Geological Survey (2005), 'Mineral Resource Information in Support of National, Regional and Local Planning: Merseyside

(comprising City of Liverpool and Boroughs of Knowsley, Sefton, St Helens and Wirral).

the Borough – the subset of those land cover types which are present in Wirral are listed in **Table 8.2**.

8.37 Academic research from Cantarello et al in 2011,⁶³ provides a useful basis for assigning carbon storage values, as it compares measurements of carbon storage within a number of different habitat types, both in terms of the carbon stored in the soil and in the vegetation.

8.38 Using these 'carbon stock' ratings, it is possible to assign a sensitivity value to each type of land cover present within the Borough, reflecting the likely impact on the Borough's carbon stocks, as shown in **Table 8.2**. In order to assign relative sensitivity ratings to the habitat types present in Wirral, the following categories were used:

Total estimated carbon stock (see Table 8.2)	Sensitivity rating
0 (urban areas)	Lower
0 - 291	Moderate

Total estimated carbon stock (see Table 8.2)	Sensitivity rating
291 – 583.15	Higher

8.39 It should be noted that the land cover type with the highest carbon storage value (peat bogs, with an estimated carbon stock of 583.15 t/ha) is not present in the Wirral CEH data set, and as such no 'high' sensitivity ratings were applied in this study. However, 'peat bog' is included in the table for reference, in order to demonstrate the full range of habitats and the sensitivity ratings applied.

8.40 It is also important to recognise that values relate to carbon levels that can potentially be stored, because habitat age and condition are not considered – habitats that have not matured e.g. young woodland, or that have been heavily modified e.g. drained wetlands or bogs, will differ greatly from predictions.

Table 8.2: Sensitivity of carbon storage assets in Wirral

Asset (land use type)	Carbon in soil (carbon density in t/ha)	Carbon density in vegetation (carbon density in t/ha)	Total estimated carbon stock (t/ha)	Sensitivity rating
Peat bog ⁶⁴	576	7.15	583.15	Higher Avoid development.
Broadleaved woodland	162	111	273	Moderate Development may be possible in some locations, with appropriate mitigation.
Salt marsh	143	8.44	151.44	Moderate Development may be possible in some locations, with appropriate mitigation.
Coniferous woodland	107	59.1	166.1	Moderate Development may be possible in some locations, with appropriate mitigation.
Neutral grassland	121	3.1	124.1	Moderate

⁶³ Cantarello et al (2011), 'Potential effects of future land use change on regional carbon stocks in the UK', *Environmental Science and Policy*, 14 (pp40-52).

⁶⁴ This land use type is not shown as being present in Wirral according to CEH data and is provided here for comparison purposes only. A degree of caution should, however, be applied to the CEH dataset in the absence of digitised local land use classifications

Asset (land use type)	Carbon in soil (carbon density in t/ha)	Carbon density in vegetation (carbon density in t/ha)	Total estimated carbon stock (t/ha)	Sensitivity rating
				Development may be possible in some locations, with appropriate mitigation.
Acid grassland	121	3.1	124.1	Moderate Development may be possible in some locations, with appropriate mitigation.
Heather	103	7.11	110.11	Moderate Development may be possible in some locations, with appropriate mitigation.
Improved grassland	91.3	8.32	99.62	Moderate Development may be possible in some locations, with appropriate mitigation.
Arable and horticulture	63.9	2.36	66.26	Moderate Development may be possible in some locations, with appropriate mitigation.
Urban/suburban	For the purposes of this study, all man-made surfaces are considered to store zero carbon.			Lower Carbon storage potential less likely to be significantly affected by development.
Littoral rock, littoral sediment, freshwater and saltwater	N/A – mapped as a physical constraint to development.			

Sensitivity of carbon storage assets in Wirral

8.41 The sensitivity of the Borough's carbon storage assets is mapped in **Figure 8.2**.

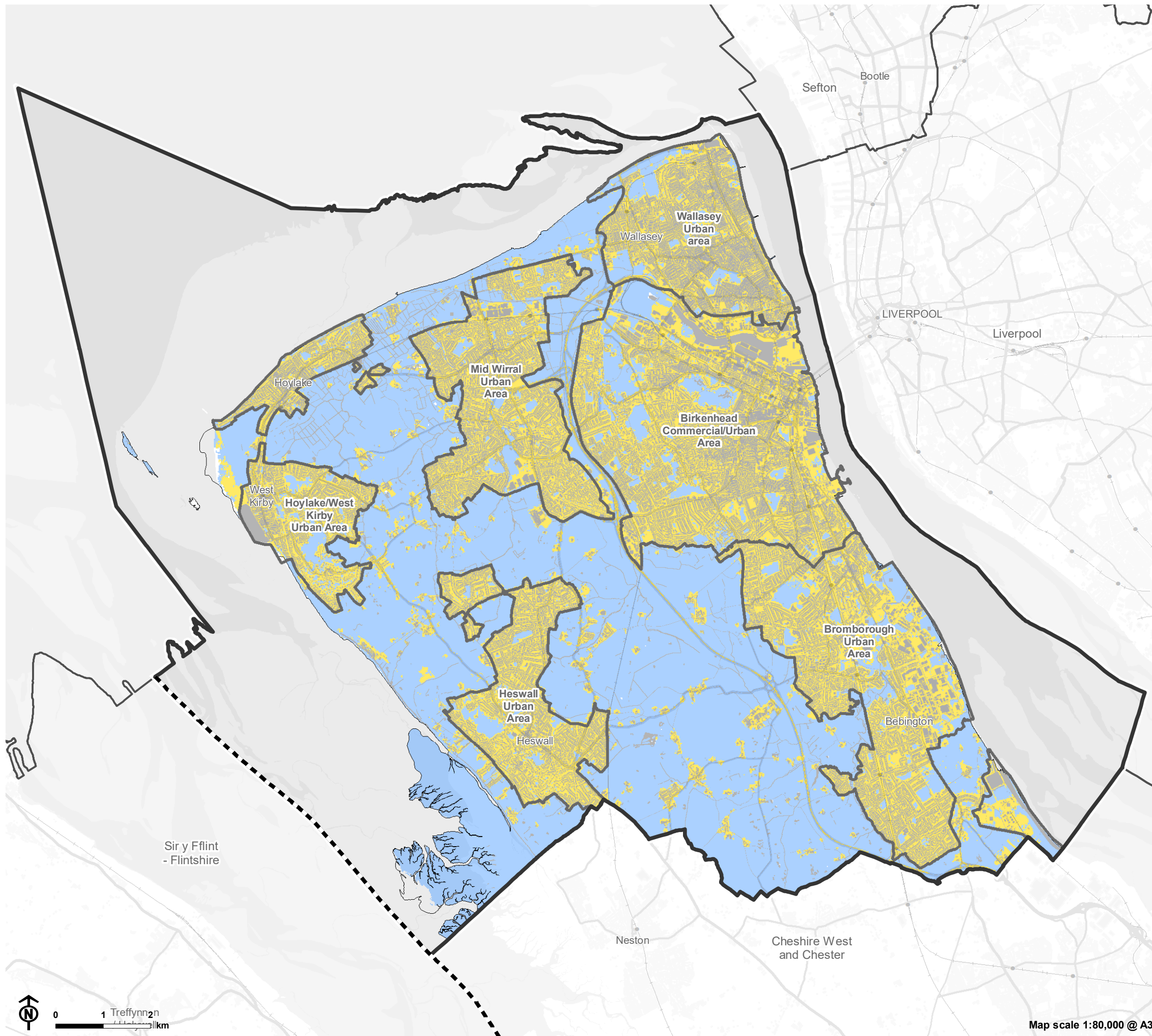
8.42 The mapping of Core Theme 6 shows little variation in sensitivity and no areas identified as being highly sensitive. This is because there are no significant areas of highly sensitive carbon storage assets such as peat in the Borough⁶⁵. However, given that all land uses other than hard surfacing have some value for carbon storage (and contribute to the Borough's 'carbon sink'), all land outside the urban areas has been identified as moderately sensitive.

8.43 It should be noted that the potential loss of vegetated areas should be considered on a case-by-case basis, given that the cumulative loss of carbon storage areas (even if not highly sensitive land cover such as peat) can lead to negative impacts for Wirral's climate change resilience.

8.44 The sensitivity of the Borough, taking into account all environmental assets is presented in **Chapter 10**.

⁶⁵ A degree of caution should, however, be applied to the CEH dataset in the absence of digitised local land use classifications.

Figure 8.2: Carbon storage assets (based on land use cover types) in Wirral and their sensitivity



- Wirral boundary
- Other Local Authority boundary
- England - Wales boundary
- Landform edge
- Settlement area
- Physical constraint
- Sensitivity value**
- Moderate
- Lower

Note
Physical constraints include roads, railways, buildings, water courses, waterbodies, flood defences, areas of coastal erosion and permitted waste sites.

Chapter 9

Landscape Sensitivity Assessment (LSA)

Introduction

9.1 This Chapter presents the findings of the Landscape Sensitivity Assessment (LSA). As outlined in Task 4 of **Chapter 2**, additional LSA work was undertaken as part of this study and supplemented the findings of the Wirral Site Specific Landscape Sensitivity Assessment (2019). A commentary on Wirral's landscape sensitivity is considered in this chapter and the findings of both LSA studies are presented through **Figure 9.1**. These findings are then included within the 'composite' mapping of environmental sensitivity presented in **Chapter 10**.

9.2 The additional LSA work undertaken for this study, assessed the remaining land outside of the settlement boundaries that had not been previously assessed in a 2019 study. The remaining areas were considered in relation to the Landscape Character Areas (LCA) (see **Figure 6.1**) as defined by Wirral's Landscape Character Assessment (LUC, 2019). The 2019 LSA work was also amended to more clearly illustrate any variations in sensitivity within the sites identified in that study. This ensured that the 2019 and 2020 LSA studies were consistent in their approach and presentation for use in this study. The LSA (2020) undertaken through this study, coupled with the existing LSA (2019) work now provides comprehensive coverage of all areas of Wirral.

Method

9.3 The LSA provides a strategic assessment of the extent to which the character and quality of the landscape would, in principle, be susceptible to change as a result of the introduction of built development.

9.4 The landscape sensitivity was determined through a review of 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.
- Perceptual and experiential qualities.

9.5 The full method used for the LSA is provided in **Appendix C**.

Overview of findings

9.6 A number of areas of Wirral were identified as having High or Moderate-High landscape sensitivity. The most sensitive areas predominantly lie along the Dee Estuarine edge, between the settlements of Heswall and West Kirby, however the various landscape areas where sensitivity is higher are further detailed below. **Appendix C** sets out the more detailed assessments of the various character areas analysed.

Wirral's coastal areas

9.7 As **Figure 9.1** shows, Wirral's coastal landscapes generally record higher sensitivity to development due to low lying topography, proximity to extensive internationally, nationally and locally recognised wildlife and coastal habitats and the prevalence of views which provide a unique and compelling sense of place. Whilst low topographical range and low density of overlying landscape features (hedgerows, trees) would normally be indicators of lower sensitivity to development, a defining component of the landscape in coastal areas is an open, remote and undeveloped character which increases visibility and sensitivity. Along the North Wirral coast at Leasowe, development is limited to historic listed buildings which become prominent features within the undeveloped and distinctive skyline. The introduction of development would, therefore, significantly alter and weaken landscape character, and risk forming a visual barrier to enjoyment of views of the coastline and appreciation of local heritage assets.

9.8 The south-western coastline from Caldy through to Heswall has a more varied and undulating topographical character. Fields are regular in pattern but generally small to medium in size indicating higher levels of sensitivity due to the greater volume of overlying landscape features. Similarly, to the Leasowe coastline, its character is strongly influenced by the sensory characteristics of the adjacent seascape and the openness of the landscape enables a full appreciation of this important aspect of landscape character. There are also extensive views across the Dee Estuary towards the Welsh coastline and Clwydian Hills which provides a strong sense of place. The visual values and landscape quality of much of the area are recognised locally through its designation as an Area of Special Landscape Value (ASLV). The area is considered to be among the most outstanding landscapes within Wirral and provides an important and positive contribution to the distinctive attractiveness of the Peninsula, thus increasing sensitivity to development.

9.9 A more limited area in the east, south of Bebington, is also highlighted for its sensitivity in **Figure 9.1**. Eastham Country Park – at this location - is valued as a visitor resource, with panoramic views over the Mersey and extensive semi-natural habitats, which is recognised through its designation as a

Country Park and Local Wildlife Sites (LWS) / Sites of Biological Importance (SBI) where the tranquil wooded character contributes towards a higher sensitivity. Overall, this area is considered to have high sensitivity to any potential future change from residential development.

Floodplain landscapes

9.10 The low-lying floodplain in the north of Wirral is generally considered to have a moderate sensitivity to development. The farmland topography is generally flat, open and exposed with scarce woodland cover and fragmented or absent hedgerow signalling lower sensitivity to development. Furthermore, the intrinsic relationship between landscape and seascape experienced in other coastal areas of the Borough is weakened here by flood defences which restrict views towards the sea. The moderate sensitivity of the landscape is considered directly attributable to its low-lying nature and the role that landscape features play in draining the floodplain. The distinctive geometric field pattern is drained by ditches and watercourses through these landscapes are often engineered to prevent flooding.

9.11 Landscape character along the River Fender is strongly influenced by urban land uses, residential development and industry lowering sensitivity to development. Major roads raised above the surrounding land are prominent within views, forming a distinctive urbanising feature and lowering sensitivity to development. The field pattern of the area has predominantly been shaped by 20th century infrastructure and recreation. The area still in agricultural use around Fender Bridge retains a pre-Parliamentary enclosure field pattern and is considered more sensitive to development.

9.12 Areas of moderate - high and high landscape sensitivity within the floodplain landscape relate to the presence of elevated topography (up to 30m AOD at Bidston Moss); proximity to internationally, nationally and locally recognised habitats; and the Saughall Massie Conservation Area and its setting. In relation to the latter, the historic associations of the area as a Conservation Area, the historic field patterns, the contribution of the surrounding fields towards the setting of the village and the identity of the village through its settlement pattern, strong vernacular and wooded character denotes high sensitivity. Birdlife is considered a perceptible component of landscape character for Landscape Character Area (LCA) 2a in particular and LWS / SBIs are considered to have a moderate - high sensitivity due to this.

Sandstone outcrops

9.13 Sandstone outcrops such as at Bidston Hill, Thurstaston Hill and Caldy Hill are prominent features within Wirral and punctuate the generally low-lying landform. The topographical range can be dramatic, and consequently makes a positive

contribution to landscape character, which markedly increases sensitivity to development into the moderate – high and high ranges. These areas form a visually distinctive skyline, both locally and cumulatively across the Peninsula. From these vantage points, there are extensive views across Wirral and towards Wales and Liverpool. This intervisibility, and the sense of place it generates, signals high sensitivity to development.

9.14 Establishing woodland, such as that at Thurstaston Common, Royden Park and Bidston Hill, and extensive areas of lowland heathland are associated with the sandy soils of the sandstone ridgelines. This translates as a high density of valued, natural landscape features, often located within LWS / SBIs, which are highly sensitive to development. Heswall Dales and Cleaver Heath is nationally designated as a Site of Special Scientific Interest (SSSI) and it is an important example of lowland heath within Merseyside which denotes high sensitivity. The Dungeon, located within LCA 3c, is also nationally designated as a geological SSSI and records a high sensitivity to development.

9.15 The sandstone landscapes are locally designated as an ASLV recognising the important and positive contribution the areas make to the distinctive attractiveness and sense of place within the Borough. These include:

- Bidston Hill;
- Dee Coast including Heswall Dales, Thurstaston Common and Royden Park; and
- Caldy Hill including Stapledon Wood.

9.16 Heritage features also provide a positive contribution to landscape character, increasing sensitivity to development into the moderate – high and high range. There are conservation areas at Bidston, Frankby, Thurstaston and Caldy which include clusters of Grade II* and Grade II listed properties. These areas bring a coherent character to existing settlements and provide a strong sense of local vernacular through the use of buff and red sandstone. The Irby Hall Scheduled Monument is also a historic feature of note which contributes to landscape character indicating higher levels of sensitivity.

Central areas of lowland farmland

9.17 The core of Wirral is generally characterised by a gently rolling low-lying farmland which is a mixture of arable and pasture, with horse grazing. Fields are generally small to medium in size, signalling greater sensitivity to development, and bounded by mature hedgerows and frequent hedgerow trees. Farmland is considered to feature a moderate density of small-scale landscape features and moderate sensitivity to development generally. Moderate – high sensitivity is recorded where there are large areas of smaller field sizes which

elevates the density of small-scale landscape features. These are found around the village of Barnston, to the east of Thornton Hough and around the rural setting to Storeton (LCA 3c).

9.18 The distinctive landform, linear belts of woodland (semi-natural habitats and skyline features), the localised natural habitats and features (hedgerows, woodland copses, stream and field ponds), the role the area plays in providing a rural setting to Storeton and other dispersed residential dwellings, the varied time depth, and the mixture of small-scale and larger scale field patterns with a moderate density of small-scale landscape features and prominence in long range views up the valley from the south and west, contribute towards a higher sensitivity. However, the intrusion of urbanising elements including the radio mast and the M53 do lower sensitivity. Overall, the area is considered to have moderate-high sensitivity to any potential future change from residential development.

9.19 Within LCA 4a, areas of moderate - high sensitivity are also recorded around Arrowe Country Park, Barnston Conservation Area and Prenton Brook. Arrowe Country Park (LWS and SBI) contains areas of semi-natural habitats and landscape features via its woodland and Arrowe Brook, as well as a number of man-made pools, meres and a constructed waterfall. It contains heritage assets which make a positive contribution to landscape character. Barnston Conservation Area is another key heritage area within this LCA, featuring clusters of Grade II Listed buildings indicating higher sensitivity to development.

9.20 Prenton Brook (LWS and SBI) creates a narrow enclosed wooded valley at Barnston Dale between Barnston and Thingwall, which contrasts with the surrounding open landscape. Along with the surrounding Priority Habitat woodland, it is a prominent landscape feature with an increased sensitivity to development. Similarly, within LCA 4c, the course of the Clatter Brook is distinctive with Priority Habitat woodland, much of which is ancient. The narrow valley along the brook cuts deeply through the landscape, increasing sensitivity to development locally. The wooded watercourses are ecologically valued habitats, nationally designated as a SSSI and provide a rural wooded character to the area.

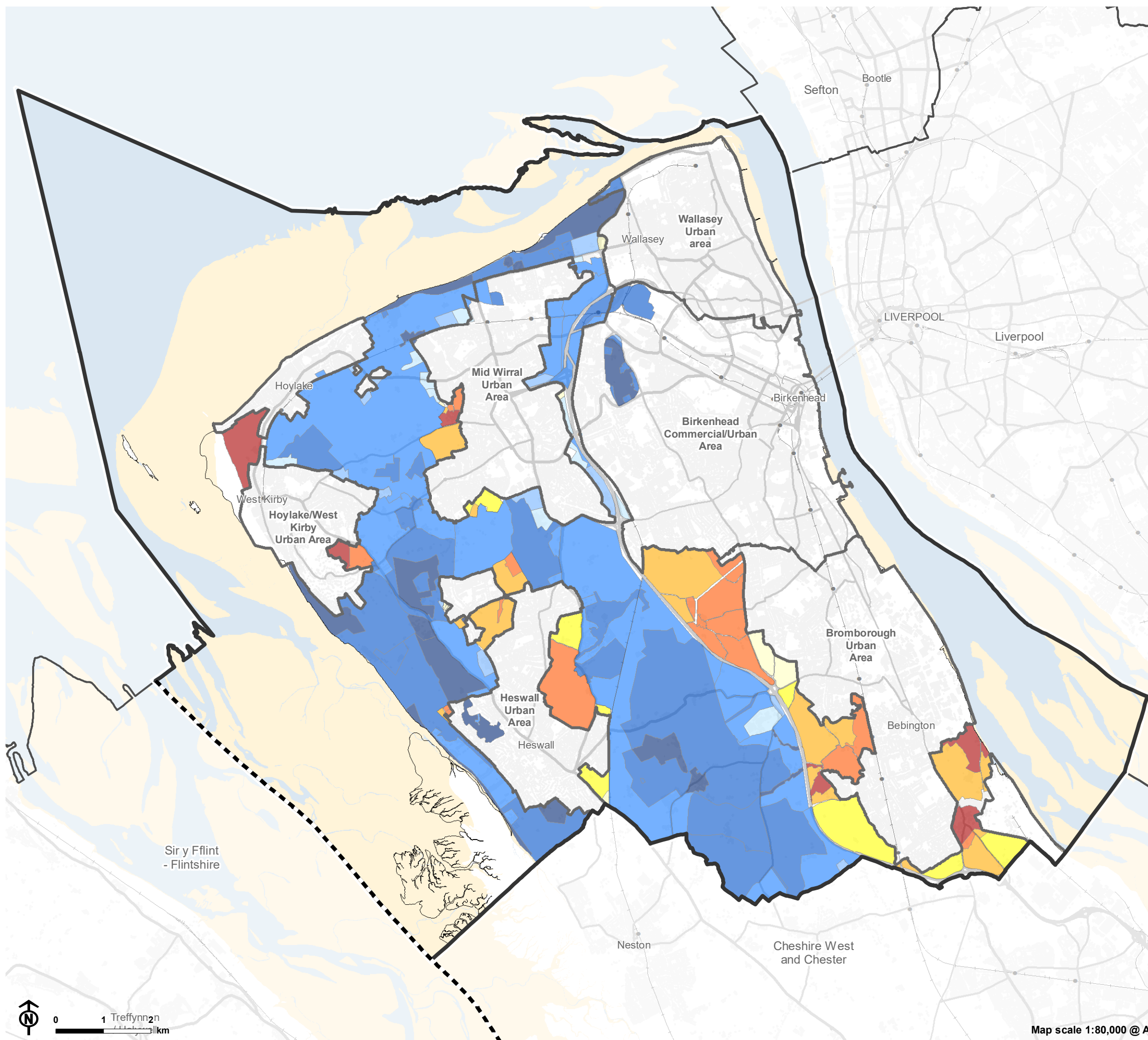
9.21 Farmland around Thornton Hough (LCA 4b) records a large expanse of moderate - high sensitivity to development which reduces to moderate sensitivity at peripheral areas where urbanising features, such as the Wrexham to Barnston railway line and the M53, disrupt the coherence of the tranquil, undeveloped, agricultural landscape character. Although field sizes are regular and large scale across most of the LCA, there are substantial geometric blocks of valued semi-natural woodland habitat north of Brimstage Road. These are visually prominent and along with field ponds form important

landscape features. Intact historic field patterns bounded by well-maintained hedgerows or estate fencing found through much of the area also provides time-depth and contributes to a strong sense of place.

9.22 South of Brimstage Road, the landscape character is heavily influenced by Thornton Manor and Thornton Hough Conservation Area, both of which have recorded high sensitivity to development due to their influence on settlement character, their contribution to sense of place and heritage value. Thornton Hough is a particularly distinctive model village and contains prominent buildings set around a village green. There are distinctive linear avenues of ornamental trees established by Lord Leverhulme which pass through the rural landscape which are an attractive landscape feature providing a sense of formality with links to the past. The visual values and landscape quality of the area around Thornton Manor and Thornton Hough are recognised locally as an ASLV recognising the positive contribution the area makes to the distinctive attractiveness of the peninsula.

9.23 Raby's rural landscape (LCA 4d) continues on this strong agricultural, tranquil farmland theme with an intact historic field pattern and discernible estate character. The historic character of the small village of Raby and sparse settlement pattern of scattered red sandstone farmhouses adds to the scenic qualities of the area. There is very little settlement within the wider area and for this reason, it retains a clear sense of separation from the larger settlements of Heswall in the west and Eastham and Bromborough in the west. In this respect, the area is considered to have a predominantly moderate - high sensitivity.

Figure 9.1: Landscape Sensitivity Assessment (LSA)



- Wirral boundary
- Other Local Authority boundary
- England - Wales boundary
- Landform edge
- Settlement area
- Landscape sensitivity rating (2019 LSA edited)**
 - High
 - Moderate-High
 - Moderate
 - Low-Moderate
 - Low
- Landscape sensitivity rating (2020 LSA additions)**
 - High
 - Moderate-High
 - Moderate
 - Low-Moderate
 - Low

Chapter 10

Assessing Wirral's Environmental Sensitivity

Introduction

10.1 This Chapter presents the results of the sensitivity mapping of environmental assets across the whole of Wirral in a 'composite map'. This was produced by overlaying the sensitivity scores of all the Sub Theme assets. The Chapter also provides a qualitative commentary on the Borough's 'environmental sensitivity', including a consideration of the key pressures on Wirral's habitat and landscape network.

The concept of environmental limits / capacity

10.2 As discussed in full in **Chapter 1**, living within 'environmental limits' has always been an overarching principle of UK sustainable development policy and the draft Environment Bill obliges policy-makers to have due regard to the environmental principles policy statement when choosing policy options, for example by considering the policies which cause the least environmental harm.

10.3 There are strong links between ecosystem services, environmental limits and thresholds. Common to them all is the important concept of 'acceptability', which is determined by society.

10.4 With this in mind, the purpose of this study is not to determine the exact point at which targets, standards and policy intent is likely to be compromised. Instead it is to provide, in an as objective way as possible, a description and evaluation of the effects of further development to inform those with an interest and decision makers.

10.5 As such, the remainder of this chapter provides a portrait of Wirral's current environmental sensitivity, drawing on the results of the mapping of environmental sensitivities set out in **Chapters 3 to 8** and the findings of the landscape sensitivity assessment in **Chapter 9**, but also highlighting data gaps and drawing attention to the key pressures across the Peninsula.

Wirral's environmental sensitivity: a portrait

10.6 **Figure 10.1** presents a composite map setting out the results of the sensitivity mapping. This map was produced by 'layering' the findings from the review of Core Themes 1-6 (taking account of asset sensitivities in each of the Sub Themes within each Core Theme (see **Chapter 2** for

methodology). This provides a comprehensive view of environmental sensitivity across the various assets.

10.7 There are no areas within the Borough which were identified as low sensitivity to potential development.

10.8 Areas marked on the map in red as 'higher sensitivity' are where the principle of development would be considered highly inappropriate. As the mapping illustrates, these relate primarily to:

- Areas of high flood risk (most widespread within the River Birket Corridor in the north of Wirral).
- Nationally and internationally designated biodiversity assets - such as SSSIs within the Heswall Dales and at Thurstaston Common.
- Designated heritage assets, such as the Conservation Areas at Birkenhead Park and Port Sunlight.
- Areas of protected ancient woodland, most expansive in the River Dibbin Valley.

10.9 In addition to the areas identified as higher sensitivity, there are a number of areas within the Borough which are subject to multiple environmental constraints (i.e. areas with 10-14 'layers' of assets with moderate sensitivity). These areas include:

- The elevated area of Bidston Hill on the western edge of Birkenhead – partly given its status as a locally designated Area of Special Landscape Value, as well as a Country Park, and overlapping local biological and geological designations.
- Areas of Royden Country Park outside the nationally designated SSSI, largely due to local designations as a Local Wildlife Site (LWS) and due to its status as a Local Landscape Designation.
- Wooded areas lying within West Kirby – due to overlapping local landscape, ecological and geological designations.
- A stretch of deciduous woodland to the west of Storeton Road, due to its designation as a Local Wildlife Site (LWS).
- Isolated areas of Arrowe Country Park – due to its recreational value as a Country Park and locally recognised ecological sensitivities.
- Isolated areas within the River Birket Corridor Nature Improvement Area (NIA) – in parts due to the presence of coastal and floodplain grazing marsh (as a Priority Habitat) and LWSs.
- Some linear assets e.g. parts of the Wirral Way.

10.10 The mapping also shows much more expansive areas where there are '4-9 'layers' of assets of moderate sensitivity were identified. These areas are more heavily concentrated in the west and south of the Borough and include the following:

- Large areas of agricultural land in the west of the Borough lying between West Kirby and Heswall and lying in between Royden Country Park and the Dee Estuary.
- More expansive areas of Arrowe Country Park in the centre of the Borough.
- Large areas of agricultural land lying in the south/central parts of the Borough - including in the valley of the River Dibbin, in areas immediately adjacent to the urbanised areas of Bromborough and Bebington, and areas on the border with neighbouring Cheshire West.
- Areas in the vicinity of coastal assets - including at Wirral Coastal Park in the north of the Borough, and the Royal Liverpool golf course.
- Within non-designated areas of Eastham Country Park, as well as other blocks of land in the surrounding Eastham area.

10.11 The lightest blue areas on the map denote those areas with the least identified environmental sensitivities. These largely overlap with existing urbanised areas and – in some cases the more open areas immediately adjacent to them. However, there are very limited areas of land on the edge of existing built-up areas which are both less sensitive in terms of the environmental assets they contain and their landscape sensitivity. These areas are explored further in **Chapter 12 and 13**.

Wirral's ecological sensitivity: a portrait

10.12 The assessment of biodiversity as set out in **Chapter 4** and included in the commentary of composite sensitivity set out above, focuses on the known designated wildlife sites and priority areas. This found that the principal areas of 'Higher Sensitivity' in relation to biodiversity relate to the SSSI designations, such as the woodland-heath-grassland mosaic habitats at Thurstaston Common and Heswall Dales, the grassland and wetland of Meols Meadows, and the irreplaceable ancient woodlands, such as at Dibbinsdale (also nationally designated).

10.13 Whilst helpful in being able to identify areas of key sensitivity, this does not present the complete picture. These sites do not function in isolation. Surrounding habitats are required to connect between and buffer around these sites to ensure healthy function of the ecosystem, particularly where there is need for resilience to external pressure/s such as

changes to the hydrological regime, recreational demand and/or climate change.

10.14 When considering ecological sensitivities in Wirral, it is important to bear in mind the data limitations (as summarised in **Table 4.1**). In particular, the role of 'functionally linked habitat' in supporting Wirral's designated assets, and the existing gaps in the data which do not enable this study to adequately map where these habitats are located and where they need a greater degree of protection. As a result, pending further studies to clarify the location of these areas, the areas of higher sensitivity for biodiversity are likely to have been underestimated in this study.

Functionally linked habitat

10.15 Wider habitats in Wirral which support qualifying species in significant numbers, enough to be considered integral to the integrity of the site/s (i.e. functionally linked land) principally include inland agricultural land, wetlands and grasslands, which support a significant proportion of the wintering wetland bird populations of the coastal SPA and Ramsar sites. These habitats may also support the highly mobile qualifying bird species of more distant designations, such as golden plover (a probing feeder) and pink-footed goose (grazing) associated with the Ribble and Alt Estuaries SPA father north east⁶⁶.

10.16 Based on the WeBS Core Count boundaries (sensitivity mapped under **Core Theme 2** and extent indicated through **Figure 10.2**), areas which are of particular note in supporting coastal designations, include:

- West Wirral across the open fields coast-side of Heswall and Thurston Common.
- Inland of Hoylake to Frankby and Thurston Common, and across the Greasby Brook corridor to Saughall Massie and the urban edge of Upton.
- River Birket corridor, spanning between the railway and north coast embankment, plus discrete wetlands south of the railway at Meols and at Carr Hall Clay Pit, Ditton Lane Nature Reserve, and open fields at Fender Bridge alongside the M53.
- Discrete inland waterbodies at Arrowe, Central and Birkenhead Parks, and at Raby Hall.

10.17 Most of these areas have not been rated as of high sensitivity in this study.⁶⁷ However, subject to further analysis

and refinement (which is currently being undertaken by Natural England, with findings due to be published in Spring 2021) they could be defined formally as Functionally Linked Habitats and afforded the same protection as designated sites. This more detailed understanding of functionally linked habitat is crucial before any final conclusions can be drawn regarding the overall sensitivity of Wirral.

Opportunities for Biodiversity Net Gain (BNG)

10.18 In addition to the need to identify functionally linked land, it is recognised that the Draft Environment Bill includes a mandatory requirement for delivery of Biodiversity Net Gain (BNG) as part of any planning application, with a target set at minimum 10% gain and 30-year legacy. BNG follows the mitigation hierarchy i.e. that it will as a priority be delivered on site or, where this is not possible, in adjacent land or, least preferred, off-site within the wider Borough.

10.19 To address the potential need for delivery of off-site BNG, land not currently assessed as high sensitivity may be identified for future enhancement. Given the spatial constraints facing Wirral, this will place an additional competing pressure to accommodate land required for the strategic delivery of BNG.

Recreational pressures

10.20 There are also a number of pressures facing the Wirral Peninsula's sensitive ecological assets and the wider ecological resource within Wirral. A particularly key pressure is from recreational users.

10.21 It is well recognised that the coastal designations are subject to disturbance associated with recreational pressure as local residents, the wider Wirral community and significant numbers of visitors from the wider City Region are drawn to explore and enjoy these 'wild spaces'.

10.22 Recreational pressure is of greatest concern at the international designations surrounding the Wirral coast and the national designations at Thurston and Heswall Dales - in part, as a result of the inherent natural interest of these areas. Areas of the Mersey Narrows and North Wirral Foreshore SSSI's are also heavily affected by recreational and developmental (leading to increase in visitor numbers) pressures.⁶⁸

10.23 The Dee Estuary captures the recreational and residential use of the West Wirral shoreline, which sits in

⁶⁶ See WMBC Habitats Regulations Assessment of the Wirral Local Plan 2020-2035 I&O Consultation Document (2019) for more detail regarding potential impacts on functionally linked habitat

⁶⁷ Note that the Core Count areas within the Dee Estuary (Red Rocks to West Kirby Beach and Marine Lake) and Mersey Estuary (Wallasey and Perch Rock Pool in the north, and spanning Tranmere Beach to Eastham Ferry in the south)

all fall within or largely within the designation and as such are flagged already at High sensitivity.

⁶⁸ Natural England - Mersey Narrows and North Wirral Foreshore Sites of Special Scientific Interest - Investigation into the impacts of Recreational Disturbance on Bird Declines (2015) NECR201

juxtaposition with the relatively industrialised Flintshire beyond.

10.24 Recognised pressures on the Dee Estuary SPA and SAC designations include⁶⁹:

- Low flying small aircraft causing bird disturbance.
- Board sports – varied and numerous launch point causing disturbance to wader roosts.
- Kite surfing - a key concern at Red Rocks/Bird Rock and Hoylake.
- Bird Rock (refuge area for waders at high tide) often disturbed.
- Paddle sports, notably from late summer onwards, particularly on Middle Eye if paddlers land and walk over the island disturbing roosting waders.
- Off-road motorsports recorded as a sporadic problem on the Dee Estuary. Occasional and slightly increasing use of trail bikes on the beach at West Kirby/Hoylake and riding out to Hilbre Island.
- Trail bikes occasionally seen on saltmarsh of the Welsh side of the estuary where they can disturb roosts and damage vegetation.
- Increasing use of drones, including low flights over roosting, feeding and nesting birds e.g. incidents of disturbance to waders feeding at low tide around the gutter and edge of East Hoyle sandbank noted by Hilbre Island Observatory.

10.25 In recognition of the need to divert recreational pressures (existing and projected) away from the vulnerable sites of Wirral's coast; the Liverpool City Region GI Strategy notes that woodland sites may have greater holding capacity for visitors than coastal areas with qualifying features typically less sensitive to visitor pressure. Positive management is of particular importance to ensure such woodlands are maintained in favourable condition.

10.26 Thurstaston Common SSSI and Heswall Dales SSSI designations support dry heath and damp heath habitats in mosaic with other valued grassland and wetlands, although Thurstaston is of greater area and botanical diversity. Recreational pressure is recognised to be adversely affecting the heath habitats of both SSSI, and both are in 'unfavourable, recovering' condition as result of appropriate management.

10.27 In the face of ever-increasing recreational pressures, there is a need to ensure that further pressure is not applied to Borough's sensitive ecological resource. This requires careful management and the need to recognise that additional

housing and development may exacerbate existing problems. The interim HRA of the Wirral Local Plan 2020-2035 Issues and Options Consultation document (2019) discusses the issues of development and recreational pressure on each of the sensitive designations around Wirral's coastline in more detail.

Wirral's landscape sensitivity: a portrait

10.28 In addition to the potential impacts on the environmental resource, an assessment was undertaken of the landscape sensitivity of Wirral to the principle of development, using both LSA 2019 data and 2020 additions. An overview of the results is presented in **Chapter 9**.

10.29 In summary, the assessment highlights the coastal areas – and in particular the Dee Estuary – as the Borough's most sensitive landscapes, where character is strongly influenced by the seascape and openness of the landscape. Extensive views across the Estuary also provide a strong sense of place. Further inland, landscape within the northern floodplain displays significant sensitivity in some areas, however stronger influence by sea defences, urban land uses and major roads moderate this in places. Similarly, the central agricultural core of Wirral is judged as less sensitive than coastal land, however sensitivity is higher in identified areas where field sizes are smaller and where the landscape plays an important role in the setting of historic villages.

10.30 While landscape is more sensitive in areas with a clear sense of separation from settlements, sensitivity is lower where urban elements such as roads and pylons disrupt the coherence of the agricultural landscape character. It is important to note that, while inland areas are generally less sensitive than coastal areas, elevated features such as the sandstone outcrops (at Bidston Hill, Thurstaston Hill and Caldy Hill) significantly heighten sensitive, particularly because of the intervisibility they allow and the contribution to Wirral's sense of place. The Royal Liverpool Golf Course, land around Saughall Massie and land at Eastham Village are also considered to be sensitive to development.

10.31 **Figure 10.3** overlays the findings of the Landscape Sensitivity Assessment on the environmental sensitivity assessment composite map. This shows that, on the northern and western coastal edges, areas of high overall environmental sensitivity tend to coincide with high landscape sensitivity (e.g. at Caldy Hill, the Dee Estuarine Edge and Leasowe Country Park). However elsewhere there are some areas where land shows relatively lower overall environmental sensitivity, but higher landscape sensitivity – such as the land on the eastern edge of Heswall.

⁶⁹ Dee Estuary SPA & SAC Data Sheets

A summary of Wirral's environmental sensitivity

10.32 While no definitive judgement can be made about whether Wirral is 'at environmental capacity', or that the Borough is unable to accommodate further development, this section offers a qualitative commentary of the pressures facing Wirral's natural assets, and what this means for Wirral's environmental sensitivity.

10.33 Both the composite mapping of environmental and landscape sensitivity (**Figures 10.1, 10.2, and 10.3**) and the additional pressures outlined in the preceding text illustrate that Wirral is a highly constrained Borough in both environmental and landscape terms. This is in part due to its peninsular form, with approximately 55% of the Borough already developed, and with the remaining countryside providing an important resource for both the inhabitants of Wirral and visitors beyond.

10.34 The Borough plays host to some important yet vulnerable biodiversity assets. This is particularly the case around the coastal edge, which require the inland habitat areas to support them. Protection of these vulnerable resources and the sense of place within Wirral is key to maintaining a sustainable future. Too much additional development has the potential to erode Wirral's unique qualities.

10.35 As noted in this chapter, there are existing knowledge gaps about some of the areas that require protection within Wirral. This study cannot therefore provide a definitive statement on all sensitive land. However, these additional sensitivities should be taken into account when planning land use change in Wirral. This relates in particular to the need to identify the wider areas of habitat which support designated sites, and to safeguard the most vulnerable habitats from significant recreational pressures stemming from both within the Borough and the wider Liverpool City Region.

10.36 The following data limitations noted within this study should be taken into account when drawing conclusions about environmental sensitivity:

1. The absence of detailed data on the extent of the Borough's 'functionally linked habitat' (see **Core Theme 2**);
2. The lack of data on the relative quality of the Borough's various areas of 'best and most versatile' agricultural land, pending more detailed studies (see **Core Theme 1**).
3. The need to consider the setting of heritage assets (see **Core Theme 4**).

4. The absence of finalised locally designated Local Green Spaces (LGS) (see **Core Theme 5**).
5. The absence of up-to-date Phase 1 Habitat data on land uses (used to determine Carbon storage potential) (see **Core Theme 6**).

10.37 This study therefore recommends caution and further consideration of these issues when considering future land use change in Wirral. While areas of land within settlement boundaries are by no means free of environmental sensitivities, in broad terms these Urban Areas are identified as being generally less environmentally sensitive than areas within the countryside.

10.38 A review of the spatial options considered by the Council in their Issues and Options Consultation, which included the consideration of urban intensification versus development within the Green Belt is provided in **Chapter 12**.

Figure 10.1: Composite mapping of environmental sensitivity in Wirral

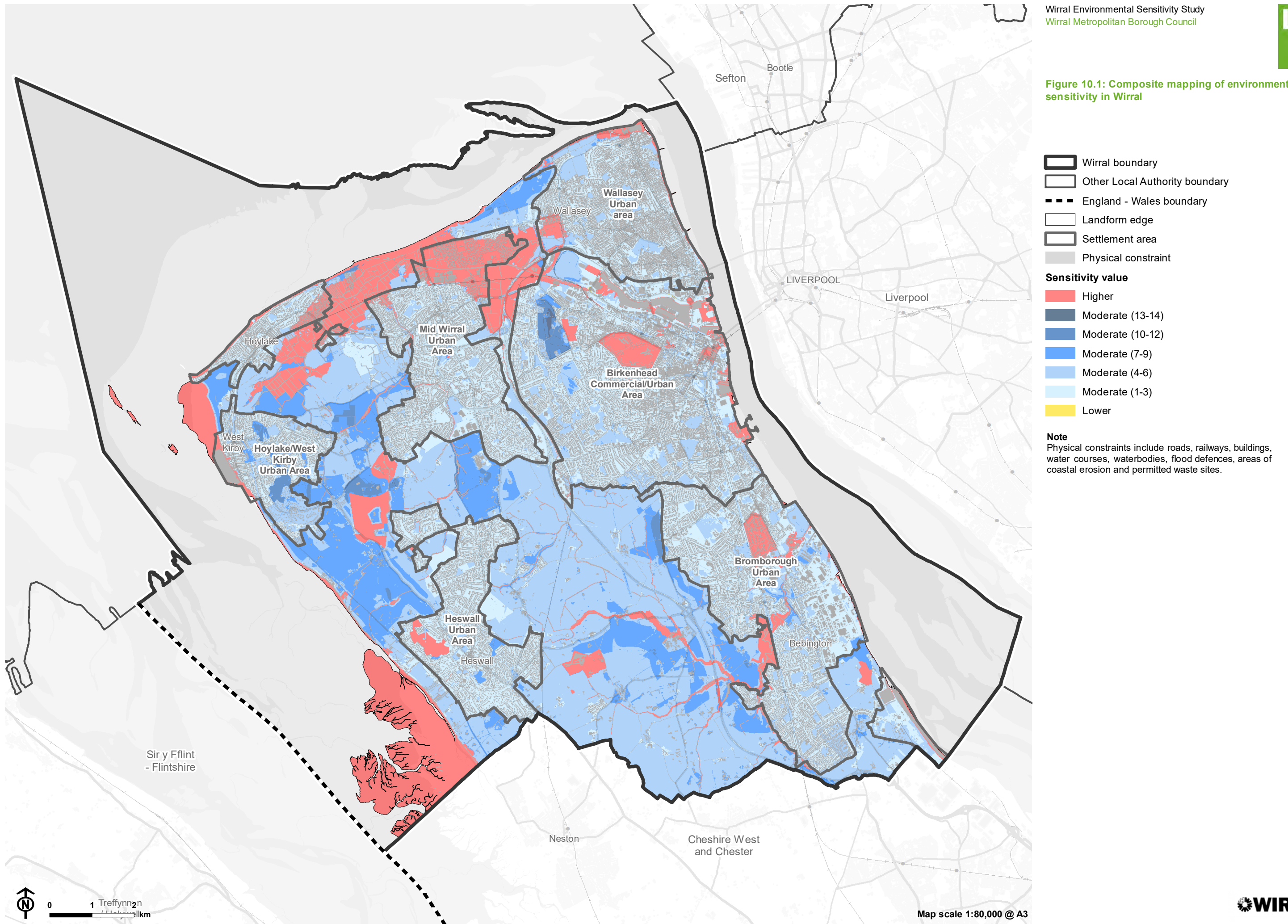


Figure 10.2: Composite mapping of environmental sensitivity in Wirral (including WeBS Core Count data)

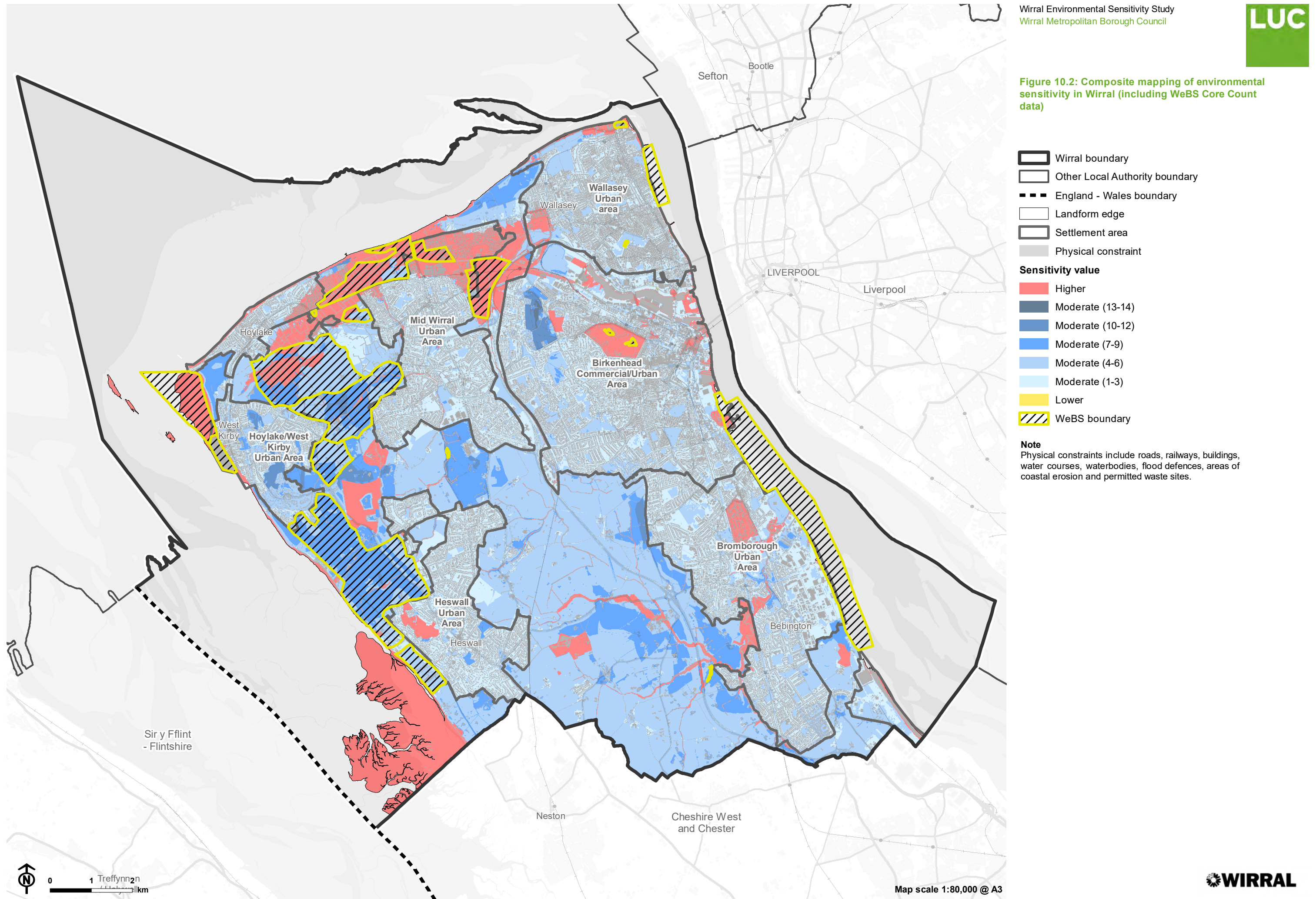
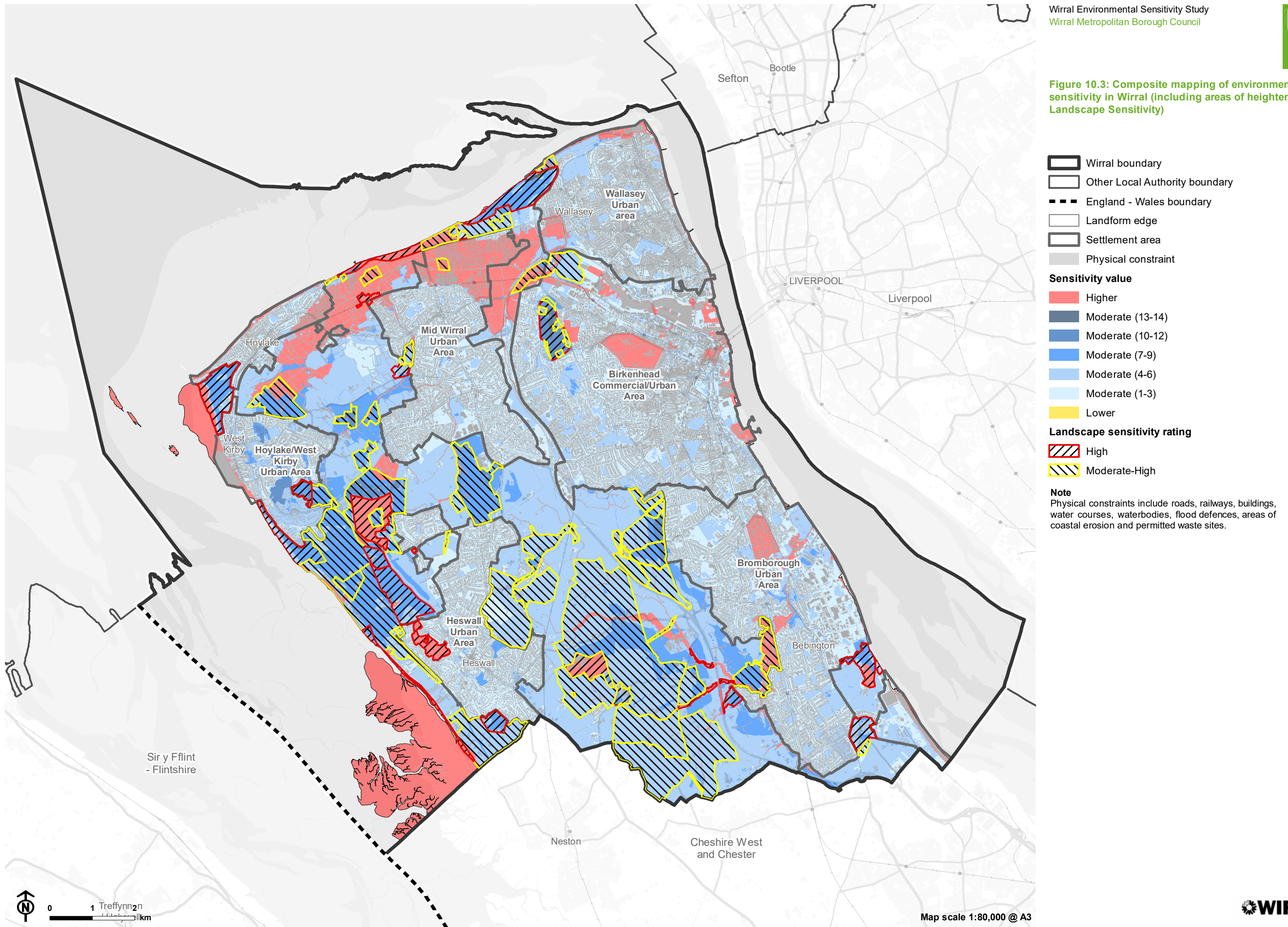


Figure 10.3: Composite mapping of environmental sensitivity in Wirral (including areas of heightened Landscape Sensitivity)



Chapter 10
Assessing Wirral's Environmental Sensitivity

Wirral Environmental Sensitivity Study
January 2021

Chapter 11

Assessment of Potential for Carbon Emissions

Introduction

11.1 This Chapter outlines the methodology used to assess the likely potential for various areas of Wirral to generate additional carbon emissions. This assessment is used alongside the environmental sensitivity and LSA mapping to provide a profile of Wirral's Borough Council's Strategic Spatial Options (**in Chapter 12**) and to review the sensitivities of land around each Settlement Area (**in Chapter 13**).

11.2 The Chapter outlines the methodology that was developed in order to compare the potential of areas within Wirral to generate additional carbon emissions. This includes the data sources, assumptions and provisions that apply to the analysis. It also provides an overview of the mapped results, and their implications for this study.

11.3 Whilst **Chapter 8** of this report considered the sensitivity of carbon storage areas within Wirral, this chapter considers transport-related emissions i.e. the potential of the built environment to lead to car-dependent lifestyles and consequent carbon emissions, and specifically the accessibility or locations to key services and places of employment etc. It also considers the potential for the generation of renewable energy and the establishment of district heating networks.

Why has an assessment of potential carbon emissions been undertaken?

11.4 The impact of rising carbon emissions on the integrity of the environment globally is now well documented. This is because increasing levels of greenhouse gases in the Earth's atmosphere, the principal one being carbon dioxide, are driving excessive global heating, leading to global climatic instability. Locally, changes in the climate that are already unavoidable are expected to lead to higher intensity and more frequent storms, wildfires and rising oceans as they become warmer and more acidic.

11.5 In response to the recognition of this warming as a threat to the earth's carrying capacity, the Paris Agreement in 2015 saw 195 countries and the European Union agreeing collectively to keep global warming well below 2°C and to make every effort not to go above 1.5°C. In 2019 the UK acted on this by committing through legislation to achieve 'net zero' emissions by 2050.

11.6 As the UK's Committee for Climate Change has urged, tackling carbon emissions will require a step change in how land is used in the UK. It will also require greater attention to where development is located and the travel behaviours those locations promote.

11.7 In recent years, the UK has made significant progress in 'decarbonising' power generation, through the phasing out of coal and increased use of renewables and natural gas. Decarbonisation of heat and travel remains a challenge. However, greenhouse gas emissions from road transport make up around a fifth of UK greenhouse gas emissions and have increased by 6% between 1990 and 2017⁷⁰. While the electrification of road transport allows some scope for reducing emissions, spatial planning has a crucial role to play in ensuring that the location of new development leads to a modal shift away from private cars and toward use of more sustainable means such as public transport, cycling and walking. This should take into account all destinations that residents require to visit, including GP surgeries, schools, local centres, and town and city centres.

Accessibility to key services and employment

11.8 Locating development close to local services and employment will, all other things being equal, reduce the need to travel and will allow the use of low carbon modes of transport, particularly walking and cycling. Conversely, locating development at a greater distance from local services and employment is likely to result in longer trips and a greater proportion undertaken by motorised modes, particularly car.

11.9 Of course, proximity to a particular local service or employment source does not mean that it will always be used in preference to a more distant alternative. However, it does provide a measure of potential for low carbon access to these locations.

Method

11.10 The locations of a selection of services (including employment locations and public open space assets) was analysed and mapped across Wirral and is presented through **Figure 11.1**. The analysis only includes local service provision within the Borough and does not take account of sites in neighbouring authority areas.

11.11 Accessibility was categorised as shown in **Table 11.1** and **Table 11.2**. These ratings are consistent with those used

by MerseyTravel and in Wirral MBC's Draft Open Space Standards.

11.12 The various time-based and distance-based accessibility ratings were then layered to provide an overall view of accessibility to the services considered necessary for the daily life of residents. This overall accessibility mapping is shown in **Figure 11.2**.

Results

11.13 **Figure 11.2** highlights that, as might be expected, land in the vicinity of major urban areas is the most accessible to a range of services and employment opportunities. This is likely due to the accessibility to town centres and local centres for retail, health and education services, as well as the availability of key public transport nodes such as Merseyrail stations, which allow access to key employment centres.

11.14 It is anticipated that those living in the areas currently highlighted through lighter shades of blue on **Figure 11.2** are more likely to lead car-dependent lifestyles because the services required for daily life, education and work are not realistically available by walking, cycling or taking public transport. As such, the impact of any new development on carbon emissions will be more significant in these locations.

11.15 The wider Birkenhead area performs particularly strongly in terms of accessibility, compared to Urban Areas in the west such as Heswall and West Kirby. In these locations the full range of services assessed may either not be available or are some distances away from major populations.

11.16 However, it should be noted that some of the areas currently shown as less accessible may become accessible through improvements in service and infrastructural provision. In particular, this might take the form of new bus services, GP surgery's, primary or secondary schools or sources of employment provided within walking distance and new provision of publicly accessible green space delivered alongside new development. However, it is important that any such infrastructure is provided in advance of development being occupied, in order to 'lock in' more sustainable travel behaviours early on.

11.17 In terms of commuting patterns within the Borough, DataShine data⁷¹ – based on 2011 Census data – illustrates patterns of commuting from various locations across the Borough. This provides further context for the accessibility mapping. The visualised data confirms the picture that - while there are significant modal flows into Birkenhead for employment - there are also significant levels of out-

⁷⁰ ONS (2019) 'Road transport and air emissions' [Online] Available at: <https://www.ons.gov.uk/economy/environmentalaccounts/articles/roadtransportandairemissions/2019-09-16>

⁷¹ <https://commute.datashine.org.uk/#mode=allflows&direction=fro m&msoa=E02001482&zoom=13&lon=-3.0225&lat=53.3922>

commuting from most areas of Wirral. In particular there are significant flows of commuters to neighbouring Liverpool City and south to Cheshire and Cheshire West (with Ellesmere Port a key destination).

11.18 This assessment of the potential for transport-related emissions will be commented on further in **Chapters 12-13**,

which look in greater detail at each Strategic Spatial Option and Settlement Area.

Table 11.1: Accessibility to key services

Key services and destinations	Maximum acceptable accessibility threshold	Mode of transport	Evidence base used
Employment locations	20 minutes	Public transport	MerseyTravel accessibility data
Primary schools	10 minutes	Walking/cycling	MerseyTravel accessibility data
Secondary schools	20 minutes	Walking/cycling	MerseyTravel accessibility data
Further education facilities	30 minutes	Public transport	MerseyTravel accessibility data
GP surgeries	15 minutes	Walking/cycling	MerseyTravel accessibility data
Hospitals	30 minutes	Public transport	MerseyTravel accessibility data
Food stores	15 minutes	Walking/cycling	MerseyTravel accessibility data
Leisure facilities	15 minutes	Walking/cycling	MerseyTravel accessibility data
Liverpool	45 minutes	Public transport	MerseyTravel accessibility data
Sub regional centre (Birkenhead)	25 minutes	Public transport	MerseyTravel accessibility data
Town centres	15 minutes	Public transport	MerseyTravel accessibility data
District centres	10 minutes	Public transport	MerseyTravel accessibility data
Local centres	10 minutes	Public transport	MerseyTravel accessibility data

Table 11.2: Accessibility to open space assets

Open space assets	Maximum acceptable accessibility threshold	Mode of transport	Evidence base used
Strategic open space sites	1,200m	N/A (distance-based)	Wirral Open Space Standards (2020)
Parks and gardens	710m	N/A (distance-based)	Wirral Open Space Standards (2020)
Natural and semi-natural green space	720m	N/A (distance-based)	Wirral Open Space Standards (2020)
Amenity green space	480m	N/A (distance-based)	Wirral Open Space Standards (2020)
LAP play provision	100m	N/A (distance-based)	Wirral Open Space Standards (2020)
LEAP play provision	400m	N/A (distance-based)	Wirral Open Space Standards (2020)
NEAP play provision	1,000m	N/A (distance-based)	Wirral Open Space Standards (2020)
Youth play provision	700m	N/A (distance-based)	Wirral Open Space Standards (2020)

Renewable energy potential in Wirral

11.19 The potential for generation of renewable energy across Wirral is a key consideration in the drive to lower carbon emissions. The Council have undertaken a Renewable Energy assessment⁷² of the potential for different forms of renewables to be accommodated within the Borough. This work does not include proposed allocations for renewable energy developments but rather potential 'opportunity areas' which would be subject to further assessment. The report considered the potential for deployment of the following technologies across Wirral:

11.20 Onshore Wind Energy: The study identified a high wind speed profile in northern and western areas of the Peninsula. However due to the prevalence of urban developments on the east side of the Borough and environmental designations on the west side, it concluded that there is little potential for onshore wind energy in Wirral. The study suggests that there may be opportunity for small scale, single turbine installations subject to the approval of local

residents who may be affected by noise and shadow flicker from the turbine(s).

11.21 Ground-Mounted Solar PV: The study identified a high solar PV output potential across the Peninsula and a number of opportunity areas for ground-mounted solar PV arrays largely within central, southern and western areas of the Peninsula – albeit with numerous environmental constraints in these areas. The study concluded that any use of Green Belt land for solar PV should be very carefully considered in terms of balancing ecology, visual impact and local character against renewable energy targets.

11.22 Biomass Energy: The study concluded that there is potential for biomass energy in the form of energy crops and forestry residues. There is a significant proportion of Wirral's agricultural land area that could be used to grow energy crops; however, the proportion of land allocated for energy crops must be balanced with the Borough's food production and financial returns for farmers. Recovery of forestry residues from managed woodland for use as biomass fuel could provide a modest contribution to the Borough's carbon targets and make use of an otherwise wasted, low cost resource.

⁷² Wirral Local Plan Climate Change and Renewable Energy Study (2020)

11.23 District Heating: The study concluded that district heating supplied by low-to-zero carbon technologies represents one of the most effective methods for decarbonising heat in Wirral. The study identified a number of district heating priority zones with sufficient spatial heat density to potentially support possible district heating schemes, with the highest potential in the densely populated north east area of the Borough (Wallasey and Birkenhead). Smaller pockets of high potential also exist in West Kirby, Hoylake, Heswall, Greasby and Bebington. It noted that an additional feasibility study for a potential heat network was taking place in Birkenhead, which is looking in particular at opportunities in Birkenhead and defining them in greater detail.

11.24 The study further identifies that the Wirral peninsula sits atop one of the UK's primary aquifers. This presents a significant, unique opportunity for open-loop ground source heat pump systems, which could supply low-carbon heat to individual buildings and heat networks schemes.

11.25 Building Integrated Renewables: The study concluded that Wirral has limited spatial availability for deployment of large-scale renewable energy technologies such as onshore wind. Therefore building-integrated renewable energy technologies are expected to play an important role in achieving decarbonisation targets.

Implications for this study

11.26 It will be important to ensure that identified 'opportunity areas' for renewable energy included within the Renewable Energy Study are not sterilised through future land use changes or development. Instead, land use changes or development in these locations should seek to incorporate and maximise the use of renewable energy technologies where possible.

11.27 These areas are not included as a constraint to development within this study, but they should be considered as a potential competing land use that will require careful consideration if any development in the future is proposed on areas deemed suitable for renewables⁷³.

Feasibility of District Heat Networks

11.28 District heating networks can be a significant source of carbon savings compared to traditional heating schemes. However, each network is reliant on suitable energy centre locations being secured.

11.29 Wirral's Cool 2 Strategy (see **Appendix B**) anticipates heat networks in the Birkenhead area in its strategy to lower the Borough's carbon profile, stating that "*heat networks are a key potential way to decarbonise heating*". One of the goals is to develop more heat networks in urban areas.

11.30 Locations with the potential for heat networks (based on heat demand density) have been identified (see the below footnote), but each has not been explored to the same level of detail. More detailed studies⁷⁴ have prioritised the principal opportunity in Birkenhead. In particular, they explore the potential to abstract water from the docks, transport tunnels and wastewater treatment works in Birkenhead.

11.31 With varying levels of information available, this Sensitivity Study does not draw any conclusions on the potential for carbon emissions reduction from heat networks in any given location across Wirral, beyond noting the current interest and potential in the Birkenhead area.

11.32 In general terms however, in order to achieve economies of scale and increased carbon savings, larger-scale and strategically planned schemes are likely to be more viable than smaller, disparate district heating schemes.

11.33 This indicates that Strategic Spatial Options that focus on delivering more dispersed development are likely to be at a disadvantage in relation to their ability to deliver district heating networks to reduce carbon emissions. The studies carried out to date and the Cool 2 Strategy suggest that locations within existing Urban Areas will be at a distinct advantage in this regard.

⁷³ Please refer to the figures included within the Wirral Local Plan Climate Change and Renewable Energy Study (2020) for more information on the spatial extent of 'opportunity areas'

⁷⁴ Wirral District Heat Network Feasibility Report (2020) Sustainable Energy

Figure 11.1: Location of key services and open space in Wirral

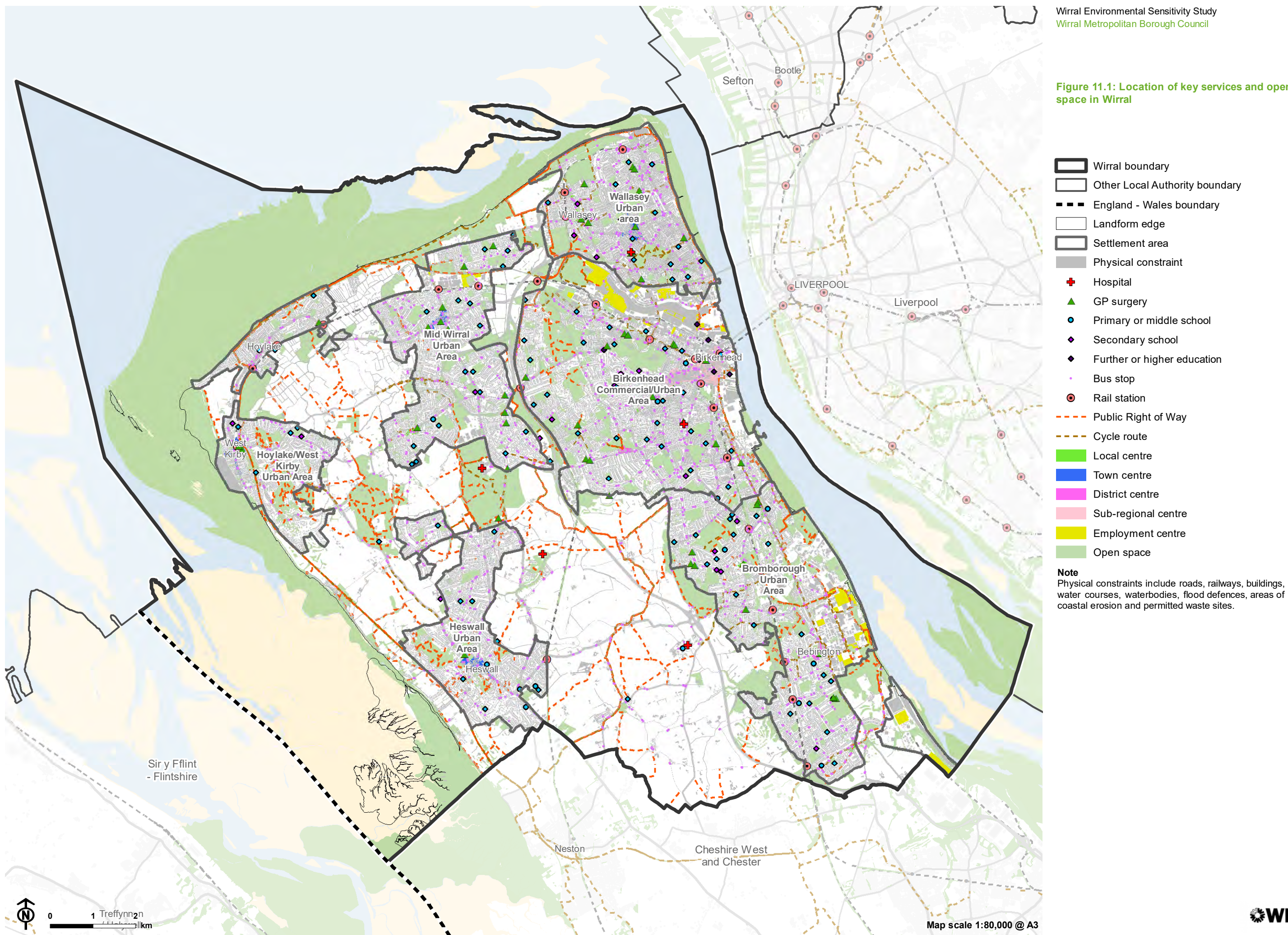


Figure 11.2: Accessibility to key services and open space in Wirral

