Appendix 2

PfSH

Part 2 - Strategic Green and Blue Infrastructure Opportunities in South Hampshire

Final report
Prepared by LUC
September 2023

PfSH

Part 2 - Strategic Green and Blue Infrastructure Opportunities in South Hampshire

Version	Status	Prepared	Checked	Approved	Date
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Contents

Chapter 1
Introduction

Background

1.1 LUC was commissioned by the Partnership for South Hampshire (PfSH) in November 2021 to explore what planning policy mechanisms the South Hampshire authorities could use to protect and enhance their open countryside. A Part 1 report was prepared in May 2022 which set out the PfSH authorities' ambitions for the open countryside and explored different policy options available to achieve them. One of which was protecting and enhancing green and blue infrastructure (GBI).

1.2 This report identifies and maps key strategic Green and Blue Infrastructure (GBI) Opportunities within South Hampshire i.e., opportunities for projects to deliver significant ecosystem service benefits that are usefully considered at a sub-regional scale. It builds on LUC's earlier Policy Options Review (May 2022), which summarised the context for GBI in the PfSH area and the key strategic assets.

1.3 The Policy Options Report suggested that the PfSH authorities should consider *"the identification and mapping of strategic GI opportunity areas in the Joint Strategy, supplemented by policy setting out expectations for development in these locations to make a positive contribution towards the environmental enhancement of these areas."*

1.4 Following on from this, in September 2022, LUC set out a methodology for progressing the PfSH study in relation to GBI and in November 2022 LUC was asked to progress this work.

Aims

1.5 The aim of this study is to identify the key strategic opportunities to protect and enhance GBI within South Hampshire.

1.6 The approach focused on five key strategic benefits/outcomes that need to be delivered by new and improved strategic GBI in South Hampshire:

- improved access to nature;
- nature recovery;
- nutrient mitigation;
- recreational impact mitigation for Habitats sites; and
- natural flood risk management.

1.7 Note that the introduction of mandatory biodiversity net gain in November 2023 for certain types of development is a route through which significant nature recovery benefits can be delivered, especially if offsite investment is strategically targeted to maximise ecological benefits.

1.8 In addition, LUC was asked to ensure sufficient prominence is given to providing space for food production.

1.9 These key strategic benefits/outcomes were agreed with the PfSH planning officer's group (POG) as part of the development of the study methodology in September 2022.

1.10 LUC was also asked to outline some recommended next steps in relation to GBI policy development and delivery. This is covered in Chapter 4 of this report.

Chapter 2
Method

2.1 The methodology was prepared with the purpose of identifying the key strategic opportunities to protect and enhance GBI within South Hampshire. The approach seeks to build on, rather than duplicate previous work set out in the Policy Options Report (2022), the South Hampshire GI Strategy (2017)[1] and the South Hampshire GI Strategy Implementation Plan (2017)[2] and Hampshire Biodiversity Information Centre's (HBIC) Local Ecological Network mapping[3].

2.2 The method is summarised in the flow diagram, below and explained step by step in the following pages.

Project initiation

2.3 The project began with an inception meeting to confirm the scope of the assessment, project timescales, data requirements and communication methods. In order to focus efforts on strategic benefits that are usefully considered at a sub-regional scale, the following strategic 'priority outcomes'

[1] https://www.push.gov.uk/wp-content/uploads/2018/08/South-Hampshire-GI-Strategy-2017-2034-FINAL.pdf
[2] https://www.push.gov.uk/wp-content/uploads/2019/08/South-Hampshire-Green-Infrastructure-Implementation-Plan-June-2019-.pdf
[3] https://documents.hants.gov.uk/biodiversity/MappingtheHampshireEcologicalNetworkFinalReport.pdf

were agreed with Partnership for South Hampshire (PfSH) at the inception meeting:

- Improved access to nature;
- Nature recovery;
- Nutrient mitigation;
- Recreational impact mitigation for Habitats sites, previously termed European sites; and
- Natural flood risk management.

2.4 As noted above, PfSH also highlighted the need to have regard to retaining space for food production. This is a classic example of the sorts of trade-offs that need to be managed, drawing on the best available data, when considering the best use of land at a landscape scale.

Stakeholder engagement

2.5 Key stakeholders with a role in developing, delivering, monitoring or regulating strategic GBI projects in the region were identified and engaged with at an early stage to understand relevant work completed to date and any key local and national datasets that we could draw on. The latter was particularly important to ensure we could make use of the best available data. Key stakeholders engaged in this first phase included representatives of:

- Natural England.
- Environment Agency.
- Forestry Commission.
- Local Nature Partnership.
- PfSH Strategic Environmental Planning Manager (SEPM).

2.6 These initial conversations highlighted a range of further contacts to follow up. We therefore undertook further stakeholder meetings involving GBI leads/key representatives of the following organisations:

- Hampshire County Council /Hampshire Biodiversity Information Centre.
- Southern Water.
- Portsmouth Water.
- South Downs National Park.
- Solent Forum.
- Bird Aware.
- Southampton City Council.[4]
- Environment Agency lead re natural flood risk management.
- Environment Agency lead re regional habitat compensation programme.
- Blue Marine Foundation.

Compilation and review of GIS Data

2.7 A data request list was shared with local planning authorities (LPAs) via the PfSH project team that identified the key local/regional datasets that were sought for this study. Data secured through this process was combined with a range of national and regional datasets already held by LUC, along with further data identified and/or shared by the stakeholders highlighted above.

2.8 Data was assembled for each of the five strategic benefits (including both baseline data and data that could be used to define opportunity areas) as well as data on:

- key constraints and opportunities (e.g. high grade agricultural land (see Figure 2.1); designated sites (heritage, ecology, landscape) (see Figure 2.2); settlement gaps; large site allocations/growth locations);
- any strategic GBI projects already committed/ underway/ implemented across South Hampshire, informed in particular by the engagement with key stakeholders and the PfSH Green Infrastructure Strategy and Implementation Plan (2019; see Figure 2.3 below[5]);
- wider context setting data (e.g. bathing beaches, public rights of way, accessible green/blue spaces, etc) – key contextual data is mapped in the results chapter.

[4] Stakeholders recommended that we speak to them about their work on the Southampton Green Grid.

[5] Note that the boundary of the PfSH area is larger now so the extract map included does not cover the whole of the current PfSH area.

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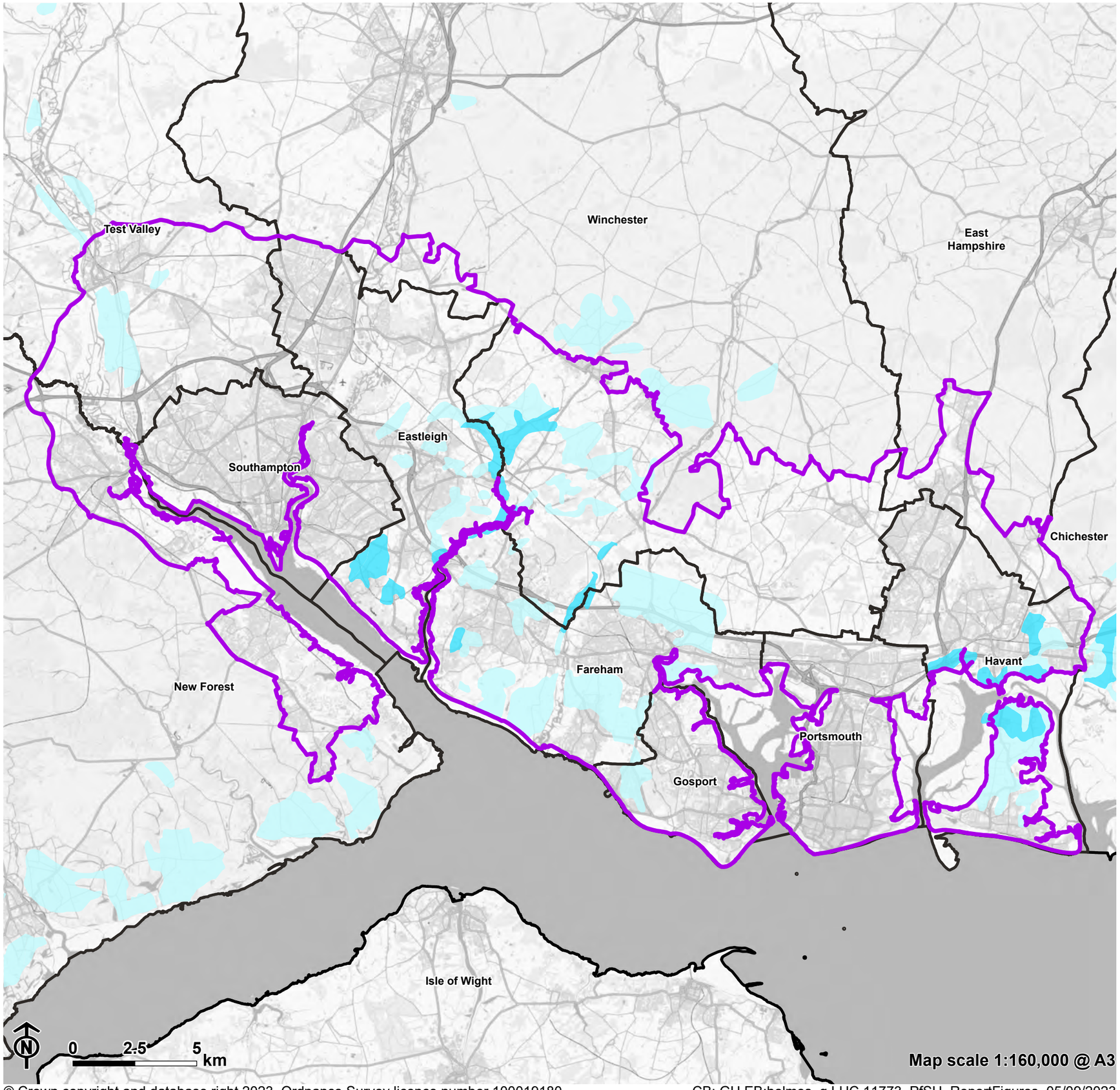
Figure 2.1: Agricultural Land



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Agricultural land classification

Grade 1

Grade 2

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 05/09/2023
Source: NE

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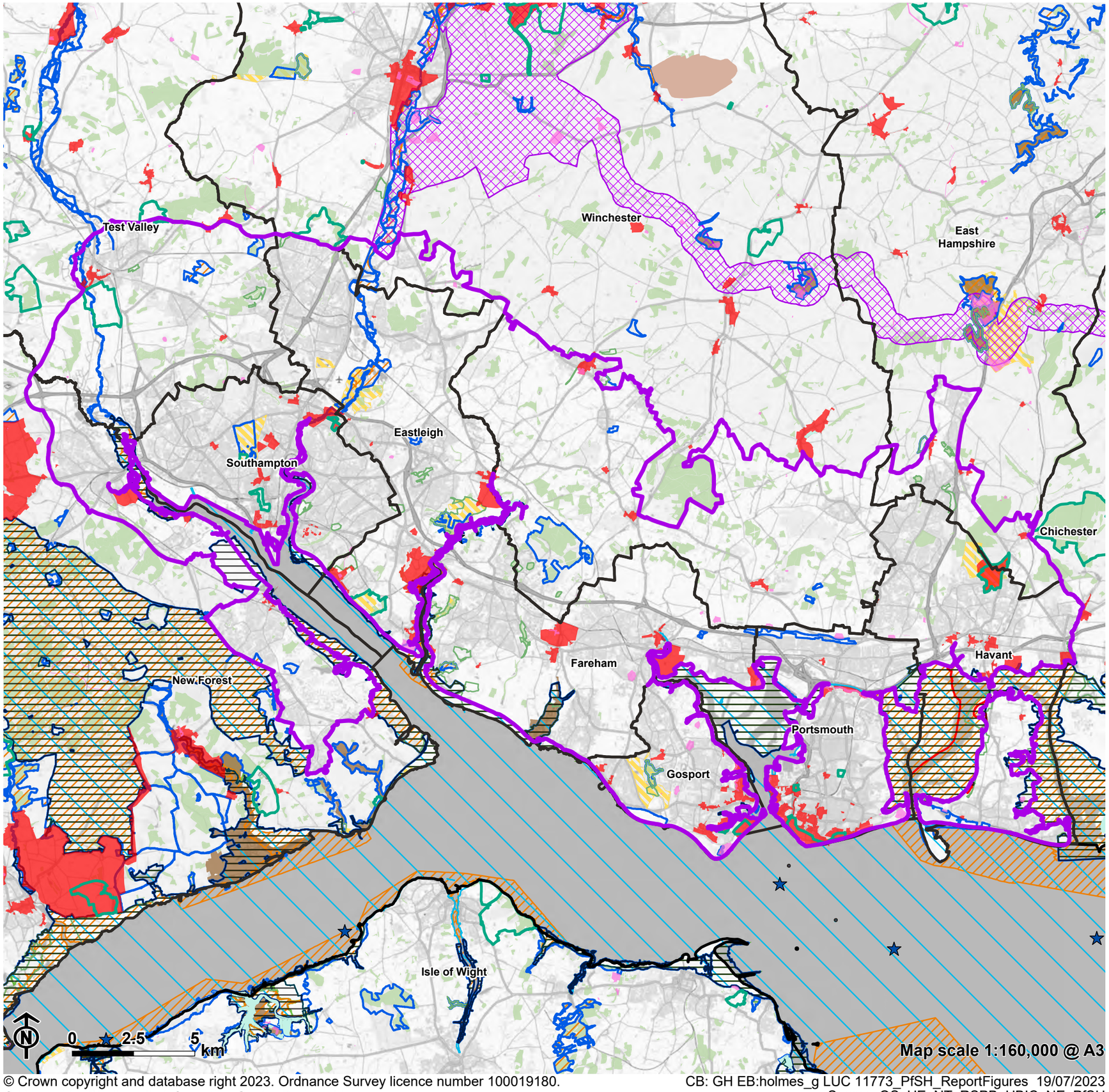
Figure 2.2: Constraints: Designated sites natural heritage and cultural heritage



Study area: South Hampshire Sub Regional Strategy Boundary
Local Authority

Cultural Heritage

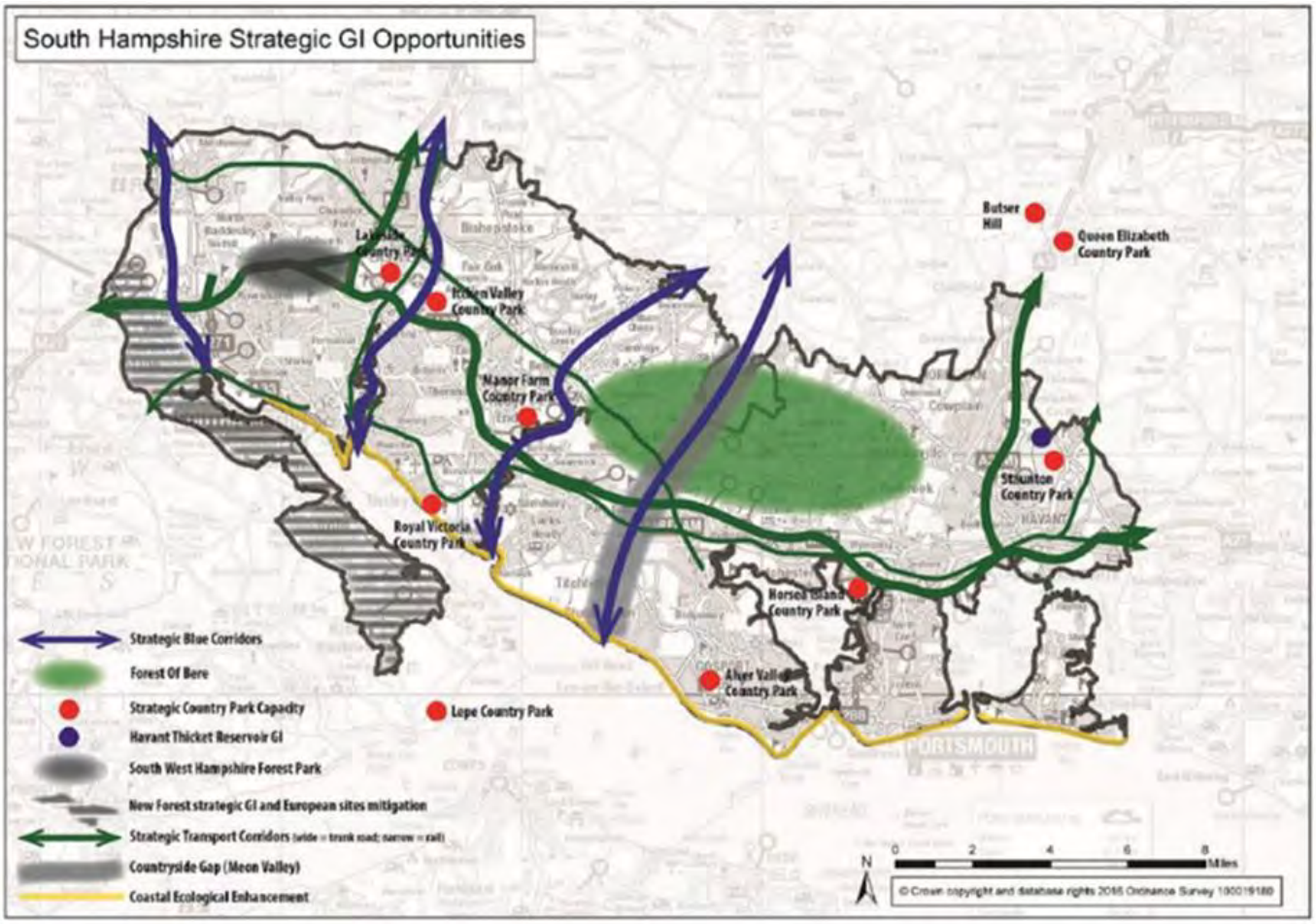
- Protected Wreck
- National Trust land - always open
- Registered Battlefield
- Scheduled Monument
- Registered Parks and Gardens
- Conservation Area

Natural Heritage

- Country Parks
- Special Protection Area
- Special Area of Conservation
- Ramsar
- Site of Special Scientific Interest
- Important Bird Area
- Ancient Woodland
- RSPB Reserve
- National Nature Reserve
- Nature Improvement Area
- Local Nature Reserve

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 19/07/2023
Source: OS, HE, NT, RSPB, HBIC, NE, PfSH

Figure 2.3: Strategic GI Opportunities for South Hampshire (from Green Infrastructure Implementation Plan 2019)



2.9 All of this data was sorted and compiled in GIS so that LUC could review the range of data acquired and identify remaining data gaps or data issues.

2.10 A full list of GIS datasets used is set out in Appendix B.

Identification of Broad Opportunity Zones

2.11 A key aim of the project was to identify how the need for, and opportunity to deliver, the five strategic benefits/outcomes is spatially distributed. "Broad opportunity zones" (BOZ) to deliver each of the strategic benefits were mapped, drawing on the datasets assembled and some key assumptions. The data and assumptions used to create each broad opportunity zone are explained below.

Improved access to nature BOZ

2.12 The approach to mapping this broad opportunity zone drew heavily from Natural England's recently updated England-wide mapping of access to natural greenspace[6] published as part of the new Green Infrastructure Framework which all local planning authorities are encouraged to use. Specifically, we focused on the set of four neighbourhood standards for access to (high quality natural) greenspace (AGS) given the increasing focus on the importance of local access to greenspace. These four standards are:

- Doorstep standard: A greenspace of at least 0.5 ha within 200m.
- Local standard: A natural greenspace of at least 2 ha within 300m.
- Neighbourhood standard: A natural greenspace of at least 10 ha within 1 km.
- Wider neighbourhood standard: A natural greenspace of at least 20 ha within 2 km.

2.13 Furthermore, we excluded any land that is less than 0.5 hectares in area, which is in line with the AGS doorstep standard.

2.14 We also considered data on:

- key constraints - designated sites (for nature and heritage) and high quality agricultural land were excluded; the best and most versatile (BMV) agricultural land is defined by Natural England as land falling in agricultural land classification (ALC) grades 1 to 3a[7]. After discussing with PfSH, we excluded all land in ALC grades 1 and 2 for this study (data was not available to differentiate 3a and 3b land) . Please see Figure 2.1 on previous page.
- socioeconomic deprivation - given that decision makers might want to prioritise improving access to greenspace for such populations to maximise impacts on health and health inequalities.
- existing population density – given that prioritising investments in improving access to greenspace should take into account the number of people likely to benefit.

2.15 To note this is a high-level strategic study therefore site specific studies would need to be completed to inform more detailed project planning, including landscape character assessment and ecological assessment.

Nature recovery BOZ

2.16 A variety of datasets were reviewed to assess their appropriateness for defining a BOZ for nature recovery. HBIC's Ecological Network Mapping, originally produced on behalf of the Local Nature Partnership, provides rich information about the network opportunities for an expanded ecological network in Hampshire. This detailed mapping is very useful for development planning and conservation purposes.

2.17 An alternative dataset is the Biodiversity Opportunity Areas (BOAs). BOAs are based on the same mapping as the detailed network and form the *"Strategic Ecological Network" representing a more targeted landscape-scale approach to conserving biodiversity in Hampshire where resources could be focused to have the greatest positive impact for wildlife*"[8]. BOAs were produced in consultation with a great many stakeholders and utilised HBIC's Habitat Suitability GIS model in combination with data on existing habitats, site designations, geology and historic mapping. Whilst considered too broad brush for use in local scale planning, they continue to be used to represent the "strategic ecological network" for landscape scale projects.

2.18 Given the strategic landscape scale focus of this study, and following consultation with HBIC, the BOAs were judged to be the most relevant dataset to use. Nevertheless, the more detailed network mapping has also been included in the GIS datasets provided alongside this report for completeness. This will be important to use when looking in more detail at specific sites/project opportunities, though advice from HBIC should be

[6] https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Map.aspx

[7] https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land

[8] Quote from p.4 of HBIC's 'Mapping the Ecological Network' report (2020) at: https://documents.hants.gov.uk/biodiversity/mappingthehampshireecologicalnetworkfinalreport.pdf

sought on the most complete and up to date datasets to use (e.g. work is ongoing to map ancient woodlands down to 0.25ha in size, rather than Natural England's current limit of 2ha).

2.19 Again key constraints such as designated sites (for nature and heritage) and grade 1 and 2 agricultural land were excluded from the BOZ.

Nutrient mitigation BOZ

2.20 The approach involved reviewing the latest data on nutrient mitigation supply and demand to understand which parts of the study area are likely to have the greatest need for new nutrient mitigation projects going forwards. The recently published report from the PfSH SEPM[9] highlighted that the East Hampshire catchment is anticipated to have the greatest need for mitigation over the coming years, taking into account projected demand (linked to projected housing delivery) and the latest information on emerging mitigation projects[10]. However, the PfSH SEPM advised that this picture may position over time so the Study has not limited the BOZ to the East Hampshire catchment. Nevertheless, initial efforts to develop nutrient mitigation projects should be concentrated on the areas of highest need; and changes in supply and demand should continue to be tracked to inform spatial prioritisation.

2.21 To further refine the BOZ a soils drainage dataset[11] was used to identify land with 'freely draining soils'. Natural England's soil nutrient calculator for the Solent generates significantly better mitigation results for such soil types; mitigation projects should therefore arguably be prioritised in such locations to maximise the level of mitigation provided per unit area of land take. This is not to say that nutrient mitigation projects should not be considered in other areas, but the aim here is to try to identify priority areas for nutrient mitigation.

2.22 Land covered by key constraints (designated sites, grade 1 and 2 agricultural land, urban land) was then excluded, given the need to avoid harming designated sites and protect high value farmland.

Recreational impact mitigation for Habitats sites BOZ

2.23 Mapping of existing and pipeline suitable alternative natural greenspaces (SANGs) was straight forward but the mapping of a BOZ for recreational impact mitigation proved more challenging.

2.24 The initial plan, informed by engagement with NE, was to map the 'zone of influence' around the New Forest SAC/SPA/Ramsar[12] and the Solent SPAs[13] and 'functionally linked land'; and then identify key growth locations in these areas (which would need to provide SANGs), existing SANGs[14] and identify existing areas with poor access to greenspace (with reasonable surrounding population density) so that SANGs could be prioritised in these areas and so help to improve access more widely.

2.25 'Functionally linked land' refers to areas of land or sea occurring outside a designated site which is considered to be critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Areas of Conservation (SAC)/ Special Protection Area (SPA)/ Ramsar site has been designated. These habitats – known as the Solent Wader and Brent Goose Network - are frequently used by SPA species and supports the functionality and integrity of the designated sites for these features[15].

2.26 However, PfSH advised that strategic areas of search for growth have not been agreed so these could not be factored into the process for defining the BOZ. The final method used for this study was therefore 'blind' to growth locations.

2.27 In addition, it became evident that the development of a strategic approach to recreational impact mitigation for the New Forest is still under development. Thus some uncertainties remain about which development sites will be required to provide or contribute towards SANGs, and how much, to mitigate recreational impacts on the New Forest (e.g. see Eastleigh Cabinet report on Strategy for sustainable alternative natural green space (March 2022)[16].

2.28 As a final step, key constraints such as designated sites (for nature and heritage) and grade 1 and 2 agricultural land

[9] Nutrient neutrality in the Solent Update (March 2023) - https://www.push.gov.uk/wp-content/uploads/2023/03/Item-10-Nutrient-Neutrality-Update.pdf
[10] There is also significant mitigation need in the Test and Itchen catchment but a number of projects are being brought forward and are at an advanced stage.
[11] Available to view online at: http://www.landis.org.uk/soilscapes/#
[12] Footprint Ecology's report (2021) proposed a zone of influence for the New Forest SAC/SPA/Ramsar should be 13.8km (outside this zone, the impact of large developments within 15km may be considered on a case by case basis) – see https://www.footprint-ecology.co.uk/reports/Liley%20and%20Caals%20-%202020%20-%20Discussion%20and%20analysis%20relating%20to%20the%20New%20Forest.pdf
[13] Zone of 5.6km is defined in the Solent Recreation Mitigation Strategy - https://www.portsmouth.gov.uk/wp-content/uploads/2020/05/Solent-Recreation-Mitigation-Strategy-December-2017.pdf
[14] Footprint Ecology's 'Solent SANGs Visitor Survey' report (2022) indicates that "there is potential for further SANGs along the Solent coast, in the 'gaps' between the surveyed sites, in order to further divert access from the coast" (p.iii) - https://tinyurl.com/4fe9uu6u
[15] https://publications.naturalengland.org.uk/publication/6303434392469504
[16] https://www.eastleigh.gov.uk/media/12135/appendix-19-cabinet-report-on-interim-mitigation-scheme-for-new-forest-spa-sac-and-ramsar-sites.pdf

were excluded from the BOZ; and mapped BOZ areas of less than 4ha were excluded. Whilst Natural England do not define a minimum size for SANGs, given the requirement for a circular walk of 2.3-2.5km and the need for a tranquil semi-natural space, 4ha has been used an appropriate benchmark here.

Natural flood risk management BOZ

2.29 The Strategic Flood Risk Assessment (SFRA) Update (2016) completed for PUSH, noted that whilst flooding from the sea is the predominant source of flood risk to the sub-region's most populated areas, all of the PUSH LPAs contain areas at risk of flooding from rivers and watercourses, with the Rivers Test, Itchen, Hamble, Meon, Wallington, Medina, Eastern and Western Yar Hermitage Stream and Lavant Stream passing through existing developed areas. PfSH is currently updating the SFRA to take account of the latest climate change predictions.

2.30 The Working with Natural Processes mapping[17] includes map layers showing areas where different types of potential river and catchment management approaches have the potential to help reduce flood risk by working with nature (i.e. protecting, restoring and emulating the natural regulating function of catchments, rivers, floodplains and coasts). This includes areas of potential for additional floodplain woodland, additional riparian woodland, additional catchment woodland and enhanced floodplain reconnection. The data is based on Defra, Environment Agency and Natural Resources Wales research[18]. This GBI report focused on mapping of additional catchment woodland potential (given the strategic scale of this study) and floodplain reconnection.

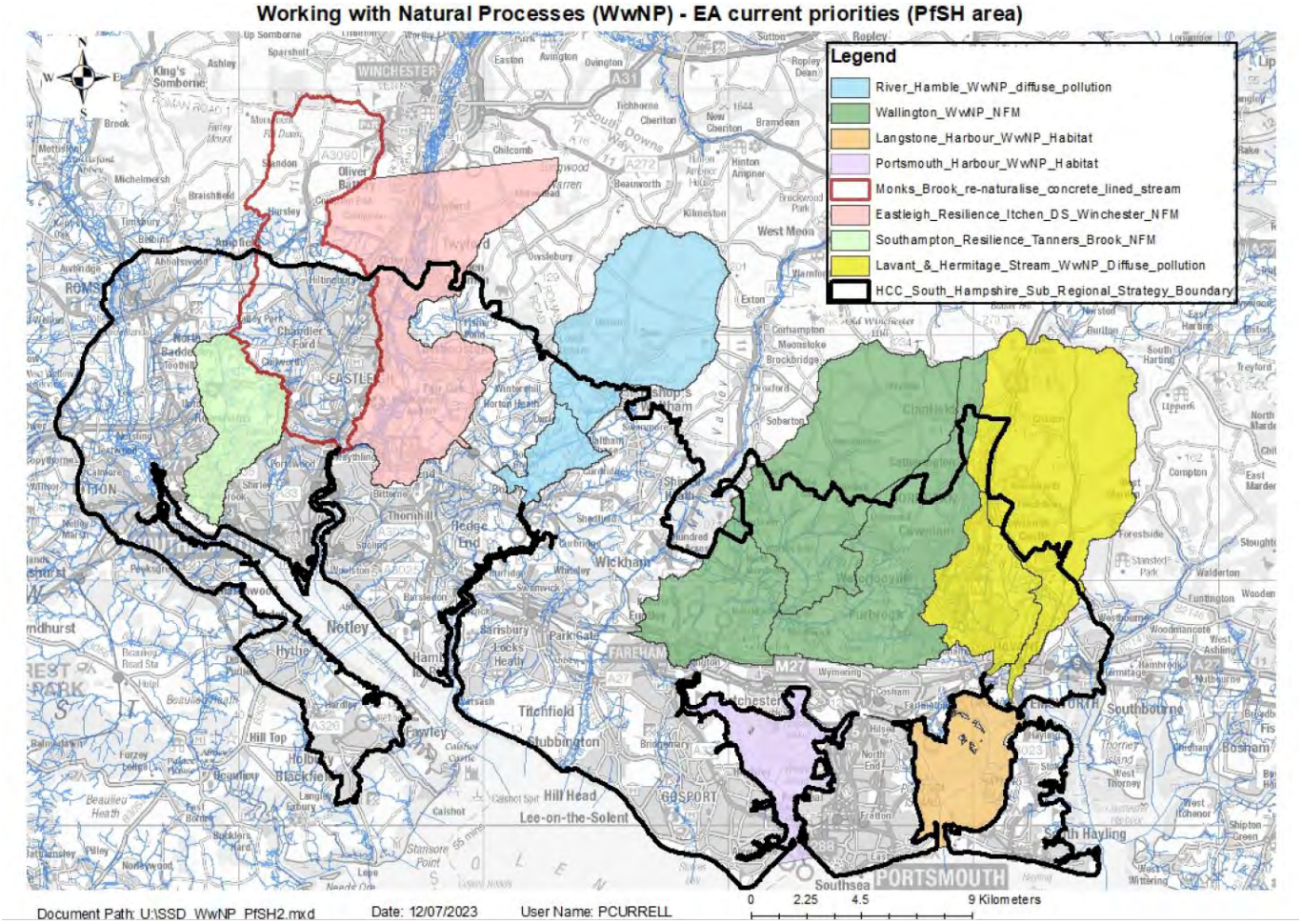
2.31 In addition to the mapping referred to above, Defra mapping[19] has been produced to assist the prioritisation of Natural Flood Management (NFM) or land use / land management changes with the aim of slowing flows to reduce the risk of fluvial and surface water flooding. The prioritisation map aims to identify catchments where these "slow the flow" type NFM measures, or other associated land use or land management changes, will be most effective in reducing flood risk and will maximise the number of properties protected. This study utilised this mapping to understand where NFM measures within South Hampshire would be most effective.

2.32 Further to the above, after consultation with the Environment Agency (EA), they provided us with their current priority areas (see Figure 2.4 below) which were informed by the datasets outlined above as well as the Water Framework Directive data. These areas are considered to be the areas where NFM would be most successful and provide multiple benefits. This does not preclude NFM measures in other areas but seeks to drive collaboration in these focussed areas. This BOZ highlights the current priority areas for NFM in South Hampshire.

2.33 As for the other BOZs, key constraints such as designated sites (for nature and heritage) and grade 1 and 2 agricultural land were excluded.

[17] https://naturalprocesses.jbahosting.com/Map
[18] https://www.gov.uk/flood-and-coastal-erosion-risk-management-research-reports/working-with-natural-processes-to-reduce-flood-risk-a-research-and-development-framework
[19] https://environment.data.gov.uk/dataset/793f7e63-0c3e-49cd-808f-9f77e55382d2

Figure 2.4: EA priority mapping for WwNP ('working' document)



Identification of Strategic Opportunity Zones

2.34 Following mapping of the five broad opportunity zones, the final step was to 'layer up' these zones and identify where zones overlap, creating "strategic opportunity zones" for multi-benefit GBI projects.

2.35 This generated some mapping of a range of strategic opportunity zones (SOZs), with zones differentiated in terms of the number of different overlapping BOZs.

2.36 This mapping was then cross-referenced against previously produced maps, such as the strategic GI opportunities map including in PfSH's GI Implementation Plan.

Limitations

2.37 This study has sought to make the best use of the spatial data that could be accessed within the time and budget constraints of the project. However the following data issues are noted as limitations to the study.

2.38 Data availability: There were some limits to the data LUC was able to draw on:

- The lack of data on defined growth locations was a key constraint on the ability to define a more refined BOZ for recreational impact mitigation.
- Data was sought from Forestry Commission on live and pipeline major woodland creation projects in the region to include in the projects map but data confidentiality issues meant this was not shared.
- Data was sought from LPAs on location specific needs for enhanced/additional SANGs to mitigate recreational impacts from new development on Habitats sites. LPAs were not able to provide this, although this was not unexpected as this is in part linked to the emerging spatial position statement, which will not define specific development locations.
- It was not possible to identify any local data on which catchments had most properties at risk of flooding, or any similar data which would have enable certain catchments to be prioritised over others for natural flood risk management.
- HBIC's updated priority habitats dataset and the latest PfSH SFRA was not available in time for this study.

2.39 Data quality: Stakeholders highlighted that data on access to greenspace should be treated with a degree of caution due to its nature as a national open source dataset. For example, it may miss out some accessible sites or indicate some sites are accessible that are not. We are also aware that the AGS layer overlaps with Chichester Harbour which appears to be an error in the data. Further details of limitations are included on the NE GI mapping website. A useful follow-on exercise (beyond the scope of this study) would be to cross-check the NE mapping against local knowledge and HBIC's access mapping to identify any significant omissions or inaccuracies. NE is keen to get feedback from LPAs on errors in the mapping to help improve future versions.[20]

2.40 With regard to the **alignment of this study with wider work**, unfortunately scheduling did not allow for the completion of this study in parallel with the evidence gathering to inform the Local Nature Recovery Strategy (LNRS). This would have been beneficial so that approaches could have been aligned and data shared. However, the LNRS work had not yet fully commenced at the time of this study. We trust that this study will provide useful data to inform the LNRS, albeit it will need to draw on a wider variety of other data including the very latest HBIC habitat mapping, and will also need to align with multiple other plans and strategies including LNRSs for the national parks and Biodiversity Action Plans.

[20] See details of how to do this at: https://designatedsites.naturalengland.org.uk/GreenInfrastructure/UserGuide/ReportAnError.aspx

Chapter 3
Key Findings

Introduction

3.1 This chapter sets out the key findings having applied the method described in Chapter 2. Some brief references were made within this chapter to the method to aid in the interpretation of the mapping.

Mapping and data on existing/pipeline strategic GBI projects

3.2 Data on existing or pipeline strategic GBI projects across South Hampshire was compiled using online sources and information gleaned from stakeholder engagement. These projects are shown in **Figure A.1** and summary details and sources of further information on each project are included in Appendix A.

3.3 One notable ongoing programme of work is the creation of Suitable Alternative Natural Greenspaces (SANGs) throughout the Solent region. Various visitor surveys[21] were undertaken to provide comprehensive, robust data to better understand visitor origins, current access patterns, and levels of use at the five survey locations. This data helps to inform future planning policy with respect to the role of SANGs in providing mitigation for recreation impacts around the Solent coast and the New Forest. Further new SANGs (e.g. at Fawley Waterside) will be required to support future development.

3.4 Another notable GBI project is the significant habitat restoration work being undertaken as part of the Havant Thicket reservoir restoration scheme.

Mapping of broad opportunity zones

3.5 As outlined in Chapter 2, a key aim of the project was to identify how the need for, and opportunity to deliver, the five strategic benefits/outcomes is spatially distributed. “Broad opportunity zones” (BOZ) to deliver each of the strategic benefits were mapped, drawing on the datasets assembled.

[21] Footprint Ecology (2022) Solent SANGs Visitor Survey https://birdaware.org/solent/wp-content/uploads/sites/2/2022/10/662-Solent-SANGs-Visitor-Survey-report-FINAL.pdf

Improved access to nature

3.6 For context and to understand the baseline LUC mapped key access features such as accessible green/blue spaces, public rights of way and bathing beaches – see **Figure 3.1**.

3.7 In addition, **Figure 3.2** shows the NE Accessible Greenspace (AGS) 2km (Wider Neighbourhood Standard), 1km (Neighbourhood Standard), 300m (Local Standard) and 200m (Doorstep Standard) natural greenspace buffers.

3.8 The Indices of Multiple Deprivation (IMD) (2019) map, **Figure 3.3**, suggests that PfSH may want to prioritise improving access to greenspace in the area northwest of Southampton, east of Eastleigh, around Portsmouth, around Gosport and north of Havant where there is significant deprivation as this would maximise impacts on health and health inequalities. In addition, prioritising investments in improving access to greenspace should consider the number of people likely to benefit (i.e. the population density map (2011), **Figure 3.4**). A cross check of the BOZ map (**Figure 3.5**) against the IMD and population density suggests that PfSH may want to prioritise GBI projects around the northwest of Southampton, north of Romsey and north and east of Eastleigh. These GBI projects should, where possible, connect to green grids into these urban areas/population centres. These green grids should be enhanced and designed to encourage sustainable travel (e.g. walking and cycling).

3.9 The map of the broad opportunity zone (BOZ) for improved access to nature is included in **Figure 3.5** overleaf. This highlights significant clusters of opportunities to the north and north west of Southampton (Test Valley District) as well as to the east of Chandler's Ford and Eastleigh (Eastleigh Borough and Winchester District).

3.10 As stated above, we utilised Natural England's latest mapping of access to greenspace to understand where the gaps in access to greenspace are located in South Hampshire. From there, we excluded all designated biodiversity sites, grade 1 and 2 agricultural land and urban land, designated heritage assets, Ancient Woodland, Country Parks, Solent Wader and Brent Goose Regions and RSPB Important Bird areas. Further to this, we excluded any land that is less than 0.5 hectares in area.

3.11 The IMD and population density map have been used to inform interpretation and potential prioritisation of different parts of the BOZ for access to nature, rather than to 'cut down' the mapped BOZ area. IMD and population density may change if significant new development is proposed.

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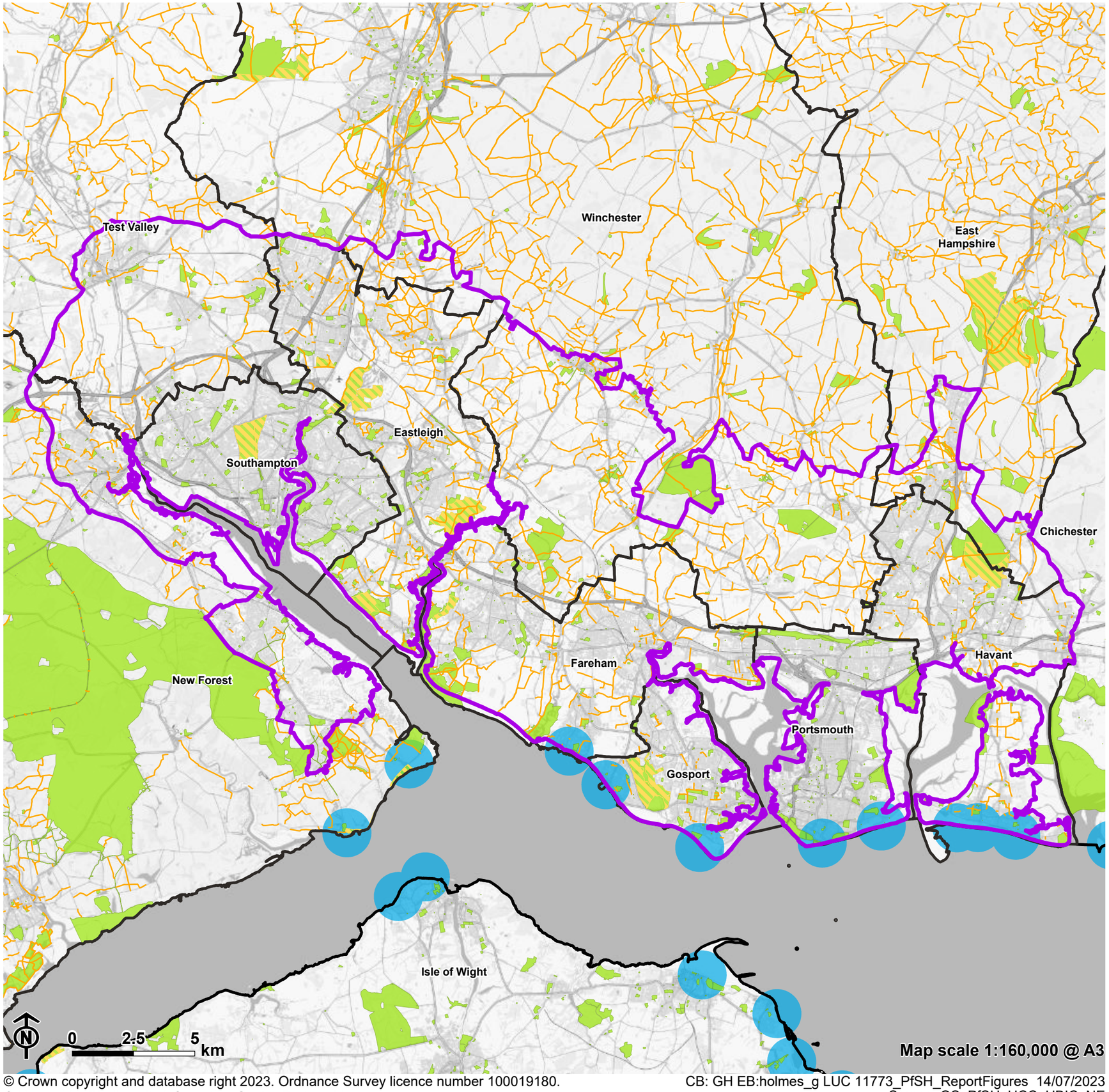
Figure 3.1: Context Map



Study area: South Hampshire Sub Regional Strategy Boundary
Local Authority
Public Right Of Way
Country Park
Natural England - Accessible green infrastructure
Natural England- Bathing beaches 1km buffer

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, PfSH, HCC, HBIC, NE

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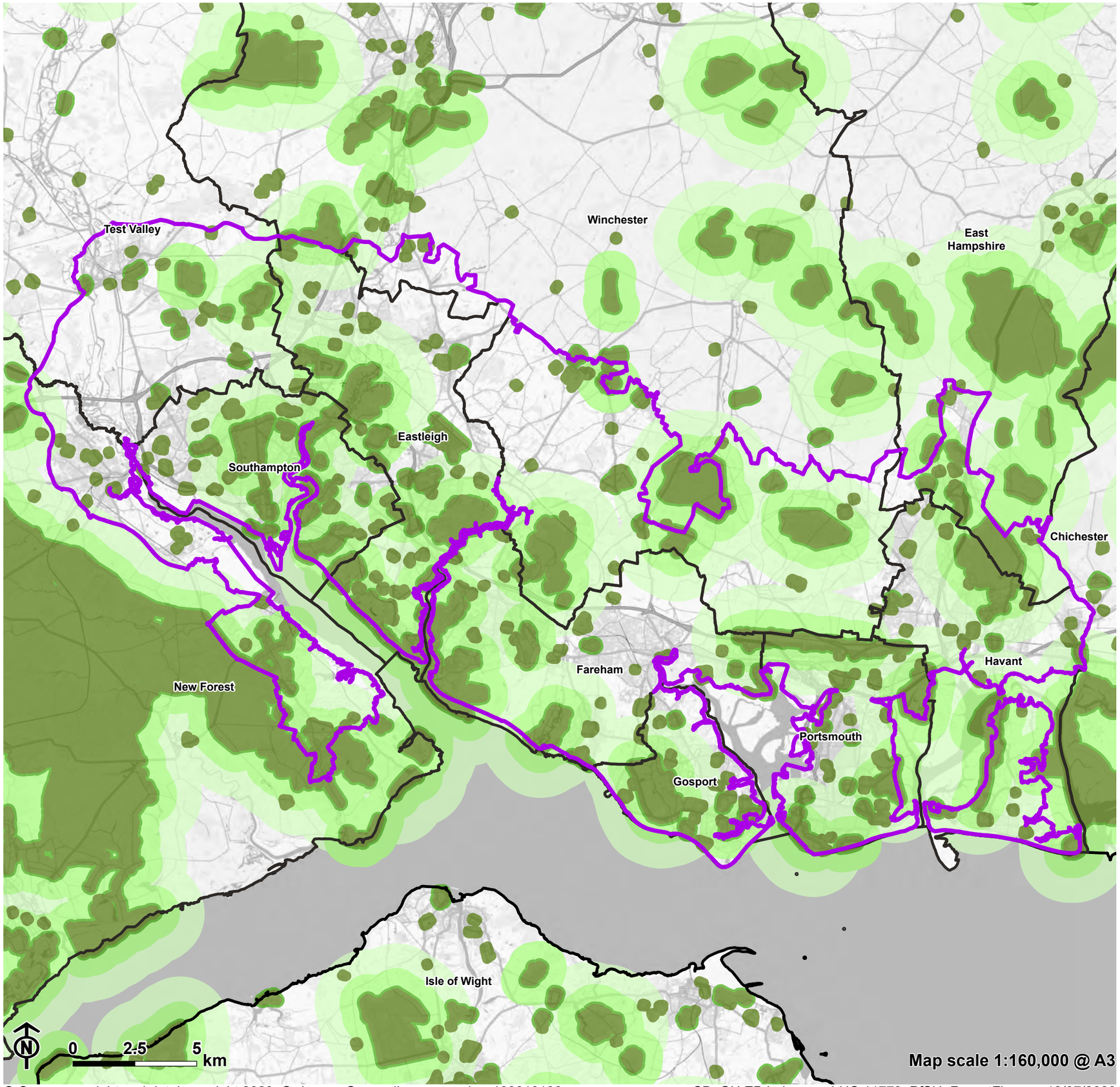
Figure 3.2: Accessible Greenspace Standards (AGS)



- Study area: South Hampshire Sub Regional Strategy Boundary
- Local Authority
- 200m (Doorstep standard) natural greenspace buffer
- 300m (Local standard) natural greenspace buffer
- 1km (Neighbourhood standard) natural greenspace buffer
- 2km (Wider Neighbourhood standard) natural greenspace buffer

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 18/07/2023
Source: NE

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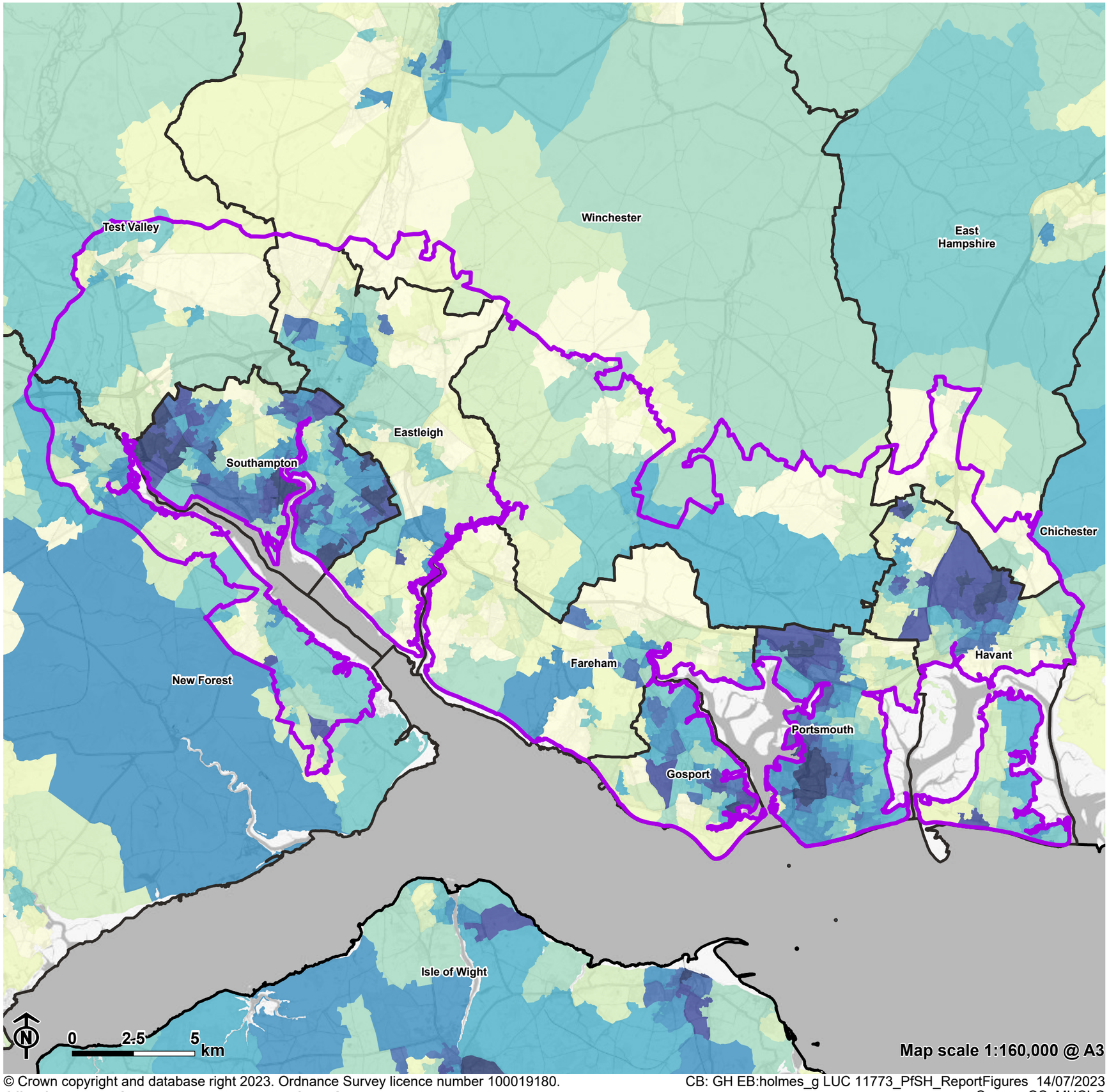
Figure 3.3: Indices of Multiple Deprivation



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Indices of Multiple Deprivation (IMD) Decile

- 1 (Most deprived)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Least deprived)

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, MHCLG

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Partnership for South Hampshire

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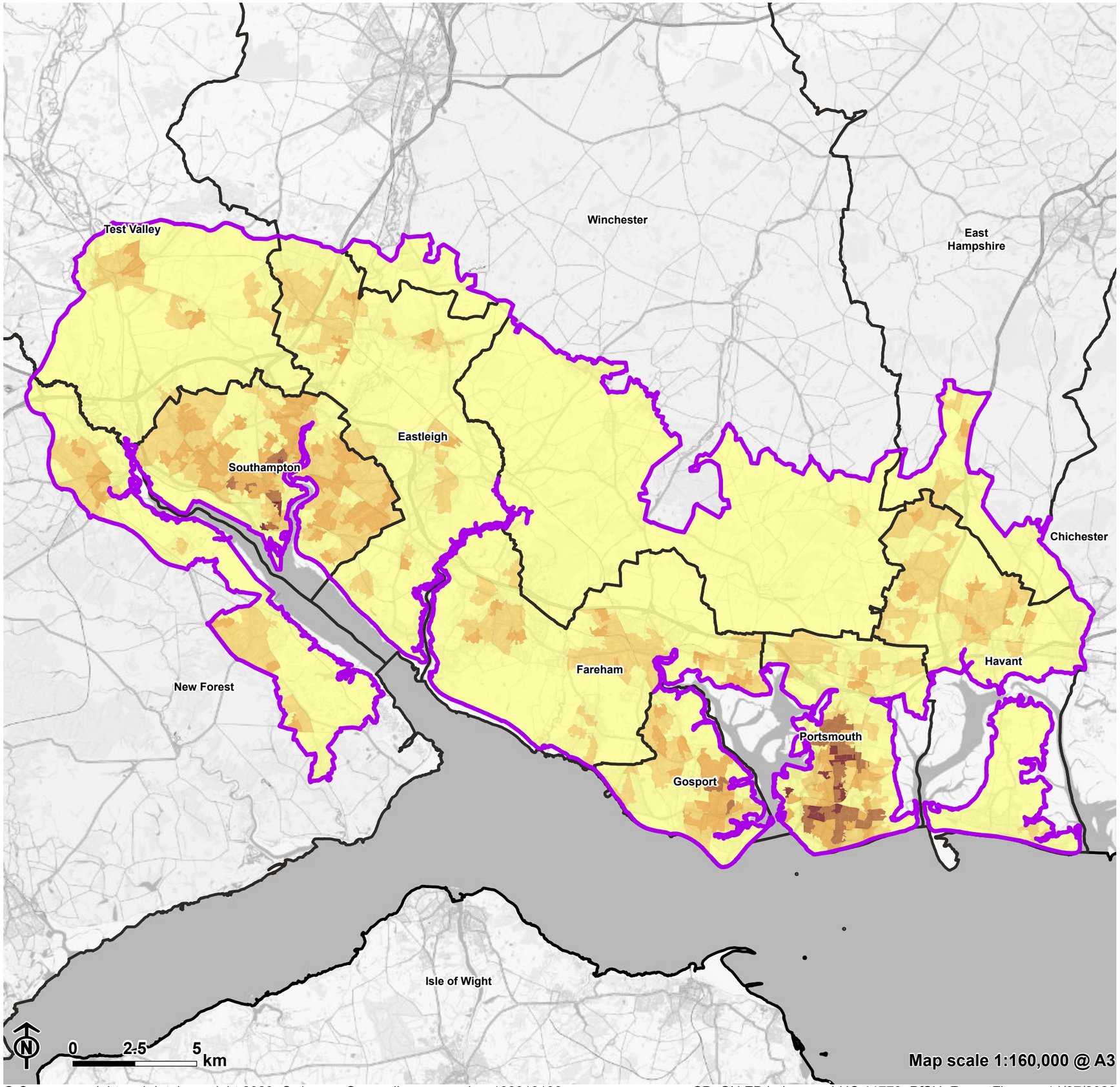
Figure 3.4: Population Density



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Population Density (people per hectare)

- 0 - 29
- 30 - 62
- 63 - 108
- 109 - 180
- 181 - 419

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, MHCLG

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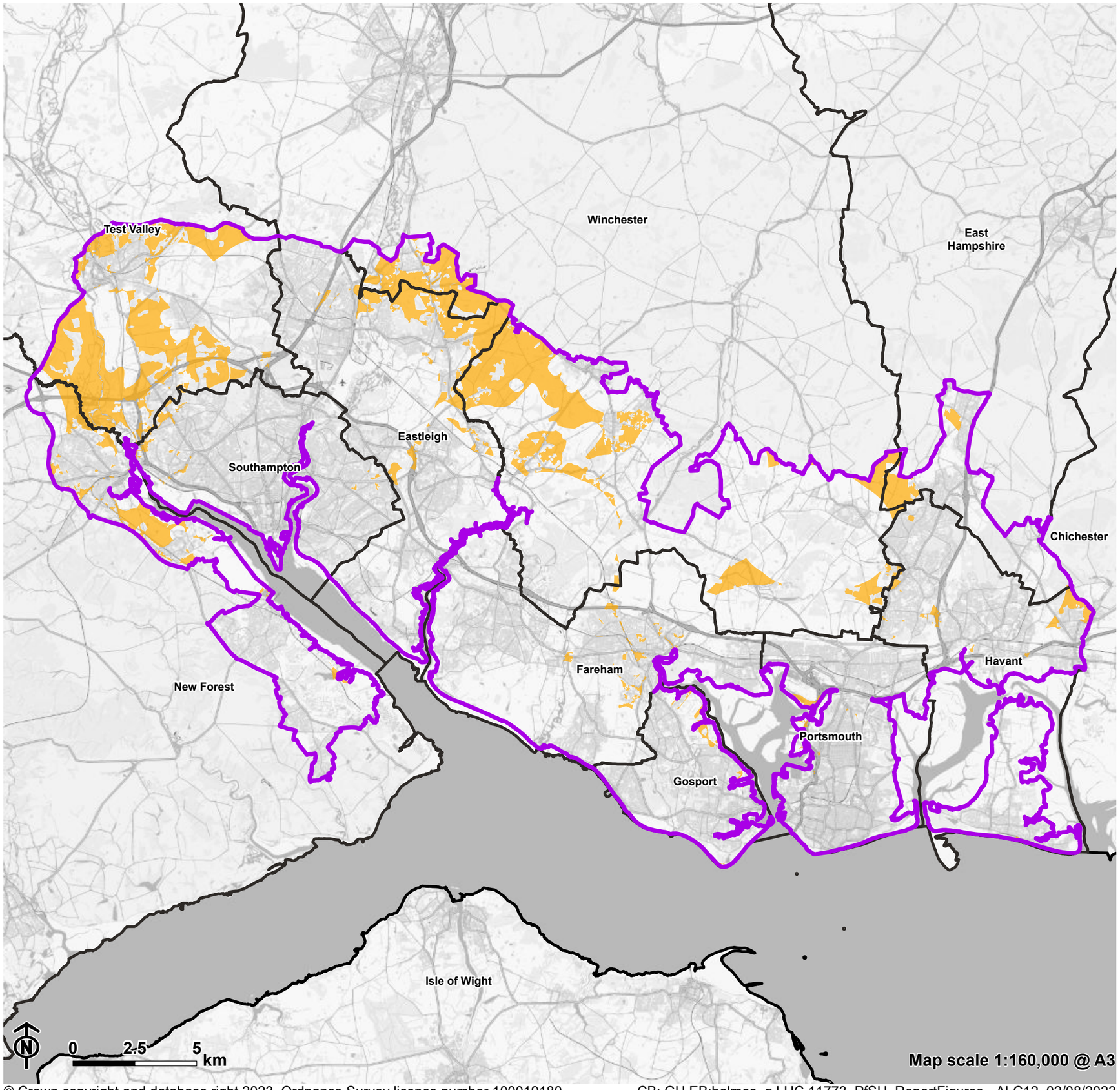
Figure 3.5: Broad Opportunity Zone: Improved Access to Nature



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Broad Opportunity Zone: Improved Access to Nature

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures - ALC12 02/08/2023
Source: OS, LUC

Nature recovery

3.12 To establish the current biodiversity baseline, we mapped existing designated sites for nature conservation and ancient woodland, noting the significant number and total area of sites across the study area – see **Figure 3.6**.

3.13 The map of the BOZ for nature recovery is included in **Figure 3.8** overleaf. For this BOZ, we focused on the land within Biodiversity Opportunity areas (BOA) provided by HBIC, shown in **Figure 3.7**. We then excluded the areas within designated sites, urban land and grade 1 and 2 agricultural land.

3.14 The BOZ identifies areas that could be targeted for new habitat creation to support nature recovery scattered across South Hampshire, including significant areas to the north and west of Southampton (Test Valley District) and to the west of Waterlooville (Winchester District).

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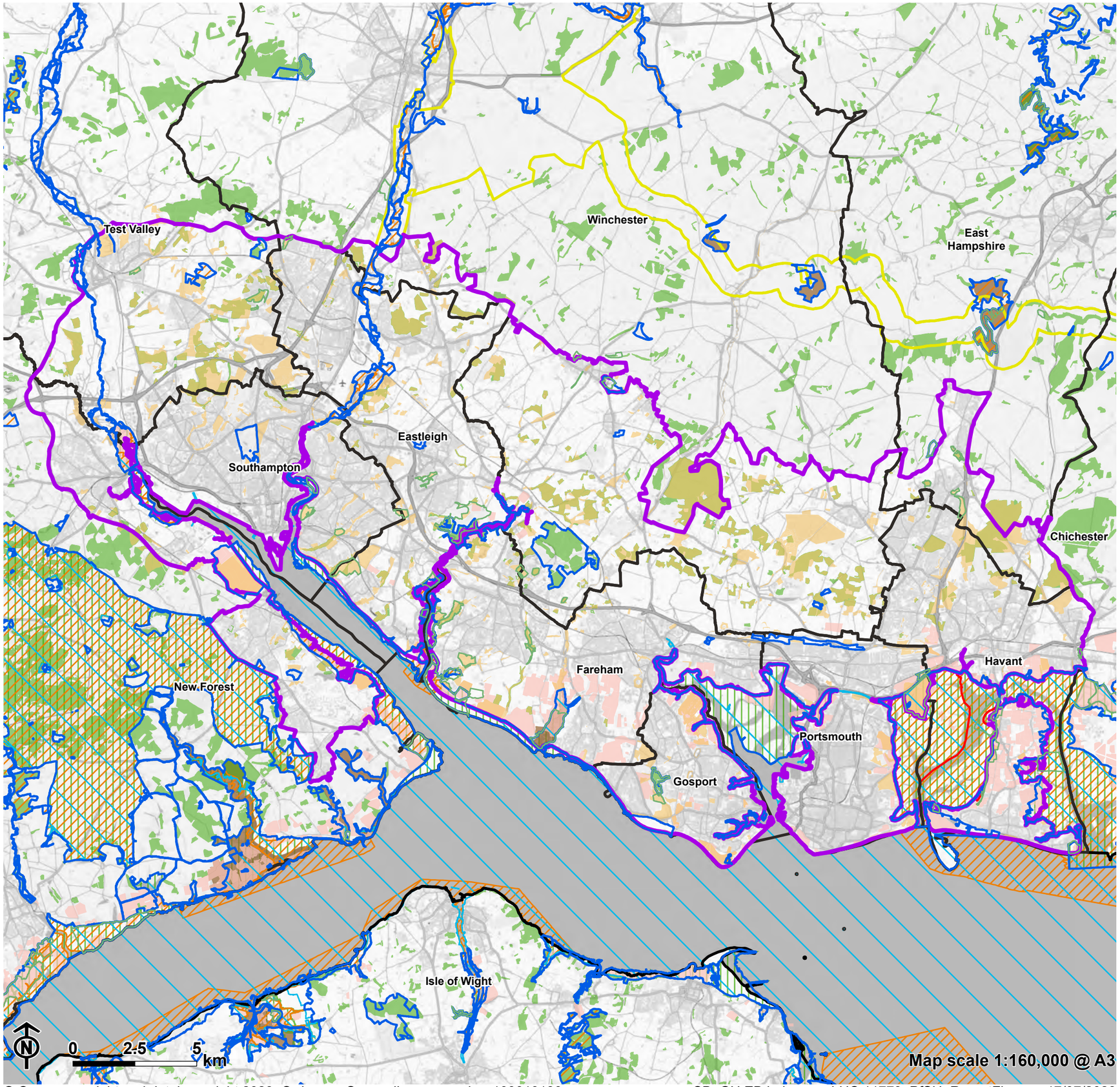
Figure 3.6: Context Map



Study area: South Hampshire Sub Regional Strategy Boundary
Local Authority
Special Protection Area
Special Area of Conservation
Ramsar
Site of Special Scientific Interest
Ancient Woodland
RSPB Reserve
National Nature Reserve
Nature Improvement Area
Local Nature Reserve
Site of Importance for Nature Conservation
Solent Wader & Brent Goose Region

Notes:
The Solent Wader and Brent Goose Region represents the network of sites that are regularly used and are of importance to the over-wintering waterfowl across the Solent. The network of sites consists of: Candidate Sites, Core Areas, Low Use Sites, Primary Support Areas, Secondary Support Areas and SPA Sites.

Nature Improvement Areas are areas of the country where partnerships were set up in 2012 to 2015 to enhance the natural environment.

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 17/07/2023
Source: OS, NE, RSPB, PfSH, HBIC

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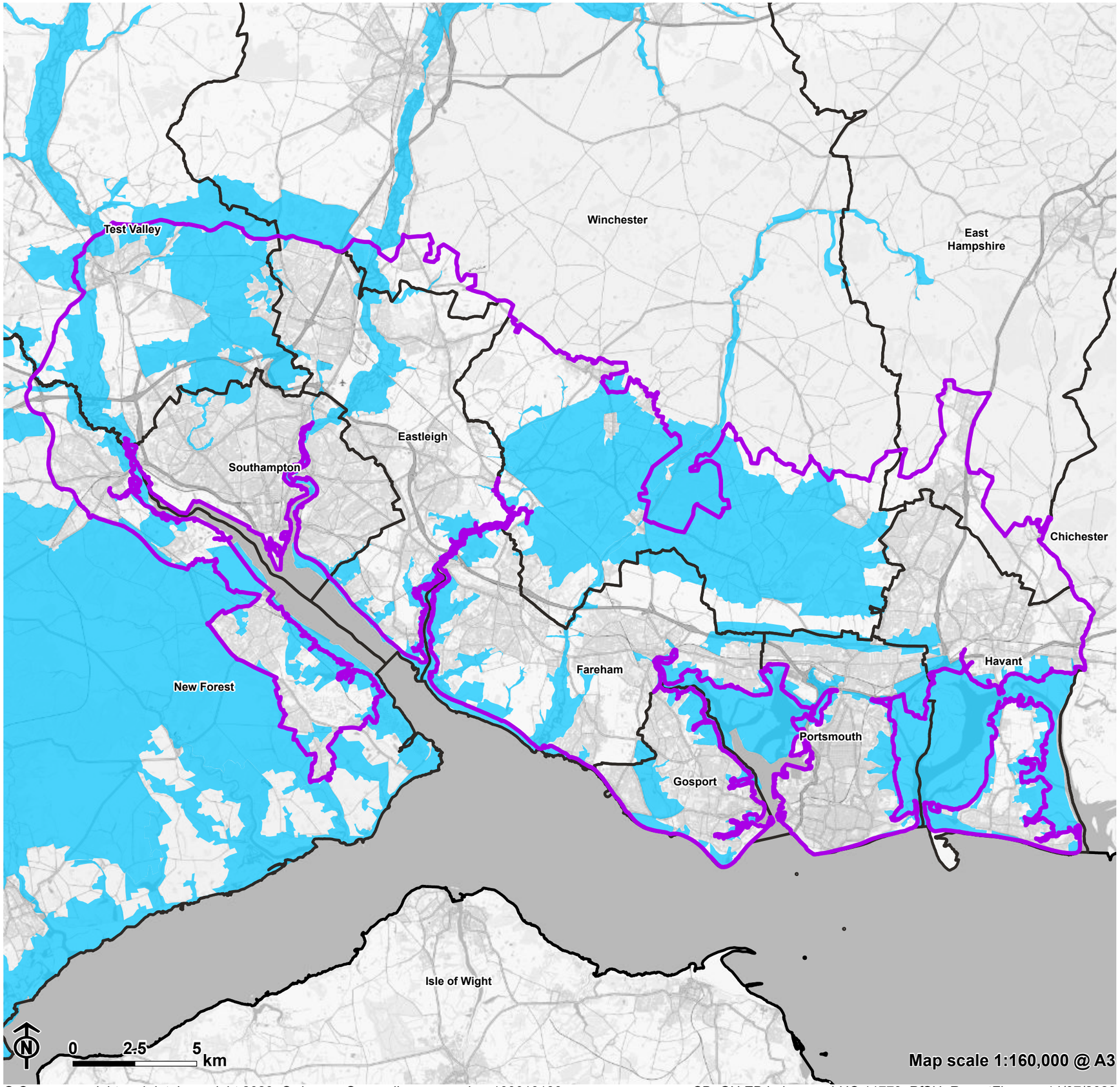
Figure 3.7: Biodiversity Opportunity Areas



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Biodiversity Opportunity Area

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, HBIC

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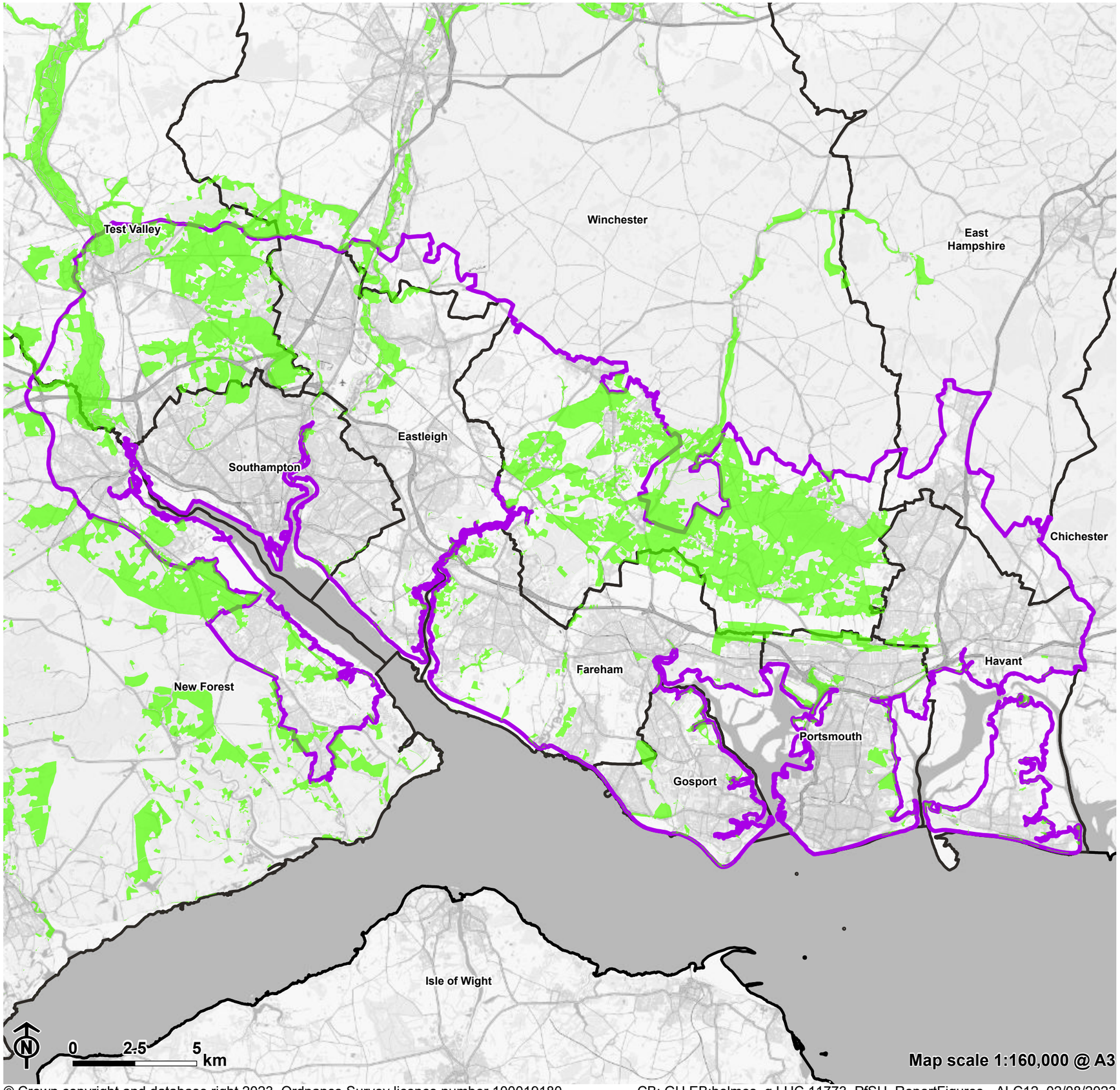
Figure 3.8: Broad Opportunity Zone: Nature Recovery



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Broad Opportunity Zone: Nature recovery

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures - ALC12 02/08/2023
Source: OS, LUC

Nutrient mitigation

3.15 To create the nutrient mitigation need BOZ, we first mapped the existing nutrient mitigation projects using the latest data provided by PfSH SEPM alongside the East Hampshire Rivers Catchment (where unmet demand for nutrient mitigation was projected to be greatest over the coming years); see **Figure 3.9**. However, the PfSH SEPM advised that this position may change over time so the Study has not limited the BOZ to the East Hampshire catchment.

3.16 **Figure 3.10** shows the various soil types within South Hampshire, identifying which soils are free draining.

3.17 The BOZ for nutrient mitigation is mapped in **Figure 3.11**. This map focuses on free draining soils and excludes land in designated sites, urban land, grade 1 and 2 agricultural land and also any land on soils that are not freely draining (refer back to method section for full explanation).

3.18 The resulting BOZ map for nutrient mitigation is highly fragmented, with opportunities identified within the study area to the east of the Forest of Bere and to the north of Portchester (Winchester District), along the boundary of the South Downs National Park north of Denmead (Winchester District), west of Southampton (Test Valley District) and to the south of Park Gate (Fareham Borough).

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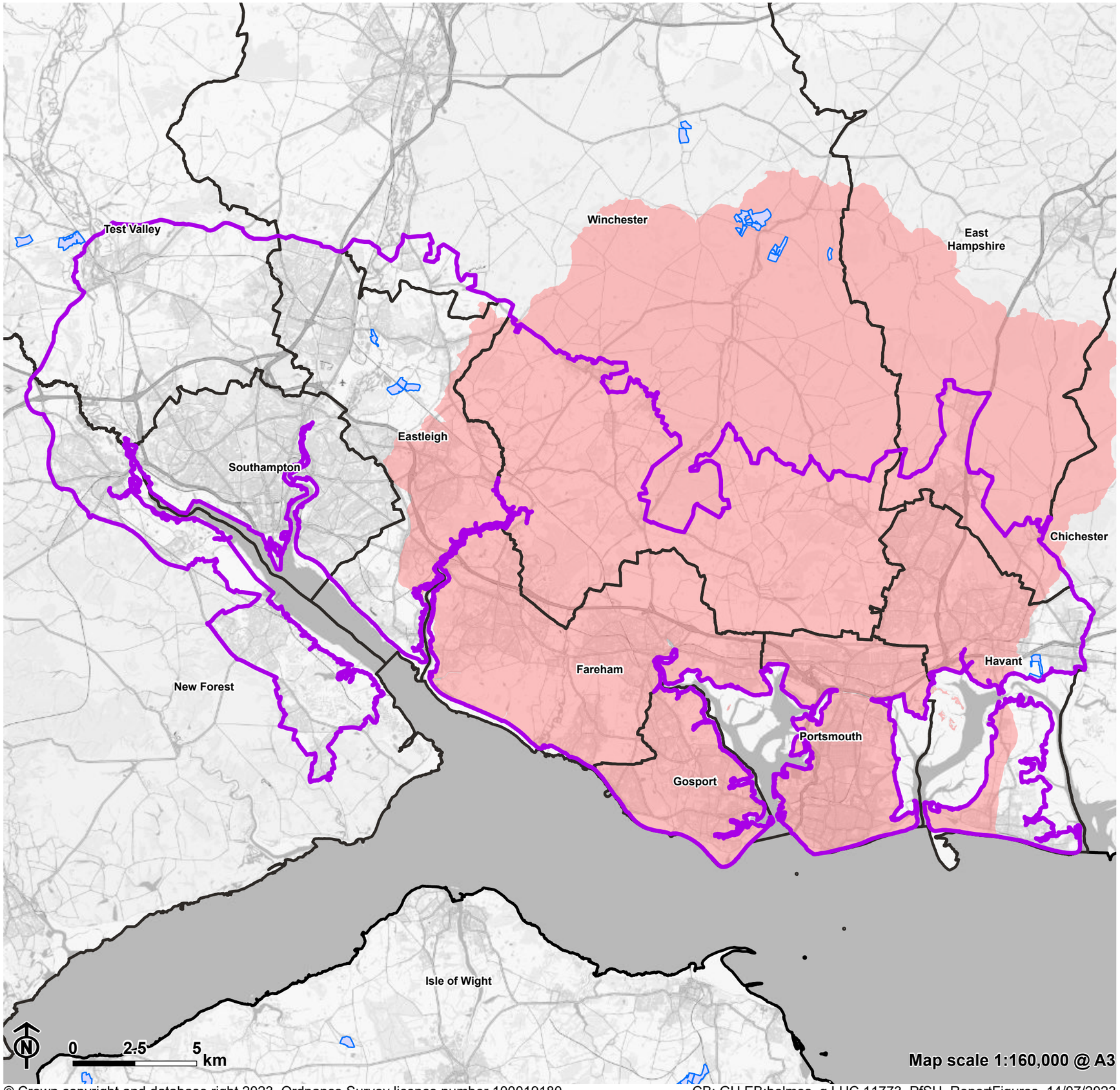
Figure 3.9: Context Map



Study area: South Hampshire Sub Regional Strategy Boundary
Local Authority
East Hampshire Rivers Catchment
Active mitigation site

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, PfSH

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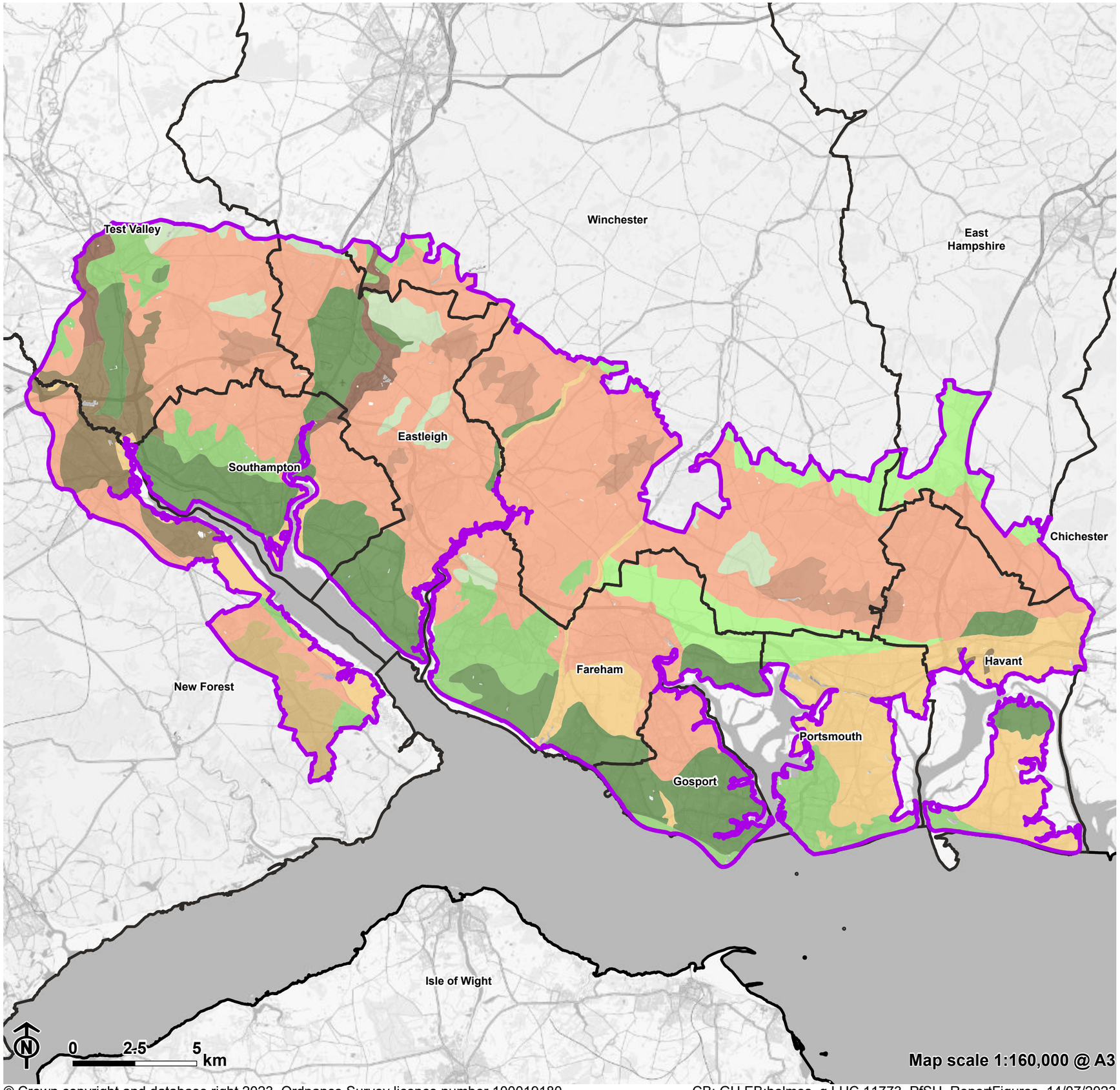
Figure 3.10: Hydrology of Soil types



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Hydrology of Soil Types

Drainage Description

- Free draining permeable soils in unconsolidated loams or clays with low permeability and storage capacity.
- Free draining permeable soils in unconsolidated sands or gravels with relatively high permeability and high storage capacity.
- Free draining permeable soils on chalk and chalky substrates with relatively high permeability and moderate storage capacity.
- Free draining permeable soils on soft sandstone substrates with relatively high permeability and high storage capacity.
- Drained lowland peaty soils with groundwater controlled by pumping.
- Slowly permeable soils with slight seasonal waterlogging and moderate storage capacity over slowly permeable substrates with negligible storage.
- Slowly permeable, seasonally waterlogged soils over impermeable clay substrates with no storage capacity.
- Slowly permeable, seasonally waterlogged soils over slowly permeable substrates with negligible storage capacity.
- Soils seasonally waterlogged by fluctuating groundwater and with relatively rapid lateral saturated conductivity.
- Soils seasonally waterlogged by fluctuating groundwater and with relatively slow lateral saturated conductivity.

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, CU

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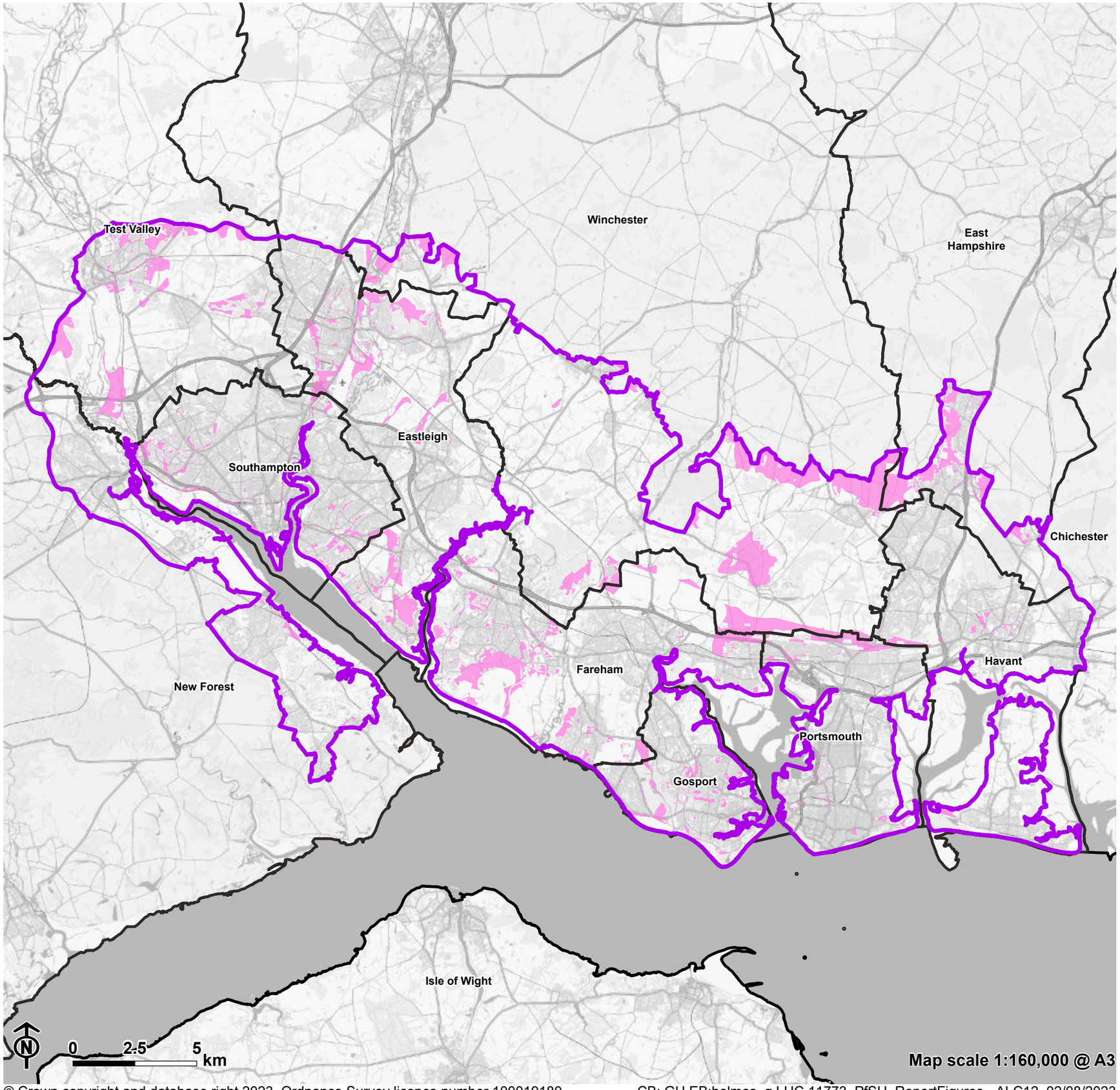
Figure 3.11: Broad Opportunity Zone: Nutrient Mitigation



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Broad Opportunity Zone: Nutrient Mitigation

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures - ALC12 02/08/2023
Source: OS, LUC

Recreational impact mitigation for Habitats sites

3.19 To establish the baseline, we mapped all of the Habitats sites, the Zones of Influence around the Habitats sites and the SANGs, see **Figure 3.12**.

3.20 Additionally, we focused on land beyond National England's Accessible Greenspace Standards (AGS) 2km (Wider Neighbourhood Standard), 1km (Neighbourhood Standard), 300m (Local Standard) and 200m (Doorstep Standard) natural greenspace buffers. As explained in the method section, this was part of an approach discussed with NE to prioritise SANGs in existing areas with poor access to greenspace so that they could help improve such access.

3.21 As such, the BOZ includes all land within the zones of influence that has poor access to natural greenspace and is not designated sites, urban land, or grade 1 and 2 agricultural land. Individual sites less than 4 hectares were also excluded. Please note this is not to suggest that SANGs could not be considered in areas with better access to greenspace, however, this map is trying to identify priority areas. Additionally, it is important to note that Bird Aware Solent highlights the importance that strategic SANGs, that address recreation at the coast, are carefully located and provide a mix of habitats to ensure sufficient visits are diverted.

3.22 The BOZ for recreational impact mitigation is shown in **Figure 3.13.** Opportunities are distributed across the region's rural areas with notable clusters to the north, north west and west of Southampton (Test Valley District), east of Romsey (Test Valley District), east of Eastleigh (Eastleigh Borough) and north east of Botley (Winchester District), surrounding Waltham Chase (Winchester District) and north of Portchester (Winchester District).

3.23 To reiterate, mitigation for recreational impact would benefit from understanding where future housing growth across South Hampshire will be going, but information on major growth locations has not been available to inform this study. In addition, the mitigation for recreational impact should, where relevant, connect to green grids leading into any nearby urban areas / population centres. These green grids should be enhanced and designed to promote sustainable travel (e.g. walking / cycling).

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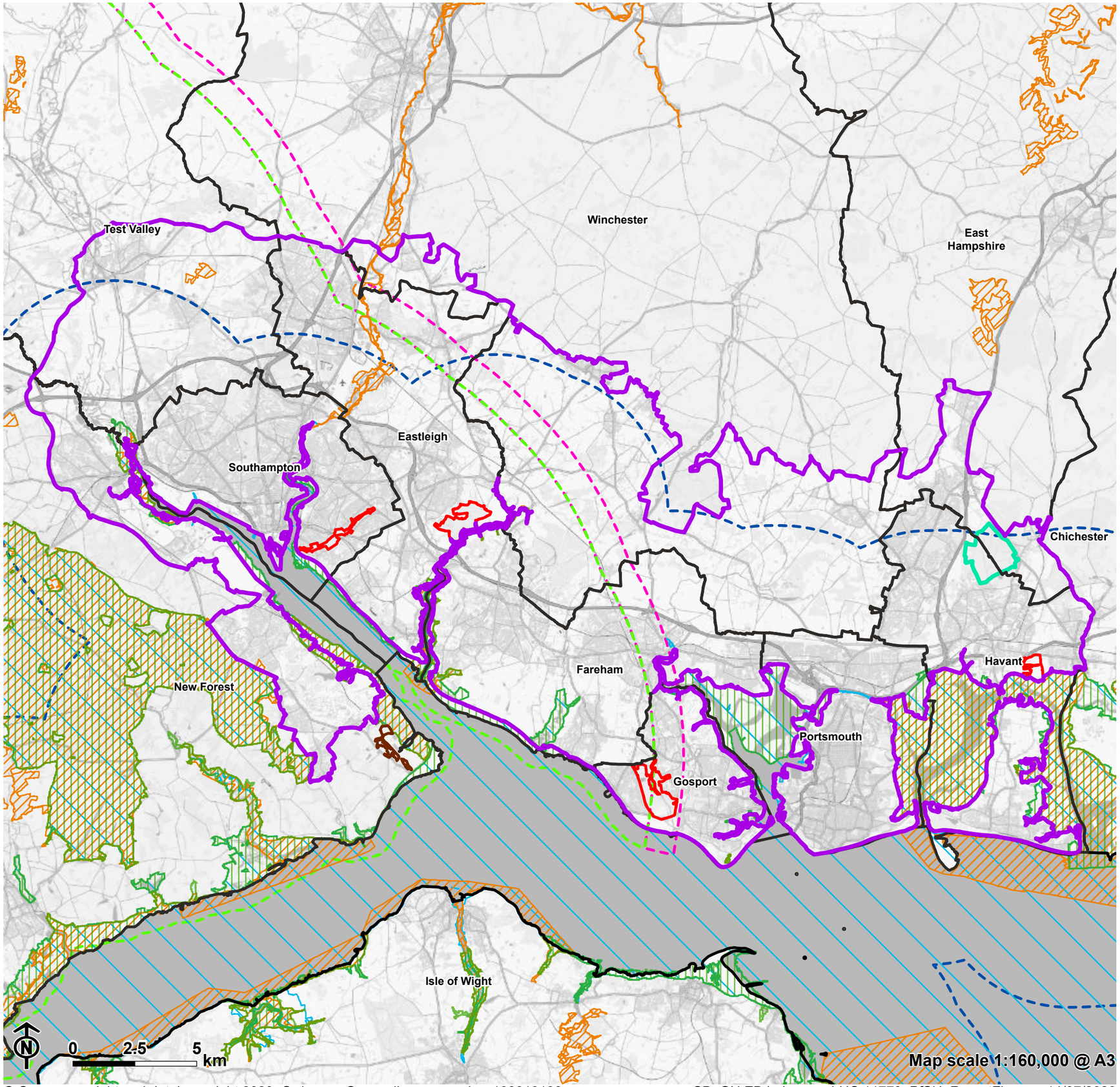
Figure 3.12: Context Map



Study area: South Hampshire Sub Regional Strategy Boundary
Local Authority
Solent SANGS
Havant Thicket Reservoir SANGS
Fawley Waterside Development Plan SANGS
Special Protection Area
Special Area of Conservation
Ramsar
Solent Waders and Brent Geese Buffer

New Forest Recreation Zones

13.8km buffer
15km buffer

Notes:
Between 13.8km and 15km, large development should consider impact on a case by case basis.
The Solent SANGs are featured in the Solent SANGs Visitor Survey. It should be noted that two country parks (River Hamble Country Park and Alver Valley Country Park) are considered SANGs in this report.

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, NE, HBIC

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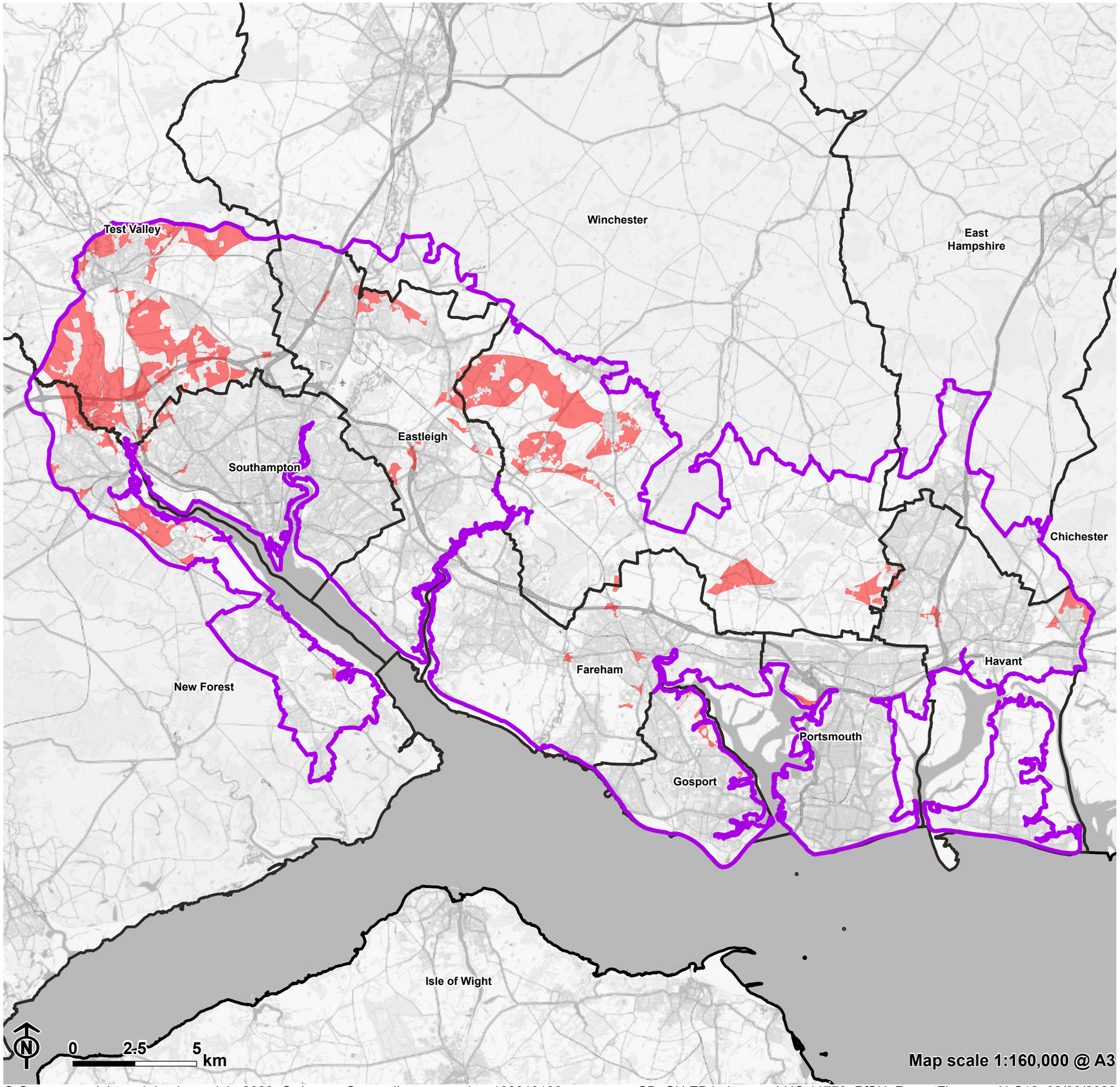
Figure 3.13: Broad Opportunity Zone: Recreational Impact mitigation for European sites



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Broad Opportunity Zone: Recreational Impact mitigation for European sites

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures - ALC12 02/08/2023
Source: OS, LUC

Natural flood risk management

3.24 **Figure 3.14** shows the baseline situation with regard to flood risk – Flood Zones 2 and 3 (current day flood risk before climate change is factored in), areas benefitting from flood defences and rivers.

3.25 **Figure 3.15** shows the Working with Natural Processes floodplain reconnection potential and wider catchment woodland potential (this could include riparian and floodplain planting) map. We relied upon this dataset to identify opportunity areas within South Hampshire for natural flood risk management. The Working with Natural Processes (WWNP) aims to reduce flood and coastal erosion risk (FCRM) through implementing measures that help to protect, restore and emulate the natural functions of catchments, floodplains, rivers and the coast. WWNP takes many different forms and can be applied in urban and rural areas and on rivers, estuaries and coasts. We have focused our study on floodplain management and woodland management as the restoration of both can reduce flood risk substantially and are appropriately considered at a regional scale.

3.26 **Figure 3.16** shows Defra's spatial prioritisation of catchments suitable for using natural flood management. When compared against the BOZ map for natural flood risk management this shows a good degree of overlap with the mapped BOZ areas. It does indicate the BOZ area to the west that falls outside of the priority catchments might be considered less of a priority.

3.27 As stated within Chapter 2, the Environment Agency provided us with their current priority areas which were informed by the datasets outlined above as well as the Water Framework Directive data. These areas are considered to be the areas where NFM would be most successful and provide multiple benefits. This does not preclude NFM measures in other areas but seeks to drive collaboration in these focussed areas. The BOZ for natural flood risk management is mapped in **Figure 3.17.** This map identifies land that has potential for natural flood risk management, after excluding urban land, grade 1 and 2 agricultural land and land within designated sites (we have taken a precautionary approach in terms of avoiding any works to designated sites). It highlighted notable clusters of opportunity within the north west of Southampton and extending to North Baddesley (Southampton City and Test Valley District), to the east of Eastleigh (Eastleigh Borough) extending north to Winchester (Winchester District) and a large section that runs from the edge of the South Downs National Park to Waterlooville (Winchester District) and extends into East Hampshire.

3.28 Note that woodland creation can help to reduce flood risk as trees intercept rainfall and trees' root systems slow down the movement of water, allowing it to percolate into the ground, recharge aquifers, and more gradually reach streams and rivers. Also, woodland and scrub creation in these areas could also provide a range of wider benefits, not least for carbon sequestration and storage. The Environment Agency recommends natural colonisation close to seed sources or direct seeding, on farmland in floodplains and 30m or more either side of rivers in middle and upper catchments. A distance of 30 metres either side of non-main river is proposed as the optimal riparian zone, most likely to interact with and provide woody debris habitat to the river channel.

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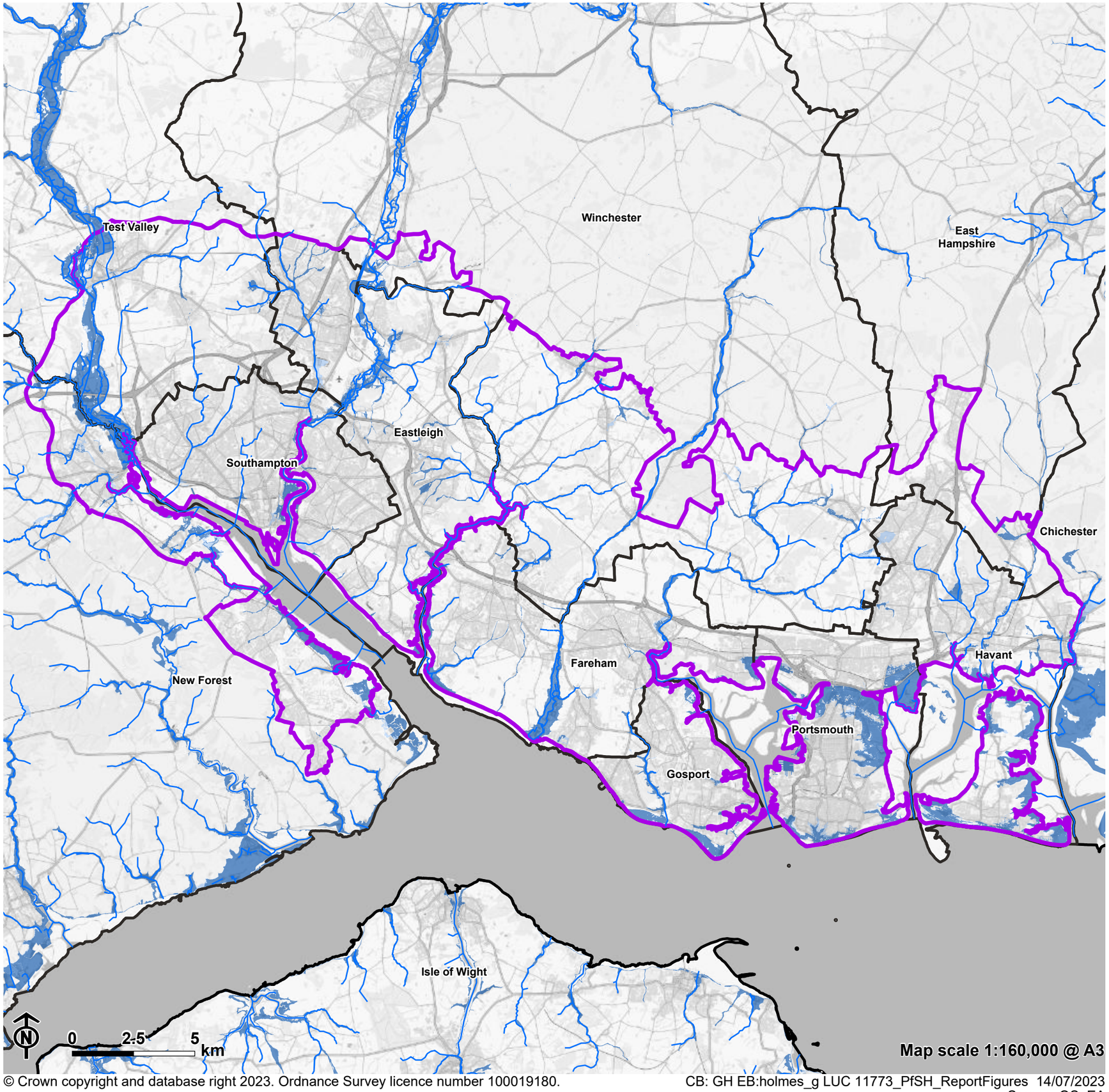
Figure 3.14: Context Map



Study area: South Hampshire Sub Regional Strategy Boundary
Local Authority
River
Flood Zone 2
Flood Zone 3

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, EA

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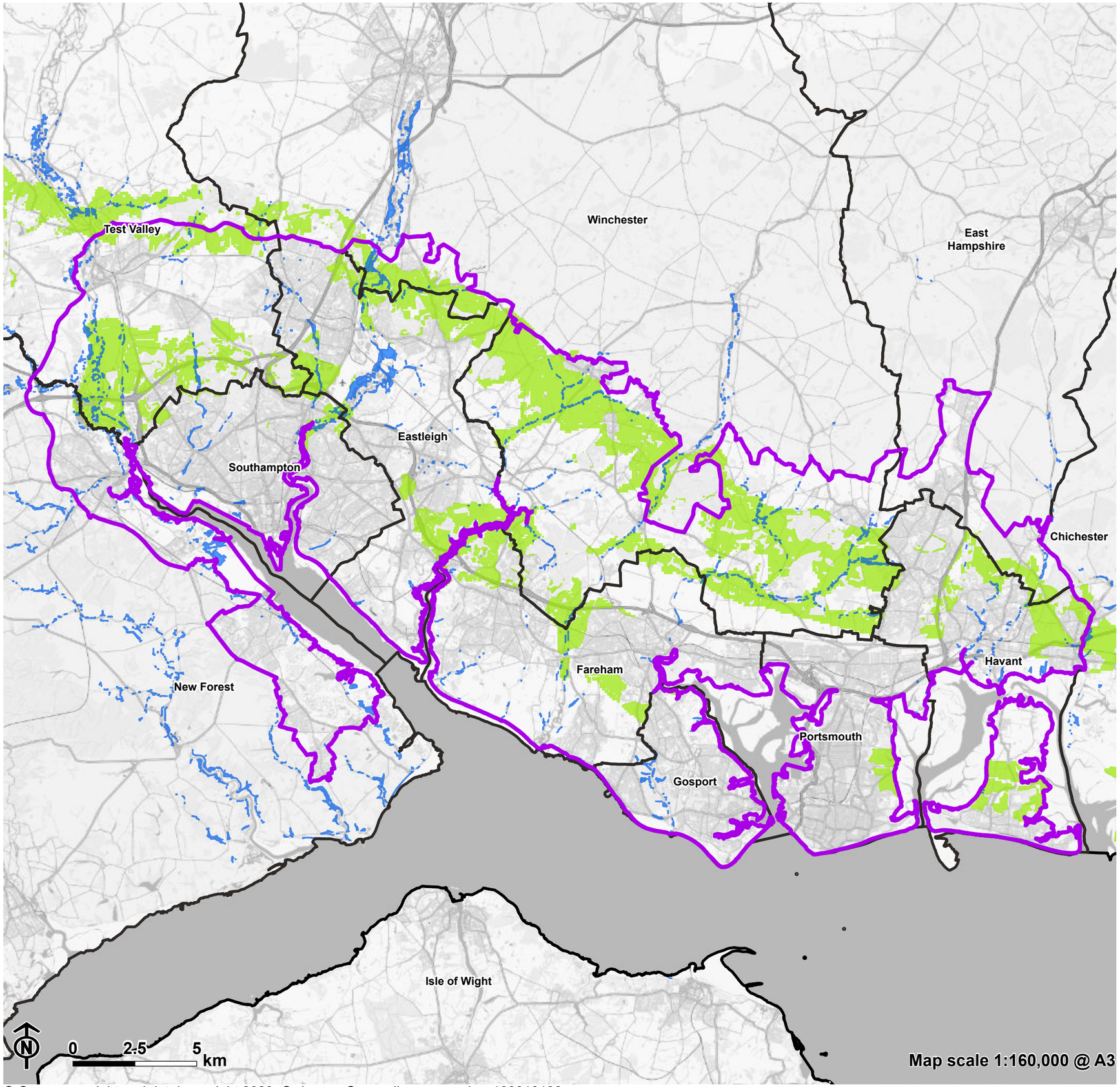
Figure 3.15: Working with natural processes



Study area: South Hampshire Sub Regional Strategy Boundary
Local Authority
Wider catchment woodland potential
Floodplain reconnection potential

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, EA

Figure 3.16: Spatial Prioritisation of Catchments Suitable for Using Natural Flood Management

Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Spatial prioritisation of catchments suitable for using natural flood management

Prioritisation

- High
- Medium
- Low

Test Valley
Winchester
East Hampshire
Eastleigh
Southampton
Chichester
New Forest
Fareham
Havant
Portsmouth
Gosport
Isle of Wight
0 2.5 5 km
Map scale 1:160,000 @ A3

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 14/07/2023
Source: OS, EA

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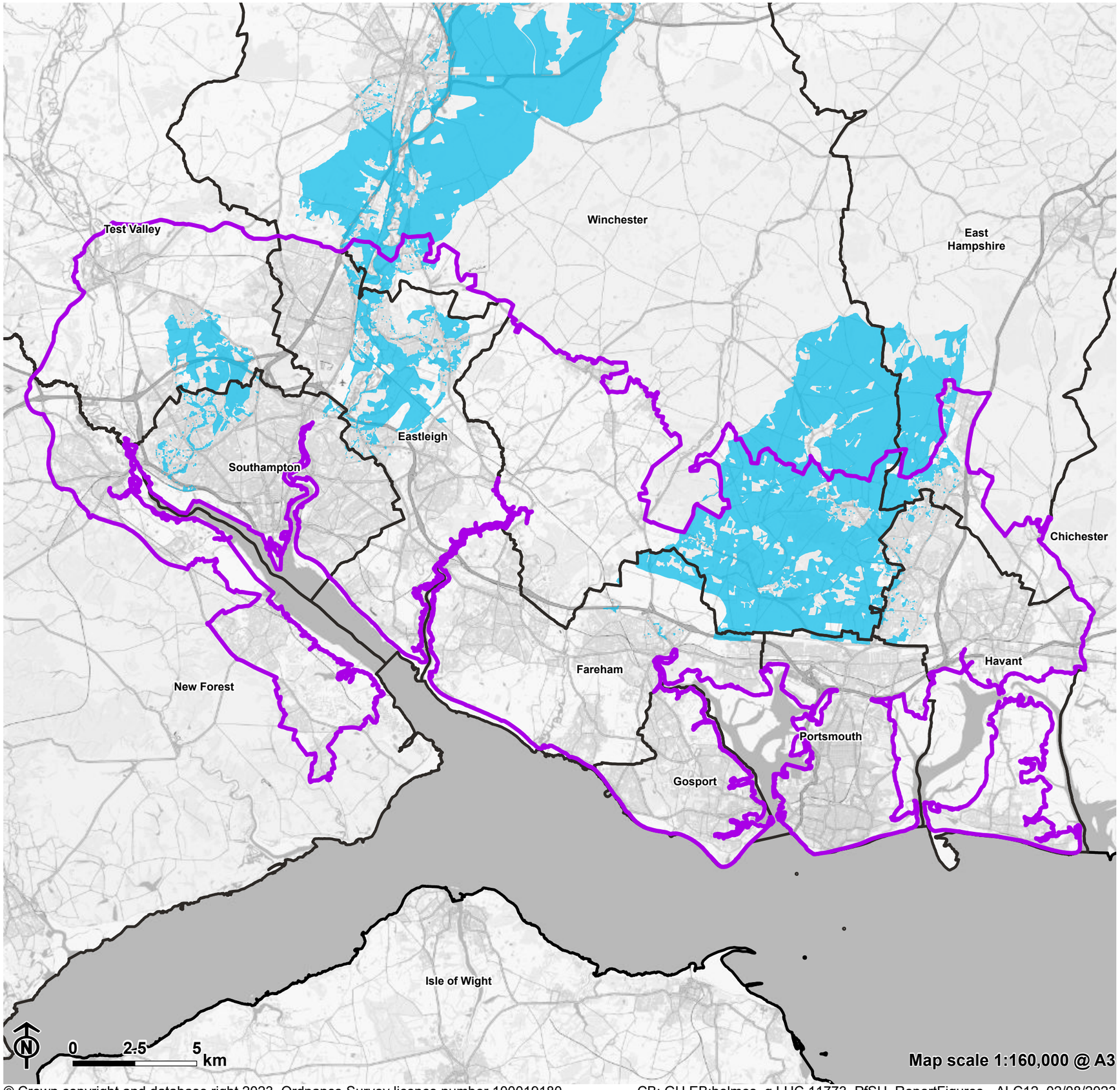
Figure 3.17: Broad Opportunity Zone: Natural flood risk management



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures - ALC12 02/08/2023
Source: OS, LUC

Mapping of strategic opportunity zones

3.29 Following mapping of the opportunity zones, the final step was to 'layer up' these zones to identify where they overlap, creating "strategic opportunity zones" for multi-benefit GBI projects.

3.30 **Figure 3.18** overleaf identifies these strategic opportunity zones. The variations of green colouring on the figure signify the amount of BOZs that overlap; the deeper the green the more BOZs that overlap, meaning the greater potential for multi-benefit GBI projects.

3.31 Strategic opportunity zones with the largest number of overlapping BOZs include those to the north and northwest of Southampton (Test Valley District), to the west of Chandler's Ford (Test Valley District) and east of Eastleigh (Eastleigh Borough), to north of Portchester (Winchester District), to the west of Waterlooville (Winchester District) and to the south of Bishop's Waltham (Winchester District).

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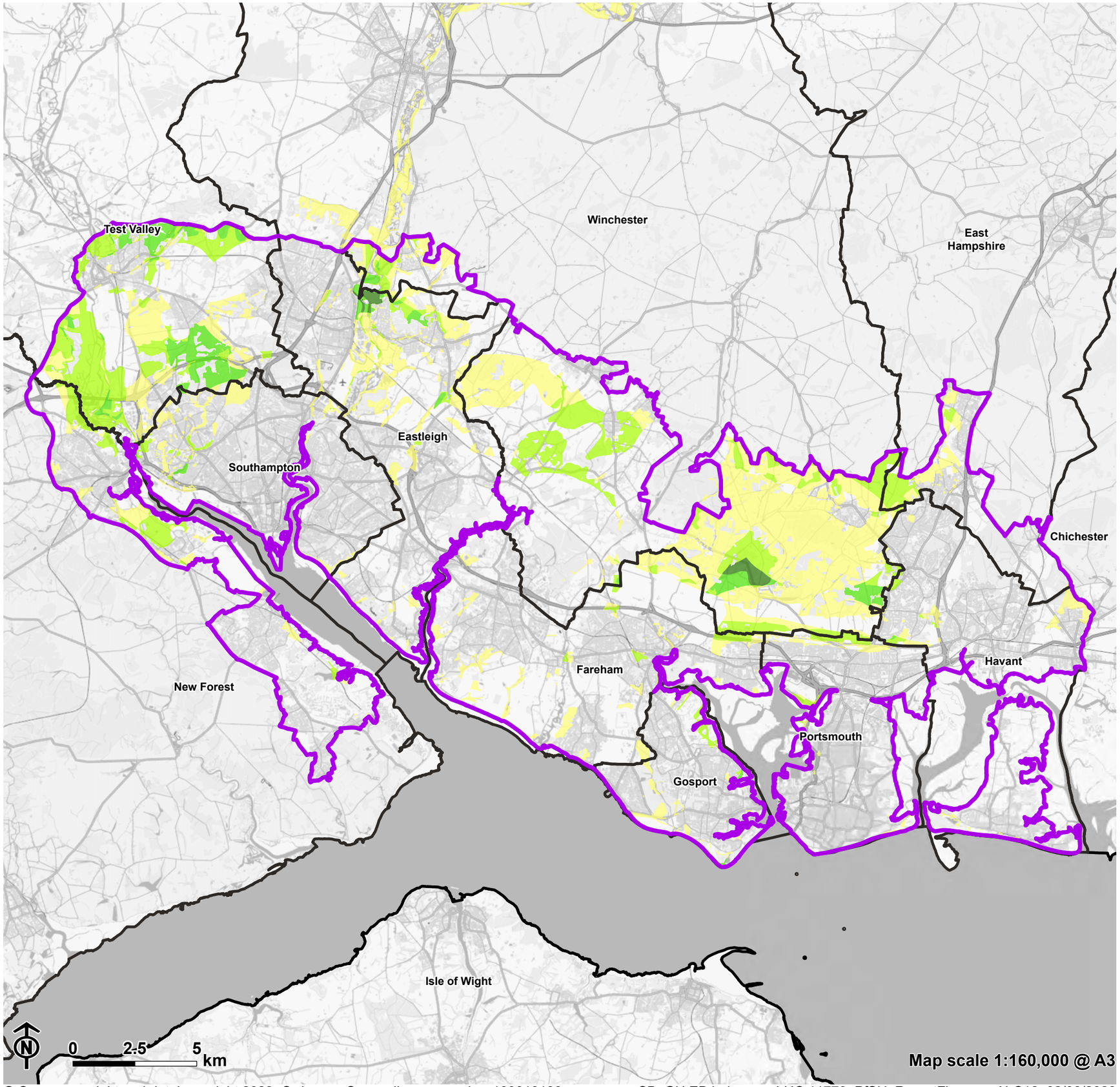
Figure 3.18: Strategic Opportunity Zones



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Number of overlapping Broad Opportunity Zones

- 2
- 3
- 4
- 5

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures - ALC12 02/08/2023
Source: OS, LUC

Chapter 4
Discussion and next steps

Discussion

4.1 This research has used the best available data to identify key strategic opportunities for investing in GBI to provide five strategic benefits - the broad opportunity zone (BOZ) maps.

4.2 It has also identified a series of strategic opportunity zones (SOZs) where GBI investment could help to meet multiple unmet strategic needs and connect to urban areas.

4.3 Investment in strategic GBI should be prioritised in these locations as such projects should have the **strongest business case**, given the ability to meet multiple unmet needs from the same interventions and potentially tap into multiple funding sources.

4.4 Investment in GBI in these locations could involve a range of measures, informed by site investigations (including ecological surveys and landscape character assessment), including: woodland or wetland creation, river restoration, creation or enhancement of wider wildlife habitat networks and the introduction of features to support access and recreation such as walking and cycling routes and visitor facilities.

4.5 It is important to stress that, subject to the protection of designations and the statutory requirement to achieve biodiversity net gain, the BOZs and SOZs are not intended to indicate areas where development is necessarily precluded. In some cases, taking account of these and all other planning considerations, these areas may be considered suitable for development. In these cases the BOZs and SOZs indicate that the detailed planning for that development should integrate and deliver on their strong potential to deliver the strategic GBI outcomes highlighted. Development can provide the investment to help deliver these aims. This study will also be complemented by further studies at a local level.

Overview of potential funding sources

4.6 GBI projects in these locations could be more deliverable given the recent clarification from Defra[22] of the **ability to 'stack' certain public and private payments for ecosystem services** on the same piece of land, including BNG and nutrient mitigation[23] alongside environmental land

[22] https://www.gov.uk/guidance/combining-environmental-payments-biodiversity-net-gain-bng-and-nutrient-mitigation

[23] Nutrient mitigation projects in South Hampshire are already estimated to have sold £38M of nutrient mitigation credits to developers (SEPM).

management (ELM) funding[24]. However, there are various complexities here to work through e.g. land owners would need to commit to at least 30 years for mandatory BNG schemes and up to 125 years for nutrient mitigation schemes; and government has stated that habitat creation/enhancement for the delivery of non-BNG outcomes (e.g. nutrient mitigation) cannot be used by a development to meet its full BNG requirement (it can be used to demonstrate no net loss of biodiversity, but not for the final 10% biodiversity gain)[25].

4.7 Natural England have also indicated (pers. comm.) that BNG on SANG is acceptable where it is proven that the biodiversity units are achieved by creation/enhancement over and above what would have been required to meet minimum SANG requirements (and where additional measures do not compromise or undermine the function/effectiveness of the SANG)[26]. Whilst stacking rules do not currently permit some combinations of benefits to be sold from the same land (e.g. woodland carbon and nutrient mitigation), this could be managed by creating sub-projects that target different combinations of benefits on different pieces of land within the same wider site/location.

4.8 Strategic GBI projects could also legitimately be supported via s106 developer contributions (where supported by GBI policy), or by **Community Infrastructure Levy** funding (or the proposed new Infrastructure Levy system) where projects are providing strategic (green) infrastructure to support development. Such projects should be identified in relevant Infrastructure Funding Statements.

4.9 **Grant funding opportunities** should also be explored. For example, the Local Nutrient Mitigation Fund[27] may provide a useful source of funding; this study could help inform the selection of suitable sites for the fund.

4.10 There may be further **opportunities to sell additional ecosystem service benefits** from GBI projects in the future. 'Compliance markets' such as BNG and nutrient mitigation and 'voluntary' carbon offsetting (woodland carbon code, peatland carbon code) alongside Environmental Land Management payments are the key focus currently, but wider ecosystem service credit/unit types and standards are known to be under development. These include further carbon offsetting standards (e.g. hedgerow carbon code, soil carbon code; salt marsh carbon code) and water-related credit standards (e.g. Forestry Commission is working on a woodlands for water standard; the Rivers Trust is working on water replenishment credits). Further clarity on stacking rules will help to support ongoing scaling up of these markets, as well as work to address uncertainty around inheritance tax on environmental land use.

4.11 The recently published **Nature Markets Framework**[28] sets out the Government's commitment to support the development and scaling up of high integrity nature markets across the UK - including by defining core principles, rules and standards - to enable firms to have the clarity and confidence to mobilise this investment. The **Big Nature Impact Fund**, a new public-private impact fund to invest in restoring nature (with up to £3om in public investment) is currently under development[29].

4.12 The PfSH GI strategy identified **'South West Hampshire Forest Park'** to the north of Southampton as a key strategic GI opportunity (refer back to Figure 2.3). The mapping completed for this study also highlights this broad location as having significant strategic potential with four overlapping BOZs in this location (Figure 3.18).

4.13 The PfSH GI strategy also identified the **Forest of Bere** as a strategic enhancement opportunity to the north of Fareham and Portchester. This study also identifies the eastern part of this strategic opportunity as having significant strategic potential with 4-5 overlapping BOZs.

4.14 The section below discusses the option of pursuing a 'Regional Park' in one of these locations.

A Regional Park for South Hampshire?

4.15 New large-scale parks, or 'regional parks', are being considered across the country. National policy increasingly recognises the role which green space plays in helping to address issues relating to climate change, biodiversity, health and wellbeing (see policy context for regional parks in Appendix C), but regional parks currently have no formal status in national planning policy. However, NPPF paragraph 175 states that plans should "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".

4.16 In terms of practical provision, the Public Health Act of 1875 enabled the purchase and maintenance of land to be used for public access, which was later transferred to the

[24] If it is clear what the ELM grant paid for and the other payments involve further habitat enhancements above this baseline.
[25] https://www.local.gov.uk/pas/topics/environment/biodiversity-net-gain-local-authorities/biodiversity-net-gain-faqs#additionality-stacking-and-natural-capital
[26] The habitat created to meet SANG requirements can contribute to a point of no net loss but not beyond. Further written guidance on this is forthcoming from Defra/NE.
[27] https://www.gov.uk/government/consultations/local-nutrient-mitigation-fund-call-for-evidence-and-expression-of-interest/local-nutrient-mitigation-fund-call-for-evidence-and-expression-of-interest
[28] https://www.gov.uk/government/publications/nature-markets
[29] https://impact-investor.com/big-nature-impact-fund-appoints-federated-hermes-finance-earth-as-fund-managers/

relevant Council's management with the Open Spaces Act of 1906. The General Power of Competence under the Localism Act 2011 gives local authorities wide ranging powers to work in new ways and develop new services and partnerships. Many charities are also empowered to do work that could contribute to the creation of a regional park.

4.17 In the absence of an agreed definition, regional parks can be defined as large parks which serve a population greater than a single authority area and may extend across local authority boundaries. It can be said that regional parks fill the gap between National Parks / AONBs, which are designated nationally and largely rural, and Country Parks, which are smaller and focused on a single site in the urban fringe.

4.18 Regional parks are spatial entities based on a set of aims and objectives, which will vary from park to park. Regional parks are not statutory designations and therefore they do not have the same level of prominence or protection as National Parks or Areas of Outstanding Natural Beauty.

4.19 By their nature the reasons and mechanisms for establishing regional parks are diverse, with an equally diverse range of objectives and visions. Common elements of regional park visions include:

- Working with partners to promote connectivity and co-operation at a landscape-scale.
- Capitalising on a distinctive landscape character or sense of place.
- Consistency in approach across an area.
- Enhancing the visitor economy.
- Improving branding and identity/ promoting an ambitious cross-boundary vision.
- Improving quality of life and sense of place for residents and visitors.
- Regeneration and economic development.

4.20 Given the above, and in the absence of an Act of Parliament to create a Regional Park in South Hampshire, it is left to local plans to provide the strategic and non-strategic policy framework and policy 'weight' for a regional park. The recommended policy approach for South Hampshire LPAs should be informed by the approach taken to regional parks in other areas (see Appendix C), and also by an understanding of the area (and its wider visitor catchment) and the latest developments in environmental policy, science and funding.

4.21 A tentative rationale for developing a South Hampshire Regional Park is set out below, noting that further research is needed to work this up in more detail. This could take a variety of forms which would need further investigation, including one cohesive park or a network of smaller connected parks.

4.22 Strategically located and serving a large population - The scale of growth planned in the South of Hampshire will exacerbate the climate and biodiversity crises unless clear measures are put in place. The Regional Park would provide a strategic response, not only in terms of improved land management, habitat connectivity and carbon sequestration, but also the provision of enhanced recreation opportunities close to where people live. The regional park could help to tackle capacity issues at current recreational sites and improve access to greenspace more widely. Assuming it was of significant scale and could provide wide ranging recreational opportunities (including multiple links to the wider public rights of way network and into Southampton immediately to the south), the regional park could also provide an important SANG function, mitigating recreational impacts on Habitats sites, particularly the New Forest by attracting people to this significant new regional offer.

4.23 A regional park to the north of Southampton might be particularly well placed to intercept visitors who would otherwise travel to the New Forest by car. Around 35 hectares of forest at Home Wood, Stoneham has recently secured financial support from Test Valley District and Eastleigh Borough Councils. This will enable delivery of public access to Home Wood, an area outlined as part of the Forest Park within South Hampshire's GI Implementation Plan[30]. The regional park could build on this relationship.

4.24 A strategic response to the climate and biodiversity crisis – The Regional Park could contribute to the Local Nature Recovery Strategy (LNRS). The LNRS can be used to target offsite biodiversity net gain (BNG), so that it contributes to the Nature Recovery Network and can be used to determine the 'strategic significance' score that is part of the Biodiversity Metric scoring. The Regional Park could help deliver more resilient habitat networks. LNRSs are also intended to deliver wider benefits, such as climate change mitigation and adaptation. The Regional Park could help deliver these benefits too, for example by promoting tree planting in the right places to boost carbon sequestration, reduce flood risk, improve air quality (Southampton has a number of Air Quality Management Areas) and provide a cool place to retreat to when increasingly frequent heatwaves make the city uncomfortable.

[30] https://democracy.testvalley.gov.uk/documents/s9842/Release%20of%20developer%20contributions%20towards%20securing%20access%20to%20Home%20Wood%20-%20Report.pdf

4.25 A strategic response to delivering change - The Regional Park could be an exemplar of strategic land management through a partnership approach founded on robust evidence, strategic planning, active management and a portfolio of funding sources, both public and private. Ongoing reforms to the planning system, including to developer contributions, and to wider policy on 'payments for ecosystem services' (see above) will need to be carefully tracked to ensure delivery planning is aligned with the rapidly evolving policy context. The scale of a regional park should create greater opportunities to attract private investment and 'stack' public and private payments for a range of different benefits on different parts of the park (e.g. including both payments foe ecosystem system services and payments for car parking, events/tours, visitor giving, etc). Oxygen Conservation have recently secured a £20M loan from Triodos Bank to further scale up their conservation work, based on directly acquiring and managing sites to restore nature whilst generating a profit from natural capital and commercial revenues, demonstrating the willingness of some banks to support natural capital projects. The Infrastructure Bank is also looking to provide loan finance to local authorities for high-integrity natural capital projects; it recently loaned £12M to Highlands Rewilding.

Next steps

4.26 It is recommended that PfSH explore the opportunities to develop strategic GBI projects in the BOZs, and particularly in the SOZs, and support the development of enabling GBI policies in the emerging Joint Strategy and Local Plans.

4.27 Some **key next steps** include:

- PfSH LAs should review the BOZs and SOZs identified in this study and use this (alongside ongoing work by various local authorities on green infrastructure, landscape character and growth) to inform the search for, and prioritisation of, specific sites for multifunctional GBI projects. For example, we're aware that details of various projects currently at early stages of scoping or development (including new nutrient mitigation and BNG projects) could not be shared due to commercial confidentiality, but it is hoped that this study provides useful data against which to review these sites and proposals. It helps to support a more strategic approach to GBI projects, broadly defined, so that projects are located and designed to maximise co-benefits (e.g. providing significant biodiversity or natural flood risk benefits alongside nutrient mitigation).
- PfSH should include the SOZs within the Spatial Position Statement and, furthermore, LPAs should set out how they will seek to develop GBI initiatives within those areas through their local plans.
- PfSH LAs should consider widening the study to incorporate climate change objectives. This study was undertaken based on the five key strategic benefits/outcomes as outlined in Chapter 1, but there is potential to expand the key benefits in the future to include climate mitigation opportunities, e.g. carbon sequestration.
- Working in partnership with a range of stakeholders (e.g. EA, NE, FC, water companies, other large landowners, ELM convenor partnership) is likely to be key to delivery, especially delivery at scale. For example, Southern Water is currently developing their business plan which sets out their aim to deliver wetlands as well as biodiversity net gain linked to their capital programme and wider duties. These projects will be delivered on Southern Water's estate and through partnership with others – such opportunities should be explored in the context of the findings from this research.
- LPAs should proactively engage with Hampshire County Council (HCC) to help shape the LNRS, drawing on the evidence provided by this study and HBIC's latest priority habitats data.
- LAs falling within the New Forest zone of influence should continue developing a long term strategic solution for recreational impact mitigation for the New Forest to provide clarity and certainty for all stakeholders.

4.28 Some key next steps towards developing a South Hampshire regional park include:

- Further development of the evidence base for a South Hampshire Regional Park, including landscape work to understand where the regional park would be most suitable; on priority local needs; opportunities to invest in nature-based solutions and regional park visitor infrastructure; land acquisition or access opportunities[31]; and funding opportunities and delivery mechanisms. This will require LAs to work together to jointly develop proposals and plan funding and delivery.
- Test political appetite for a South Hampshire Regional Park in one of the locations highlighted and, if supportive, seek to establish a Regional Park Partnership, agreeing leadership and appropriate governance arrangements (including representation of

[31] Initial research indicates Hampshire County Council (HCC), Southampton City Council and Forestry Commission own land in the area, with HCC already involved in significant tree planting.

key LAs, landowners, potential delivery partners and agencies);

- Through the partnership, and liaising with HCC/HBIC on the LNRS, identify potential park boundaries and initiate work to create a Regional Park Plan and model planning policies to be included in relevant local plans. Early community consultation would be important to build support and ensure there is an opportunity for people to have a meaningful influence on proposals.
- Engaging with relevant land owners, delivery bodies and further exploration of funding opportunities - and options for assembling a business model that taps multiple revenue streams - will also be critical to understanding project feasibility and deliverability. For example, see the recent example of an abandoned golf course being transformed into wildlife haven through carbon credit sales in Kent[32]; and the Wyre Catchment natural flood risk management project selling flood risk benefits as well as a range of other co-benefits in Lancashire[33]).

Useful guidance

The Green Finance Institute's Investment Readiness Toolkit provides an online and interactive framework that takes nature-based project developers along the eight milestones of a path to 'Investment Readiness', starting with initial project scoping and concluding with signing legal contracts with key stakeholders. This can be accessed online here: https://www.greenfinanceinstitute.co.uk/gfihive/toolkit

[32] https://www.wildercarbon.com/projects/heather-corrie-vale/

[33] https://www.greenfinanceinstitute.co.uk/gfihive/case-studies/the-wyre-river-natural-flood-management-project/

Appendix A

Existing/pipeline GBI projects

A.1 This appendix provides summary information on key GBI projects and hyperlinks to further information (see table below). These projects are mapped in Figure A.1.

A.2 Additional GBI projects under development in South Hampshire include significant woodland creations projects (with Forestry Commission) and new nutrient mitigation projects, but no information on these was available at the time of this study.

Project	Details
Havant Thicket restoration project	As part of the Havant Thicket Reservoir project[34], Portsmouth Water[35] has developed an extensive environmental mitigation and compensation package which includes the creation and improvement of more than 200 hectares of woodland and wood pasture. This project also seeks to create a new leisure facility for local communities and a new wildlife conservation area which would include areas of wetland.
Hook Lake Project	The Solent coastline is facing significant pressure from rising sea levels, more frequent and bigger storms, and increased flood and erosion risk. Hook Lake has been identified as a potential area to offset some of these losses by Coastal Partners in their Regional Habitat Compensation Programme[36]. The Hook Lake project (Coastal Partners working with Hampshire County Council, River Hamble Harbour Authority and Environment Agency) aims to strategically deliver new coastal and wetland habitats to replace those damaged or lost by flood or coastal defence works and sea level rise. As well as securing environmental enhancements, the project will deliver on wider placemaking benefits relating to recreation, amenity, education, health and wellbeing[37]. Delivery is anticipated in the period 2025-28.
The Fawley Waterside development	The Fawley Waterside development will provide 1,500 homes on a former power station site and adjacent land. As part of the development, 35.3 hectares of SANG will be provided in three locations[38]: ■ The Ashlett Green SANG, an area of 11 hectares within the National Park to the north of the project site. This area is part of the former Exxon Laydown site and is comprised of scrub. ■ The Fawley SANG, an area of 20.2 hectares is located within the National Park to the west of the site. This area is currently in use as a quarry with some agricultural land to the south. ■ The Tom Tiddlers SANG, an area of 4.1 hectares is located entirely within the National Park. These areas exclude the areas at Ashlett Green and Tom Tiddler's ground which are required for sanctuary areas for nightingales and seasonally wet areas.

[34] https://havant-thicket-reservoir.uk.engagementhq.com/environment-and-wildlife
[35] https://www.portsmouthwater.co.uk/wp-content/uploads/2021/08/29-June-2021-HTR-SAG-meeting-slides-FINAL.pdf
[36] https://coastalpartners.org.uk/environment/rhcp
[37] https://coastalpartners.org.uk/static/media/resources/hook-lake-exhibition-booklet-2022.pdf
[38] https://www.newforestnpa.gov.uk/app/uploads/2020/07/PC334-20-Fawley-Committee-Report-Clean-Copy-FINAL.pdf

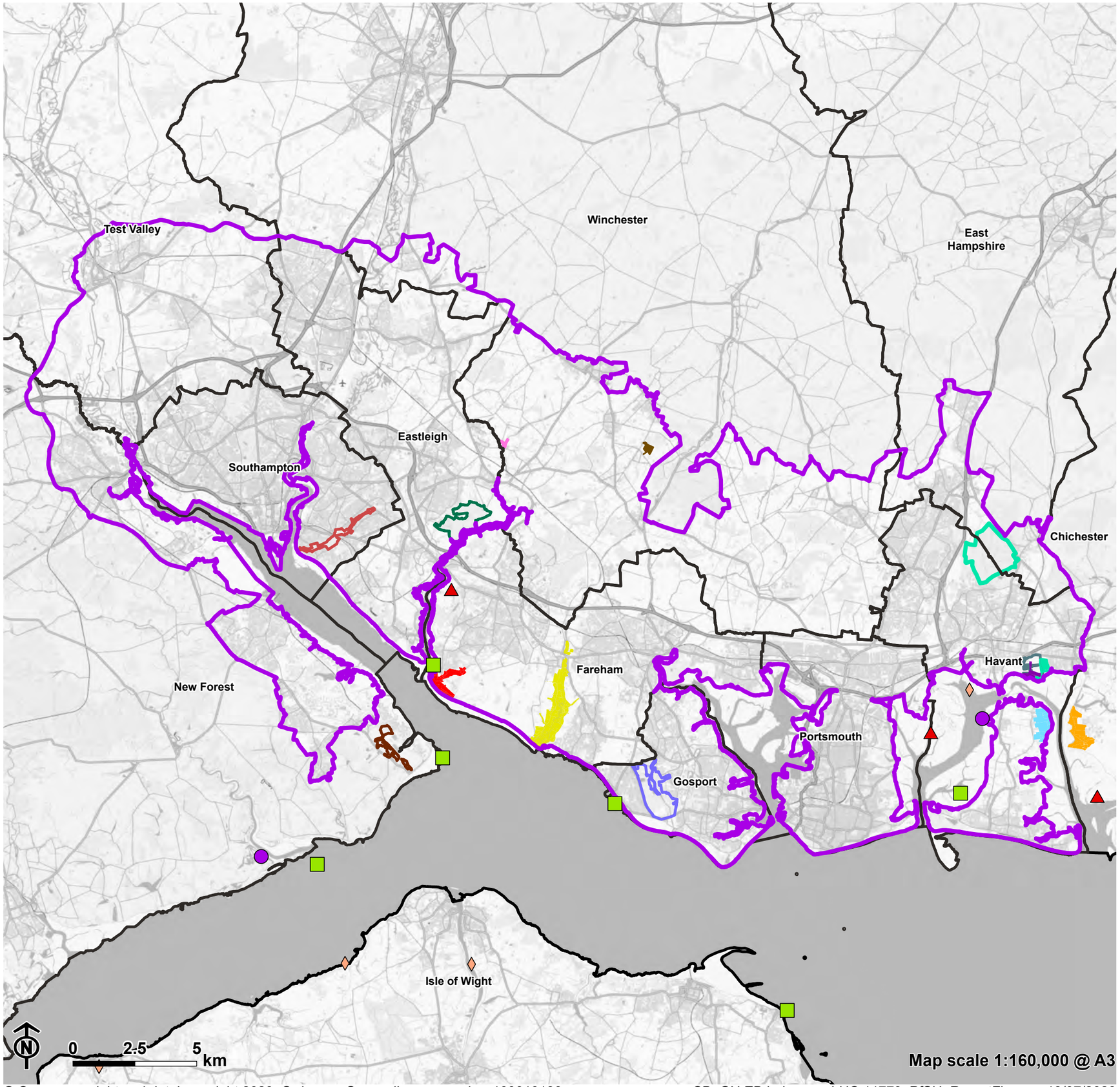
Project	Details
Solent Seascape project	The Solent Seascape Project[39] will be the first of its kind in the UK to initiate seascape scale recovery. The project seeks to protect and restore at least 30 per cent of Solent's seascape. Key targets include the restoration of 8ha of saltmarsh, 7ha of seagrass, 4ha of oyster beds and 10 breeding seabird nesting sites to increase habitat extent and promote recovery across the seascape. This project will also develop an evidence base of the wider benefits of seascape restoration to inform government and local community conservation initiatives.
Solent SANGs	Five SANGs are present along the Solent coastline; Shoreburs Greenway, River Hamble Country Park, Alver Valley Country Park and Minerva Heights. Portsmouth City Council, on behalf of Bird Aware Solent commissioned a study[40] to collect visitor data to better understand how the five SANG sites are being used. This dataset will help Bird Aware Solent identify improvements to encourage further SANG use.
Solent and South Downs Regional Habitat Compensation Programme (RHCP)	Co-ordinated by Coastal Partners with Environment Agency in partnership with Natural England, LAs and other organisations. It aims to strategically deliver the creation of new coastal and wetland habitats to replace those damaged or lost by flood or coastal defence works and sea level rise, to ensure compliance with the Conservation of Habitats and Species Regulations 2017 (commonly referred to as the Habitats Regulations). This takes into account the losses caused by the continued maintenance of defences (called 'coastal squeeze'), including those from existing privately maintained defences. The RHCP aims to create new habitat through various mechanisms, including land purchase from willing landowners, or working with landowners wishing to create and manage habitat on their land in return for agri-environment payments (e.g. Higher Level Stewardship (HLS) or for other business reasons. The programme is currently focused on creating saltmarsh habitat as there is an urgent need to create an additional 20 ha of this habitat type in the current epoch and saltmarsh is predicted to have the greatest area of loss over the next 100 years. Saltmarsh provides important feeding grounds for birds, nursery areas for small fish and habitat for rare invertebrate species. 17 priority intertidal RHCP sites have been identified including one that can be clearly categorised as multi-benefit GBI project, Hook Lake, Warsash, which is included in a row above. Note that the RHCP is being redesignated as the 'habitat compensation and restoration programme' (HCRP) to reflect the fact it will address wider drivers on EA's habitat work such as biodiversity net gain, carbon offsetting and bringing SSSIs back to favourable condition. This will include new funding criteria and targets.

[39] https://www.bluemarinefoundation.com/wp-content/uploads/2023/01/Solent-Seascape-two-pager.pdf
[40] https://birdaware.org/solent/wp-content/uploads/sites/2/2022/10/662-Solent-SANGs-Visitor-Survey-report-FINAL.pdf

South Hampshire Green & Blue Infrastructure Strategy
Partnership for South Hampshire

LUC

Figure A.1: Existing projects



Study area: South Hampshire Sub Regional Strategy Boundary

Local Authority

Blue Marine Foundation Restoration Projects

- Birds
- Oysters
- Saltmarsh
- Seagrass

SANGS

- Alver Valley Country Park
- River Hamble Country Park
- Shoreburs Greenway
- Warblington Farm
- Havant Thicket Reservoir
- Fawley Waterside Development Plan

Hampshire Solent and South Downs habitat compensation and restoration programme: Tactical priority sites

- Conigar
- Warblington
- Titchfield
- Northney Farm
- Marker Point
- Hook Lake

Green Sites assessment site

- Gravel Hill
- Wangfield Lane

CB: GH EB:holmes_g LUC 11773_PfSH_ReportFigures 18/07/2023
Source: HBIC, BMF, PfSH

Appendix B

Datasets used in Mapping

B.1 A full list of datasets used for the mapping of broad opportunity zones and strategic opportunity zones is set out below. The source of the data is provided below for datasets that are not nationally available.

- East Hampshire Rivers Catchment (Source: PfSH data 2023)
- Hydrology of soil types (Source c: Soils Data © Cranfield University (NSRI) and for the Controller of HMSO (2023).)
- Active Mitigation Sites (Source: PfSH data 2023)
- Agricultural Land Classification
- Fawley Waterside Development plan SANGs
- Havant Thicket Reservoir
- Solent SANGs (Source: Footprint Ecology 2022)
- Low Risk Areas for Woodland Creation (Source: Forestry Commission)
- Special Areas of Conservation
- Special Protection Areas
- Ramsar Sites
- Solent Waders and Brent Geese Zone Buffer (Source: PfSH data 2023)
- New Forest Recreation Zone Buffer (Source: PfSH data 2023)
- Rivers
- Source Protection Zones
- Flood Zone 2
- Flood Zone 3
- Areas benefiting from flood defences
- Working with natural processes: floodplain reconnection potential, wider catchment woodland potential
- Spatial prioritisation of catchments suitable for using Natural Flood Management (Defra 2021)
- Strategic Blue Corridors
- Strategic Transport Corridors
- Coastal Ecological Enhancement

- Forests
- National Trails
- England Coast Path Route
- Long Distance Routes
- Rights of Way
- Hampshire National Cycle Routes
- Regional Cycle Routes
- Bathing Beaches
- AGS Data (200m, 300m, 1km and 2km buffers)
- Country Parks
- Population Density
- Indices of Multiple Deprivation
- SINCs
- Biodiversity Opportunity Areas (Source: Hampshire Biodiversity Information Centre (2020).)
- FBC Solent Wader and Brent Goose Regions (Source: Farnham Borough Council (2023).)
- RSPB Reserves
- Ancient Woodland
- SSSIs
- Nature Improvement Areas
- Local Nature Reserves
- National Nature Reserves
- National Parks
- National Trust Open Data
- Listed Buildings
- Conservation Areas
- Scheduled Monuments
- Registered Parks and Gardens
- AONBs
- Heritage Coast
- Hampshire Landscape Character Assessment 2023
- National Character Areas
- Blue Marine Foundation Restoration Projects
- Gravel Hill (Source: Green Site Assessment 2023)
- Wangfield Lane (Source: Green Site Assessment 2023)
- Habitat Compensation Restoration Programme (HCRP) tactical priority sites (Coastal Partners)

B.2 In addition to the above datasets, following on from our meeting with the Environment Agency Figure 2.4 was provided to us to show where natural flood management projects should be prioritised.

Appendix C

Policy context for regional parks

C.1 Government policy such as The 25 Year Environment Plan (2018), The Planning for the Future White Paper (2020) and The Net Zero Strategy: Build Back Greener (2021) and the National Planning Policy Framework (NPPF) is increasingly recognising the role which green space plays in helping to address issues relating to climate change, biodiversity, health and wellbeing.

C.2 The Environment Act requires local authorities to prepare Local Nature Recovery Strategies to identify the opportunities and priorities for enhancing biodiversity in their area. Proposals must map specific proposals for creating or improving habitat for nature, demonstrating a further engagement with the enhancement of natural capital within local authority boundaries. The regional park concept could provide a valuable mechanism in delivering these spatial strategies, and PfSH's wider GBI goals.

C.3 The National Planning Policy Framework (NPPF) supports the provision and enhancement of open space for recreation. Paragraph 98 of the NPPF stresses that access to a network of high quality open spaces is important for the health and well-being of communities, whilst delivering wider benefits for nature and helping to address climate change.

C.4 Importantly, paragraph 175 states that Plans should 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. The provision of parks is therefore a strategic matter, about which Local Authorities are expected to cooperate (as part of the wider Duty to Cooperate).

C.5 Paragraph 179 addresses the importance of protecting and enhancing biodiversity and geodiversity through mapping the components of ecological networks; and paragraph 180 (part d) places greater emphasis on improving biodiversity and public access to nature.

C.6 Whilst no specific mention is made to the regional park approach, the NPPF refers to the value of the National Forest and Community Forests. Both are said to offer valuable opportunities for improving the environment around towns and cities, by upgrading the landscape and providing for recreation and wildlife. As a result, the NPPF considers the National Forest Strategy and an approved Community Forest Plan a material consideration in preparing development plans and in deciding planning applications.

C.7 The concept of regional open spaces was pioneered by Abercrombie's Greater London Plan of 1944. The current London Plan (2021) offers a public open space categorisation which defines London's regional parks as "large areas, corridors or networks of open space, the majority of which will be publicly accessible and provide a range of facilities and features offering recreational, ecological, landscape, cultural or green infrastructure benefits".

C.8 Existing regional parks include Lee Valley Regional Park (a unique example, having been created by an Act of Parliament to create a "Green Lung" for London, Essex and Hertfordshire) and a range of other regional parks that are given weight through recognition in the local plan; for example, the Colne Valley Regional Park is recognised in the South Bucks & Chiltern Local Plan and Wandle Valley Regional Park is recognised in the local plans of four London boroughs (Wandsworth, Merton, Sutton, and Croydon). Regional parks are also well-established entities in other parts of Europe, particularly around major cities.

Appendix D
Licenses

D.1 The table below sets out the license numbers for the various authorities' data which were sourced from for this project.

Table D.1: License Numbers for South Hampshire Authorities

Authority	OS License Number
Hampshire County Council	100019180
East Hampshire	100024238
Eastleigh	AC0000809520
Fareham	AC0000814042
Gosport	AC0000849992
Havant	100019217
New Forest District Council	100026220
New Forest National Park Authority	100014703
Portsmouth	100019671
Southampton	100019679
Test Valley	100024295
Winchester	AC0000809217