Vale of Glamorgan Replacement Local Development Plan

Deposit Plan HRA

Vale of Glamorgan Council

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Quality information

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Executive Summary

Introduction

AECOM was appointed by Vale of Glamorgan Council (VGC) to undertake a Habitats Regulations Assessment (HRA) of its Deposit Replacement Local Development Plan (RLDP), which specifies broad growth targets for the authority between 2021 and 2036. Policy SP1 (Growth Strategy) provides for 7,890 dwellings and 67.8ha of employment space, with the location of residential and employment allocations also being identified in the RLDP. The objective of the HRA is to identify any aspects of the RLDP that could result in Likely Significant Effects (LSEs) and, where relevant, adverse effects on the integrity of Habitats Sites, including Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites. The HRA assesses potential environmental impacts from the RLDP alone, as well as in-combination with other plans and projects, advising on appropriate policy mechanisms for delivering mitigation where required.

Legislative Context

The need for an assessment of impacts on Habitats Sites is set out in English and Welsh law by the Conservation of Habitats and Species Regulations 2017 (as amended). To ascertain whether the integrity of any Habitats Sites will be affected, competent authorities must therefore undertake an HRA of the plan or project in question, including an AA if necessary, before approving it.

Scope

Given an initial assessment of the relevant Habitats Sites within 15km of the Vale of Glamorgan, their sensitivities and the likely impact pathways arising from RLDP policies, the following sites are included in the assessment (at least until completion of the LSEs Screening stage): Severn Estuary SAC / SPA / Ramsar, Dunraven Bay SAC, Kenfig SAC, Cardiff Beech Woods SAC, Cefn Cribwr Grasslands SAC and Blackmill Woodlands SAC.

HRA tasks

Following initial evidence gathering, the first stage of any HRA is a screening for LSEs, essentially an assessment of the potential risks of development plans for Habitats Sites. If LSEs cannot be excluded, mainly because a realistic mechanism for an adverse interaction between a policy and a qualifying habitat / species is present, the next stage of HRA, known as AA, is triggered. The AA is a more detailed analysis of the impact pathways and Habitats Sites considered at the Screening stage. One of the key aspects of AAs is the consideration of mitigation measures, which at the RLDP level mainly constitute policy mechanisms to help protect Habitats Sites from adverse effects on site integrity. In this HRA both LSEs Screening and AA were carried out.

Appropriate Assessment

Based on objective information, LSEs could be excluded for some impact pathway and Habitats Site interactions. However, LSEs could not be excluded for some impact pathways in relation to the Severn Estuary SAC/SPA/Ramsar, Cardiff Beech Woods SAC and Kenfig SAC. The following impact pathways were screened in for AA:

- Recreational pressure in the Severn Estuary SAC/SPA/Ramsar and Cardiff Beech Woods SAC;
- Water quality in the Severn Estuary SAC/SPA/Ramsar;
- Water quantity, level and flow issues in the Kenfig SAC and Severn Estuary SAC/SPA/Ramsar;
- Loss of functionally linked habitat in relation to the Severn Estuary SPA/Ramsar;
- Visual and noise disturbance to qualifying birds in the Severn Estuary SPA/Ramsar;
- Atmospheric pollution impacts to qualifying habitats in the Cardiff Beech Woods SAC; and

- Coastal squeeze impacts in the Severn Estuary SAC/SPA/Ramsar.

The following paragraphs summarise the key findings regarding the most pertinent impact pathways and Habitats Sites. It includes all impact pathways for which policy wording is deemed necessary to avoid adverse effects on site integrity.

Recreational Pressure

The RLDP allocates 1,275 net new dwellings, roughly equating to an increase of 3,060 residents, within the 12.6km core recreational catchment of the Severn Estuary SAC/SPA/Ramsar. These additional residents are anticipated to regularly contribute to recreational footfall within the designated site boundary. In line with numerous approaches for other Habitats Sites and Local Planning Authorities across the UK, and particularly around the Severn Estuary (including Cardiff, Monmouthshire, and Stroud District in England), it is recommended that these allocations should contribute to targeted mitigation measures, both in terms of Strategic Access Management and Monitoring (SAMM; on-site) and the provision of alternative greenspaces (off-site).

In line with the broad Interim Impact Avoidance Strategy established for Stroud and as has been recommended for the aforementioned other Welsh authorities, it is advised that a range of avoidance and mitigation measures are considered for the authority:

- Delivery of Suitable Alternative Greenspaces (SANGs) or smaller scale recreational greenspaces, where possible in close proximity to emerging housing sites (although it is noted that it will be difficult to replicate the feel and attractiveness of the estuary);

- On-site Strategic Access Management and Monitoring (SAMM) measures around key themes of wardening, signage, information boards, education and awareness, zoning and bylaws (e.g. controls on dogs), parking provision, path improvements, dog waste bins, benches/seating and off-site training facilities for dogs;

- Collaboration with key stakeholders (e.g. Natural Resources Wales, adjoining authorities and Parish councils) to achieve a coordinated, integrated, sustainable and long-term outcome; and

- Future monitoring of recreation levels to assess changing recreation patterns and abundances / distributions of overwintering birds to assess the effectiveness of mitigation measures.

In addition to this, the HRA also highlighted some initial, high-level SAMM measures that could be delivered along the stretch of the Severn Estuary SAC/SPA/Ramsar to mitigate recreational impacts. The proposed measures should be further evaluated through collaboration of the VGC ecologist and Natural Resources Wales. To safeguard that adequate mitigation for recreational impacts in the Severn Estuary SAC/SPA/Ramsar will be delivered over the RLDP period, it is recommended that a policy to this effect is included in the RLDP submitted for Examination. The following policy wording should be included: '***Development proposals that would result in an increase in visitor pressure on features of the Severn Estuary SAC, SPA, Ramsar site, or Functionally Linked Land will not be supported unless it can be demonstrated that no adverse impact on the integrity of the European Marine Site will occur.***'

Following the inclusion of this policy text in the Deposit Plan, it is concluded that the Plan would not result in adverse effects on the integrity of the Severn Estuary SAC/SPA/Ramsar regarding recreational pressure.

Loss of Functionally Linked Habitat

The potential of the Key Sites and Major Employment Allocations included in the RLDP to constitute functionally linked habitat to the Severn Estuary SPA/Ramsar was assessed. Data presented in the AA indicate that three Key Sites and one Major Employment Allocation have potential suitability for functional linkage to the SPA/Ramsar when key metrics (e.g. allocation size, habitat type and distance to the SPA/Ramsar) are considered.

To minimise the potential for the emerging RLDP to result in the loss of functionally linked habitat, it is recommended that the following text (or similar) is inserted to an appropriate policy of the RLDP, in line with the same approach taken to functionally linked land in Monmouthshire Deposit Plan: '***Development proposals that would result in an increase in visitor pressure on features of the Severn Estuary***

SAC, SPA, Ramsar site, or loss of Functionally Linked Land will not be supported unless it can be demonstrated that no adverse impact on the integrity of the European Marine Site will occur.' That policy was also accompanied by the supporting text that '*Any development proposal that could have a significant effect on the integrity of a SAC, SPA or Ramsar site will not be in accordance with the development plan. This also applies to Functionally Linked Land, which is defined as habitat outside the designated site boundary that is fundamental to the ability of the designations to reach their Conservation Objectives. The parameters for this being specific to each designated site'.* '

With the inclusion of this policy wording in the Deposit Plan, it is concluded that the RLDP will not result in adverse effects on the integrity of the Severn Estuary SPA/Ramsar regarding the loss of functionally linked habitat.

Visual and Noise Disturbance

Some areas in the east of the Vale of Glamorgan lie within 300m of the Severn Estuary SPA/Ramsar, the distance within which material visual and noise disturbance impacts to qualifying birds are likely to occur (subject to details regarding the nature of the activity and noise modelling). While the RLDP does not allocate any new sites within this direct disturbance zone, there is the potential that windfall development will occur in the wider area around Penarth. Visual and noise disturbance must also be considered in relation to development sites that lie adjacent to habitats that constitute potential functionally linked habitat. To ensure that the qualifying species in the Severn Estuary SPA/Ramsar are protected from disturbance (both within the designated site itself and functionally linked habitats) and adequate mitigation measures will be delivered at planning application level, it is recommended that a policy mechanism to this effect is included in the RLDP.

The following recommendations are made for the RLDP, which have been added to the supporting text of Policy SP20:

- To minimise the potential for visual and noise disturbance, it is recommended that any construction works within 300m of the Severn Estuary SPA/Ramsar are undertaken in the summer months, when qualifying populations in the site will not be present.
- If construction works cannot be timed to avoid the non-breeding season (i.e. passage and winter periods), noise impact assessments will need to be undertaken to ensure that noise levels at sensitive receptors will remain non-disturbing. HRAs accompanying relevant planning applications would need to demonstrate this by either (a) using an absolute threshold of 60dB[1] or (b) comparing construction noise levels to the pre-development baseline (likely to better apply to an urbanised context, which may already exceed the established 60dB disturbance threshold). Where construction-phase noise levels are shown to be disturbing, mitigation measures (e.g. noise screens, selection of less noisy construction techniques, damping / noise shielding of equipment, avoidance of lighting) are likely to be required.
- Construction works within 300m of any established high-tide roosts or key foraging areas within or outside the SPA/Ramsar should have appropriate screening in place to minimise visual disturbance.
- If the prevailing habitats are deemed suitable, non-breeding bird surveys of adjoining undeveloped land parcels should be undertaken to establish whether these are functionally linked to the SPA/Ramsar. Where this is concluded to be the case, the previously listed mitigation measures should be deployed (e.g. noise and visual screens, noise-dampening equipment and/or avoidance of the passage/wintering periods).

Given that the above recommendations are included in the RLDP, it is concluded that the RLDP will not result in adverse effects on the integrity of the Severn Estuary SPA/Ramsar regarding visual and noise disturbance.

[1] It is noted that this deviates from the 69dB threshold advised in the Preferred Strategy HRA. This change is based on the assumption that no disturbance to birds is likely to occur at 55dB and a 3dB increase is the minimum change in noise that is likely to be perceptible to birds. In practice, for various construction projects, this has led to an agreement with Natural England that an absolute noise threshold of 60dB is adequate for indicating potential disturbance to birds.

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1. Introduction

1.1 AECOM has been commissioned by Vale of Glamorgan Council (VGC) to undertake the report to inform the Habitats Regulations Assessment (HRA) of the emerging Vale of Glamorgan Replacement Local Development Plan (RLDP), specifically its Deposit Plan stage. This work builds on the previously completed HRA of the RLDP's Preferred Strategy, which was undertaken by AECOM in 2023, taking account of changes to the plan and comments received on the HRA, particularly from Natural Resources Wales. The purpose of the HRA is to assess whether the RLDP may result in Likely Significant Effects (LSEs) and, where these have been identified, whether it would result in adverse effects on the integrity of internationally important nature conservation sites. These include all Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and, as a matter of Government policy, Ramsar sites.

1.2 The Vale of Glamorgan is Wales' most southerly Unitary Authority, which lies west of Cardiff and is bounded by the M4 and the Severn Estuary. It covers an area of 33,097ha, the majority of which is agricultural land. Along the Severn Estuary, the authority has 53km of coastline, 19km of which are designated as the 'Glamorgan Heritage Coast'. The neighbouring local authorities, which are likely to be most important in relation to any in-combination impacts on Habitats Sites, are Bridgend, Cardiff and Rhondda Cynon Taf. At the 2021 population Census the authority's population stood at approx. 131,900, with Barry being the most populous town. Other larger towns and villages encompass Penarth, Llantwit Major, Dinas Powys and Cowbridge. Within the Vale of Glamorgan, there are two Habitats Sites: the Severn Estuary SAC/SPA/Ramsar and Dunraven Bay SAC. The Kenfig SAC adjoins the Vale of Glamorgan in the authority of Bridgend.

1.3 VGC has now progressed into the latter stages of finalising its RLDP. It is a statutory requirement that strategic development plans are reviewed every four years to ensure they are still fit for purpose. The currently adopted Local Development Plan (LDP) was reviewed in June 2021 (and a LDP Review Report published), which resulted in a recommendation for a RLDP covering the years between 2021 and 2036 being made. The RLDP will shape the Vale of Glamorgan for the next 15 years, determining where certain types of development will be permitted and outlining areas that will be protected. It also encompasses strategic policies that will allocate major development sites (both housing and employment development) in the period to 2036.

1.4 VGC is a Competent Authority as defined in Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended). Regulation 105 states that '*A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which… is likely to have a significant effect on a Habitats Site [a Special Area of Conservation, Special Protection Area or, as a matter of Government policy, a Ramsar site] or a European offshore marine site (either alone or in combination with other plans or projects) …must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives*'. Collectively, this process is called HRA.

Legislative Context

1.5 The UK left the EU on 31 January 2020 under the terms set out in the European Union (Withdrawal Agreement) Act 2020 ("the Withdrawal Act"). However, the Withdrawal Act retains the body of existing EU-derived law within our domestic law. Therefore, the requirement for HRA continues as set out in the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[2], unless this changes through future legislative amendments. Note that there are current Government plans to change the Habitats Regulations although how they may change is currently unclear. Similarly, although EU case law is currently still considered of relevance in the UK courts, this position may change during the plan preparation process or the RLDP period. Therefore, all stages of the HRA will need to be mindful of potential changes in legislation and caselaw.

[2] these don't replace the 2017 Regulations but are just another set of amendments

1.6 The need for Appropriate Assessment is set out in the Conservation of Habitats and Species Regulations 2017 (as amended; see Figure 1). The HRA process applies the 'Precautionary Principle'[3] to Habitats Sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of Habitats Site(s). Plans and projects with anticipated adverse impacts on the integrity of Habitats Sites may still be permitted if there are No Reasonable Alternatives (that would deliver the same objectives), Imperative Reasons of Overriding Public Interest (IROPI) and adequate compensation has been identified. To ascertain whether or not site integrity will be affected, an Appropriate Assessment (AA) should be undertaken of the plan or project in question:

Conservation of Habitats and Species Regulations 2017 (As Amended)

The Regulations state that:
"A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a Habitats Site … shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives… The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the Habitats Site".

Figure 1: The legislative basis for Appropriate Assessment.

1.7 Over time the phrase 'Habitats Regulations Assessment' (HRA) has come into wide currency to describe the overall process set out in the Habitats Directive from screening through to IROPI. This has arisen to distinguish the overall process from the individual stage described in the law as AA. In spring 2018 the 'Sweetman' European Court of Justice ruling[4] clarified that mitigation (i.e. measures that are specifically introduced to avoid or reduce a harmful effect on a Habitats Site that would otherwise arise) should **not** be taken into account when forming a view on LSEs. Mitigation should instead only be considered at the AA stage.

1.8 In 2018 the Court of Justice of the European Union (CJEU) also ruled in combined cases C-293/17 and C-294/17 (often dubbed the Dutch Nitrogen case). The case related to atmospheric nitrogen deposition from agriculture and the concept of 'headroom' for further deposition. The Dutch government argued that because other measures they were taking (through a national programme known as the PAS) would reduce atmospheric nitrogen deposition considerably, this would create headroom for agricultural growth, such that individual farms would not need AA or mitigation as long as they remained within that headroom. However, there was considerable uncertainty over the effectiveness of the PAS reductions, and even with these taken into account, large areas of the relevant Habitats Sites would still be above the Critical Load (i.e. the threshold below which damage could be ruled out with confidence).

1.9 As a result, the Advocate-General advising the court disagreed with the Dutch Government due to the degree of uncertainty over the effectiveness of the PAS and argued that if the Critical Load was still exceeded, there was effectively no headroom available since damage would still arise from further deposition. In other words, to create sufficient headroom at a national level to entirely avoid the need for AA or mitigation, one would need to not just reduce nitrogen inputs from other sources but do so to such an extent the damage thresholds for the Habitats Site was no longer exceeded. The Court concurred, ruling that where a site is already in a negative state the room for permitting further harm is necessarily limited. The RLDP HRA will be mindful of these rulings.

Quality Assurance

1.10 This report was undertaken in line with AECOM's Integrated Management System (IMS). Our IMS places great emphasis on professionalism, technical excellence, quality, environmental and Health and Safety management. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2008 and 14001:2004 and BS

[3] The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: *"When human activities may lead to morally unacceptable harm* [to the environment] *that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis".*
[4] People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

OHSAS 18001:2007. In addition, our IMS requires careful selection and monitoring of the performance of all sub-consultants and contractors.

1.11 All AECOM Ecologists working on this project are members (at the appropriate level) of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct (CIEEM, 2019).

2. Methodology

2.1 The HRA has been carried out with reference to the general EC guidance on HRA[5]; the UK government has also produced its own guidance[6]. Figure 2 below outlines the stages of HRA according to this guidance. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

Figure 2: Four Stage Approach to Habitats Regulations Assessment. Source EC, 2001[1].

Description of HRA Tasks

HRA Task 1 – Screening for Likely Significant Effects (LSEs)

2.2 Following evidence gathering, the first stage of any HRA is a screening for LSEs. This is a brief, high-level assessment to decide whether the full subsequent stage known as AA is required. The essential question is:

”Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant effect upon Habitats Sites?”

2.3 The objective is to ‘screen out’ those plans and projects that can, without any detailed appraisal, be concluded to be unlikely to result in significant adverse effects upon Habitats Sites. This is usually because there is no mechanism for an adverse interaction. The LSEs screening is based on identification of impact sources, potential pathways linking to ecological receptors and assessment of relevant Habitats Sites at risk from development. These are normally designated features but also include habitats and species fundamental to those designated features achieving favourable conservation status (notably functionally linked habitats outside Habitats Site boundaries).

2.4 In the Waddenzee case[7], the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive, including that:

[5] European Commission (2001): Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological Guidance on the Provisions of Article 6(3) and 6(4) of the Habitats Directive.
[6] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site
[7] Case C-127/02

- An effect should be considered 'likely', "*if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site*" (para 44);
- An effect should be considered 'significant', "*if it undermines the conservation objectives*" (para 48); and
- Where a plan or project has an effect on a site "*but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned*" (para 47).

2.5 Therefore, the LSEs screening consists of two parts: Firstly, it determines whether there are any policies that could result in negative impacts on ecological receptors and secondly it evaluates whether there are any Habitats Sites that might be affected. This HRA identifies Habitats Sites that could be affected by the RLDP and the impact pathways most likely requiring consideration.

2.6 Due to the aforementioned 2018 case law, the conclusion of 'no LSEs' must not take account of any measures specifically introduced to avoid or reduce harm to Habitats Sites. Embedded measures (i.e. those that are integral to the plan itself) can be considered at this stage but other types of mitigation must be deferred to the AA. It is also important to note that the LSEs screening must generally follow the Precautionary Principle as its main purpose is to determine whether the subsequent stage of AA (i.e. a more detailed investigation) is required.

HRA Task 2 – Appropriate Assessment (AA)

2.7 Where it is determined that LSEs cannot be excluded, the analysis must proceed to the next stage of HRA known as AA. Case law has clarified that 'Appropriate Assessment' is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to AA rather than the screening for LSEs. AA refers to whatever level of assessment is appropriate to form a conclusion regarding effects on the integrity (coherence of structure and function) of Habitats Sites in light of their Conservation Objectives.

2.8 There is a clear implication that the analysis in the AA should be more detailed than undertaken at the LSEs stage. One of the key considerations in the AA is whether there is available mitigation that would entirely address the potential effect. In practice, the AA takes any policies or allocations that could not be dismissed following the high-level LSEs screening and assesses the potential for an effect in more detail. The purpose is to conclude whether there would actually be an adverse effect on site integrity (in other words, disruption of the coherent structure and function of Habitats Site(s)). In evaluating significance, AECOM will rely on professional judgement, interpretation of bespoke studies and previous stakeholder consultation regarding potential impacts of development.

2.9 In 2018 the Holohan ruling[8] was handed down by the European Court of Justice. This included paragraph 39 which stated that 'As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, … typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area' [emphasis added]. This is particularly important regarding the potential loss of functionally linked habitat in relation to the Severn Estuary SPA/Ramsar.

2.10 Where necessary, measures have been recommended for incorporation into the RLDP to avoid or mitigate adverse effects on Habitats Sites. There is considerable precedent, both nationally and locally, concerning the level of detail that a Plan document needs to contain regarding mitigation of identified impact pathways, such as recreational pressure. The implication of this is that it is not necessary for all measures to be fully deployed or developed prior to adoption of the RLDP, but the planning document must provide an adequate policy framework within which these measures can be delivered. When discussing mitigation at a strategic plan level, one is concerned primarily with the policy framework to enable the delivery of such mitigation rather than the detail of the mitigation measures themselves.

[8] Case C-461/17

HRA Task 3 – Avoidance and Mitigation

2.11 Once the AA has been completed there may be a requirement for avoidance or mitigation. This will most likely encompass suggestions for amendments to policy wording, or the identification of strategic mitigation solutions for smaller sites unlikely to be able to deliver their own mitigation. The purpose is to ensure an adequate framework exists to protect Habitats Sites from any potential adverse effects.

2.12 Consideration should also be given to the role of any new legal requirements that may emerge during the RLDP process. Delivering land to achieve Biodiversity Net Gain could potentially be co-located with mitigation solutions required for recreational pressure, such as by increasing the amount of available recreational greenspace and delivering significant biodiversity enhancements at the same time. For example, a country park could be zoned to provide both considerable biodiversity benefits and significant recreational opportunity. Moreover, any large area of Biodiversity Net Gain is likely to be informally used for recreation unless steps are taken to physically exclude the general public. To achieve this dual benefit, any proposed site for co-location would need to be large and meet formal SANG or Heathland Infrastructure Project (HIP) criteria[9].

2.13 There is significant value in committing to building a strong network of greenspaces, large parks and accessible Green/Blue Infrastructure corridors in the RLDP process from the outset, located appropriately to draw new residents away from sensitive Habitats Sites. This is likely to be required in addition to working with landowners and managers of designated sites to address the direct effects of increased recreational pressure within the site boundaries. At other Habitats Sites for which recreational pressure is a concern, the latter is often achieved through providing Strategic Access Management & Monitoring (SAMM), although landowner involvement is essential.

2.14 Department for Levelling Up, Housing & Communities (DLUHC) and Ministry of Housing, Communities and Local Government (MHCLG) guidance[10] makes it clear that when undertaking HRAs of land-use plans, the AA should be undertaken at a level of detail that is appropriate and proportional to the level of detail provided within the plan itself:

- "*The comprehensiveness of the [Appropriate] assessment work undertaken should be proportionate to the geographical scope of the option and the nature and extent of any effects identified. An AA need not be done in any more detail, or using more resources, than is useful for its purpose. It would be inappropriate and impracticable to assess the effects [of a strategic land use plan] in the degree of detail that would normally be required for the Environmental Impact Assessment (EIA) of a project.*"

- The Court of Appeal[11] ruled that providing the Council (in their role as Competent Authority) was duly satisfied that proposed mitigation could be '*achieved in practice*' to satisfy that the proposed development would have no adverse effect, then this would suffice. This ruling has since been applied to a planning permission (rather than a Local Plan)[12]. In that case the High Court ruled that for *'a multistage process, so long as there is sufficient information at any particular stage to enable the authority to be satisfied that the proposed mitigation can be achieved in practice it is not necessary for all matters concerning mitigation to be fully resolved before a decision maker is able to conclude that a development will satisfy the requirements of Regulation 102 of the Habitats Regulations*'.

2.15 In other words, there is an acceptance that AA can be tiered and that all impacts are not necessarily appropriate for consideration to the same degree of detail at all tiers. The fullest level of detail is required at the reserved matters or full planning application stage that it is '*sufficiently certain that a measure will make an effective contribution to avoiding harm, guaranteeing beyond*

[9] https://www.woking2027.info/allocations/sadpdexam/neguidelinessang
[10] Department for Levelling up, housing and communities 2019. Guidance on Appropriate assessment https://www.gov.uk/government/organisations/department-for-levelling-up-housing-and-communities https://www.gov.uk/guidance/appropriate-assessment [accessed 17/11/2022]
[11] No Adastral New Town Ltd (NANT) v Suffolk Coastal District Council Court of Appeal, 17th February 2015
[12] High Court case of R (Devon Wildlife Trust) v Teignbridge District Council, 28 July 2015

all reasonable doubt that the project will not adversely affect the integrity of the area', as per Cooperatie Mobilisation [2019] Env LR (CSFG§97).

2.16 Similarly, in any strategic planning document, there are numerous policies for which there is a limit to the degree of assessment that is possible at this level. This is because either:

- The policy in question does not contain any specifics as to what will be delivered so cannot be assessed in detail at the plan level. In this case, the AA would focus on precautionary mitigation that can be included in the plan to ensure that whatever proposals come forward will not result in adverse effects on integrity; or
- The nature of the potential impacts (notably lighting, noise and visual disturbance during construction, or loss of functionally linked habitat) are very closely related to exactly where and how the development will be delivered. Therefore, these impact pathways cannot be assessed in detail at the plan level. In these instances, the AA centres around available mitigation measures, the extent to which such measures would be achievable / effective and whether an adequate protective policy framework exists to ensure that development coming forward under the relevant policies will not lead to adverse effects on the integrity of Habitats Sites.

2.17 On these occasions the advice of Advocate-General Kokott[13] is worth considering. She commented that: *'It would …hardly be proper to require a greater level of detail in preceding plans* [rather than planning applications] *or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure* ***to the extent possible on the basis of the precision of the plan***. ***This assessment is to be updated with increasing specificity in subsequent stages of the procedure'*** [emphasis added]. This is the approach taken in the HRA and is in line with the Department for Levelling Up Housing and Communities guidance referenced in paragraph 4.27, and Court rulings that regarding level of detail of the assessment which is appropriate at each stage of the planning process.

In-Combination Assessment

2.18 It is a requirement of the Regulations that the impacts and effects of any plan document are not only considered in isolation but in-combination with other plans and projects that may also be exerting pressures on the relevant Habitats Site(s). In practice, in-combination assessment is of greatest importance when a policy would otherwise be screened out because its individual contribution is not significant. Table 1 summarises the key strategic Local Development Plans with the potential for in-combination impacts with the Vale of Glamorgan RLDP.

Table 1: Strategic development plans with the potential for in-combination effects due to proximity to the Vale of Glamorgan and relevant Habitats Sites.

Strategic Plan	Residential Growth	Employment Growth
Bridgend County Borough Local Development Plan 2018-2033[14]	8,628 dwellings (prioritised on previously developed land)	68.8ha
Rhondda Cynon Taf Local Development Plan 2006-2021[15]	14,385 dwellings (in sustainable locations)	51ha

[13] Opinion of Advocate General Kokott, 9th June 2005, Case C-6/04. Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland, paragraph 49
http://curia.europa.eu/juris/document/document.jsf?docid=58359&doclang=EN
[14] Bridgend County Borough Local Development Plan. (Adopted March 2024). Available at:
https://www.bridgend.gov.uk/media/izcfgp1f/written-statement.pdf [Accessed on the 07/10/2025]
[15] Rhondda Cynon Taf Local Development Plan. (Adopted March 2011). Available at:
https://www.rctcbc.gov.uk/EN/Resident/PlanningandBuildingControl/LocalDevelopmentPlans/RelateddocumentsLDP20062021/AdoptedLocalDevelopmentPlan.pdf [Accessed on the 07/10/2025]

Cardiff Local Development Plan 2006-2026[16]	45,415 dwellings	N/A (no hectarage provided, but 40,000 new jobs to be delivered)

2.19 At the level of strategic development plans, such as RLDPs, it is the total in-combination growth quantum that is the primary focus of assessment rather than the detail of individual allocations (which will be assessed through their own HRA at the planning application level). Individual planning applications are only considered in the in-combination assessment where they have national significance or are particularly extensive. For example, a development delivering 500 dwellings or more would need to be considered in an appraisal of cumulative recreational pressure impacts.

2.20 Notwithstanding this, when undertaking in-combination assessment for specific development sites, it is important to avoid double-counting since housing and employment projects that deliver growth will usually themselves be part of the strategic plan as site allocations. In these instances, the development of a planning application can be considered to provide further detail on growth that is already being assessed. Similarly, where growth is being delivered in surrounding authorities this is captured in the in-combination assessment through consideration of the relevant adopted LDPs or emerging RLDPs, which set out the total amount of growth delivered across the authorities over the relevant timescales.

Geographical Scope

2.21 There are no standard criteria for determining the physical scope of an HRA. Rather, the source-pathway-receptor model should be used to determine whether there are potential linking impact pathways connecting to development allocated in the plan document. Based on an assessment of the available evidence, the following Habitats Sites were included in the scope of assessment (see Appendix A for a map showing their distribution in relation to the Vale of Glamorgan):

- Severn Estuary SAC/SPA/Ramsar;
- Dunraven Bay SAC;
- Kenfig SAC;
- Cardiff Beech Woods SAC;
- Cefn Cribwr Grasslands SAC; and,
- Blackmill Woodlands SAC.

2.22 To fully inform this HRA, several reports, studies and databases were consulted to determine whether LSEs and, potentially, adverse effects may arise from the Vale of Glamorgan RLDP. These include:

- LDPs and accompanying HRAs (where available) for the adjoining authorities of Bridgend, Rhondda Cynon Taf and Cardiff;
- Visitor survey undertaken by AECOM on the Welsh side of the Severn Estuary SAC/SPA/Ramsar for the authorities of Monmouthshire and Torfaen and discussed in the published Monmouthshire RLDP and its HRA;
- Final 2024 Water Resources Management Plan (WRMP) published by Welsh Water and its associated HRA;
- Countryside Council for Wales' (now Natural Resources Wales) Core Management Plans for all relevant Habitats Sites; and
- Multi Agency Geographic Information for the Countryside (MAGIC) and its links to SSSI citations and the JNCC website (www.magic.gov.uk).

[16] Cardiff Local Development Plan. (Adopted January 2016). Available at: https://www.cardiffldp.co.uk/wp-content/uploads/Final-Adopted-Local-Development-Plan-English.pdf [Accessed on the 07/10/2025]. It is to be noted that Cardiff Council is currently preparing their own RLDP which is at the Deposit Plan stage. However, for the purposes of this HRA the currently adopted RLDP has been used as the in-combination baseline.

3. Habitats Sites

3.1 In the case of the Vale of Glamorgan RLDP, it was determined that for the initial coarse screening Habitats Sites within 15km of the authority boundary require consideration (Table 2). Their geographic location is illustrated in **Appendix A, Figure A1**.

Table 2: Relevant Habitats Sites and their location in relation to the Vale of Glamorgan.

Habitats Site	Location
Severn Estuary SAC/SPA/Ramsar	This is an extensive estuarine site that stretches along the eastern side of the authority boundary and also directly adjoins Cardiff, Newport and Monmouthshire.
Dunraven Bay SAC	This SAC lies in the western part of the authority.
Kenfig SAC	The site is located immediately north of the Vale of Glamorgan in the adjoining authority of Bridgend.
Cardiff Beech Woods SAC	The closest component part of this SAC to the Vale of Glamorgan lies approx. 3.5km to the north-east in the adjoining authority of Cardiff.
Cefn Cribwr Grasslands SAC	The closest component part of the Cefn Cribwr Grasslands SAC lies approx. 5.2km to the north in the adjoining authority of Bridgend.
Blackmill Woodlands SAC	The closest component part of this SAC to the Vale of Glamorgan lies approx. 6km to the north in the adjoining authority of Bridgend.

Severn Estuary SAC

Introduction

3.2 The Severn Estuary SAC was designated as a SAC in 2009, because it supports a significant number of habitats and species. It covers an area of 74,000ha and is designated partly for its estuary feature. Within this feature, subtidal sandbanks, intertidal mudflats and sandflats, Atlantic salt meadows and biogenic reefs are included. The SAC also harbours three migratory fish species, including river lamprey, sea lamprey and twaite shad. The Severn Estuary also comprises hard substrate habitats, an assemblage of 114 estuarine and marine fish species and various waterfowl species. The Severn Estuary SAC overlaps with the Severn Estuary SPA/Ramsar, designated for a range of overwintering waders and waterfowl.

Qualifying Features[17]

3.3 Annex I habitats that are a primary reason for selection of this site:

- Estuaries
- Mudflats and sandflats not covered by seawater at low tide
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

3.4 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Sandbanks which are slightly covered by sea water all the time
- Reefs

3.5 Annex II species that are a primary reason for selection of this site:

- Sea lamprey *Petromyzon marinus*

[17] https://sac.jncc.gov.uk/site/UK0013030 [Accessed on the 25/04/2023]

- River lamprey *Lampetra fluviatilis*
- Twaite shad *Alosa fallax*

Conservation Objectives[18]

3.6 **The conservation objective for the "estuaries" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below.**

3.7 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met

- the total extent of the estuary is maintained;
- the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained;
- the characteristic range and relative proportions of sediment sizes and sediment budget within the site is maintained;
- the extent, variety and spatial distribution**4** of estuarine habitat communities within the site is maintained;
- the extent, variety, spatial distribution and community composition of hard substrate habitats and their notable communities is maintained;
- the abundance of the notable estuarine species assemblages is maintained or increased;
- the physico-chemical characteristics of the water column support the ecological objectives described above;
- toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological objectives described above; and
- airborne nutrient and contaminant loads are below levels which would pose a risk to the ecological objectives described above.

3.8 **The conservation objective for the "subtidal sandbanks" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below.**

3.9 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the total extent of the subtidal sandbanks within the site is maintained;
- the extent and distribution of the individual subtidal sandbank communities within the site is maintained;
- the community composition of the subtidal sandbank feature within the site is maintained;
- the variety and distribution of sediment types across the subtidal sandbank feature is maintained; and
- the gross morphology (depth, distribution and profile) of the subtidal sandbank feature within the site is maintained.

3.10 **The conservation objective for "mudflats and sandflats" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below.**

3.11 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

[18] https://publications.naturalengland.org.uk/file/3977366 [Accessed on the 07/10/2025]

- The total extent of the mudflats and sandflats feature is maintained;
- the variety and extent of individual mudflats and sandflats communities within the site is maintained;
- the distribution of individual mudflats and sandflats communities within the site is maintained;
- the community composition of the mudflats and sandflats feature within the site is maintained; and
- the topography of the intertidal flats and the morphology (dynamic processes of sediment movement and channel migration across the flats) are maintained.

3.12 **The conservation objective for the "Atlantic salt meadow" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below.**

3.13 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the total extent of Atlantic salt meadow and associated transitional vegetation communities within the site is maintained;
- the extent and distribution of the individual Atlantic salt meadow and associated transitional vegetation communities within the site is maintained;
- the zonation of Atlantic salt meadow vegetation communities and their associated transitions to other estuary habitats is maintained;
- the relative abundance of the typical species of the Atlantic salt meadow and associated transitional vegetation communities is maintained;
- the abundance of the notable species of the Atlantic salt meadow and associated transitional vegetation communities is maintained;
- the structural variation of the salt marsh sward (resulting from grazing) is maintained within limits sufficient to satisfy the requirements of conditions iv and v above and the requirements of the Ramsar and SPA features;
- the characteristic stepped morphology of the salt marshes and associated creeks, pills, drainage ditches and pans, and the estuarine processes that enable their development, is maintained; and
- Any areas of Spartina anglica salt marsh (SM6) are capable of developing naturally into other saltmarsh communities.

3.14 **The conservation objective for the "reefs" feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below.**

3.15 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the total extent and distribution of Sabellaria reef is maintained;
- the community composition of the Sabellaria reef is maintained;
- the full range of different age structures of Sabellaria reef are present; and
- the physical and ecological processes necessary to support Sabellaria reef are maintained.

3.16 **The conservation objective for the river lamprey Lampetra fluviatilis feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:**

3.17 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the migratory passage of both adult and juvenile river lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;
- the size of the river lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;
- the abundance of prey species forming the river lamprey's food resource within the estuary, is maintained; and
- Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.

3.18 **The conservation objective for the sea lamprey Petromyzon marinus feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below.**

3.19 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the migratory passage of both adult and juvenile sea lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;
- the size of the sea lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained as is at a level that is sustainable in the long term;
- the abundance of prey species forming the sea lamprey's food resource within the estuary, is maintained; and
- Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.

3.20 **The conservation objective for the twaite Shad Alosa fallax feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below.**

3.21 The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the migratory passage of both adult and juvenile twaite shad through the Severn Estuary between the Bristol Channel and their spawning rivers is not obstructed or impeded by physical barriers, changes in flows or poor water quality;
- the size of the twaite shad population within the Severn Estuary and the rivers draining into it is at least maintained and is at a level that is sustainable in the long term.
- the abundance of prey species forming the twaite shad's food resource within the estuary, in particular at the salt wedge, is maintained; and
- Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.

Threats and Pressures to Site Integrity[19]

3.22 The following threats and pressures to the site integrity of the Severn Estuary SAC have been identified in Natural England's Site Improvement Plan:

- Public access / disturbance

[19] http://publications.naturalengland.org.uk/publication/4590676519944192 [Accessed on the 07/10/2025]

- Physical modification
- Impacts of development
- Coastal squeeze
- Change in land management
- Changes in species distributions
- Water pollution
- Air pollution: Impact of atmospheric nitrogen deposition
- Marine consents and permits: Minerals and waste
- Fisheries: Recreational marine and estuarine
- Fisheries: Commercial marine and estuarine
- Invasive species
- Marine litter
- Marine pollution incidents

Severn Estuary SPA/Ramsar

Introduction

3.23 The Severn Estuary SPA/Ramsar is located between the borders of Wales and England in south-western Britain. It is a 24,700.91ha large estuary with extensive intertidal mudflats, sandflats, rocky platforms and small islands. The coastline is fringed by saltmarsh, grazing marsh, freshwater and brackish ditches. Its seabed is mainly rocky, gravelly and sub-tidal sandbanks. Due to the estuary's funnel shape, the Severn experiences the second highest tidal range in the world.

3.24 Because of this extreme tidal condition, the SPA/Ramsar is inhabited by plant and animal assemblages that tolerate the physical conditions in the tidal-swept liquid mud, sand and rock. The invertebrate community is species-poor and harbours high densities of ragworms and lugworms. These form important food sources for migrant and wintering waders. The SPA/Ramsar has particular importance as a stopover point for spring and autumn migrant waders, and overwintering swans, ducks and waders. The site also has an extensive intertidal zone, as a consequence of its tidal range.

SPA Qualifying Features[20]

3.25 This site qualifies under **Article 4.1** of the Directive (79/409/EEC) by supporting populations (counts are all at time of designation and could have changed since) of European importance of the following species listed on Annex I of the Directive:

Over winter

- Bewick's swan *Cygnus columbianus bewickii*, 280 individuals representing at least 4.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)

3.26 This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage

[20] http://archive.jncc.gov.uk/default.aspx?page=2066 [Accessed on the 07/10/2025]

- Ringed plover *Charadrius hiaticula*, 655 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)

Over winter

- Curlew *Numenius arquata*, 3,903 individuals representing at least 1.1% of the wintering Europe - breeding population (5 year peak mean 1991/2 - 1995/6)
- Dunlin *Calidris alpina alpina*, 44,624 individuals representing at least 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6)
- Pintail *Anas acuta*, 599 individuals representing at least 1.0% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)
- Redshank *Tringa totanus*, 2,330 individuals representing at least 1.6% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6)
- Shelduck *Tadorna tadorna*, 3,330 individuals representing at least 1.1% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance

3.27 The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.

3.28 Over winter, the area regularly supports 93,986 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Gadwall *Anas strepera*, shelduck *Tadorna tadorna*, pintail *Anas acuta*, dunlin *Calidris alpina alpina*, curlew *Numenius arquata*, redshank *Tringa totanus*, Bewick's swan *Cygnus columbianus bewickii*, wigeon *Anas penelope*, lapwing *Vanellus vanellus*, teal *Anas crecca*, mallard *Anas platyrhynchos*, shoveler *Anas clypeata*, pochard *Aythya ferina*, tufted duck *Aythya fuligula*, grey plover *Pluvialis squatarola*, white-fronted goose *Anser albifrons albifrons*, whimbrel *Numenius phaeopus*.

Ramsar Qualifying Features[21]

3.29 The Severn Estuary is designated as a Ramsar site under the following criteria:

Criterion 1

Due to the immense tidal range (second-largest in world), which affects both the physical environment and biological communities

Habitats Directive Annex I features present include sandbanks which are slightly covered by sea water all the time, estuaries, mudflats and sandflats not covered by sweater at low tide and Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

Criterion 3

Due to unusual estuarine communities, reduced diversity and high productivity

Criterion 4

This site is important for the run of migratory fish between sea and river via estuary. Species include salmon *Salmo salar*, sea trout *S. trutta*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa*, twaite shad *A. fallax*, and eel *Anguilla anguilla*. It is also of particular importance for migratory birds during spring and autumn.

Criterion 5: Assemblages of international importance

Species with peak counts in winter

70,919 waterfowl (5 year peak mean 1998/99-2002/2003).

[21] https://jncc.gov.uk/jncc-assets/RIS/UK11081.pdf [Accessed on the 07/10/2025]

Criterion 6: Species / populations occurring at levels of international importance

Species with peak counts in winter

- Tundra swan *Cygnus columbianus bewickii*; 229 individuals representing an average of 2.8% of the GB population (5 year peak mean 1998/99-2002/03)
- Greater white-fronted goose *Anser albifrons*; 2,076 individuals representing an average of 35.8% of the GB population (5 year peak mean 1996/97-2000/01)
- Common shelduck *Tadorna tadorna*; 3,223 individuals representing an average of 1% of the NW Europe population (5 year peak mean 1998/99-2002/03)
- Gadwall *Anas strepera strepera*; 241 individuals representing an average of 1.4% of the GB population (5 year peak mean 1998/99-2002/03)
- Dunlin *Calidris alpina alpina*; 25,082 individuals representing an average of 1.8% of the W Siberia and W Europe population (5 year peak mean 1998/99-2002/03)
- Common redshank *tringa totanus tetanus*; 2,616 individuals representing an average of 1% of the population (5 year peak mean 1998/99-2002/03)

Species / populations identified subsequent to designation for possible future consideration under criterion 6

Species regularly supported during the breeding season

- Lesser black-backed gull *Larus fuscus graellsii*; 4,167 apparently occupied nests, representing an average of 2.8% of the breeding population (Seabird 2000 Census)

Species with peak counts in spring / autumn

- Ringed plover *Charadrius hiaticula*; 740 individuals representing an average of 1% of the Europe and NW Africa population (5 year peak mean 1998/99-2002/03)

Species with peak counts in winter

- Eurasian teal *Anas crecca*; 4,456 individuals representing an average of 1.1% of the NW Europe population (5 year peak mean 1998/99-2002/03)
- Northern pintail *Anas acuta*; 756 individuals representing an average of 1.2% of the NW Europe population (5 year peak mean 1998/99-2002/03)

Criterion 8

The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon *Salmo salar*, sea trout *S. trutta*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis*, allis shad *Alosa alosa*, twaite shad *A. fallax*, and eel *Anguilla anguilla* use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad *Alosa alosa* and twaite shad *A. fallax* which feed on mysid shrimps in the salt wedge.

SPA Conservation Objectives[22]

3.30 **The conservation objective is to maintain the Bewick's swan population and its supporting habitats in favourable condition, as defined below.**

3.31 The interest feature Bewick's swan will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the 5 year peak mean population size for the Bewick's swan population is no less than 289 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);

[22] https://publications.naturalengland.org.uk/file/3977366 [Accessed on the 07/10/2025]

- the extent of saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;
- the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose (Appendix 8: Map 1) is maintained;
- the extent of vegetation with an effective field size of >6 ha and with unrestricted bird sightlines > 500m at feeding, roosting and refuge sites (Appendix III) are maintained;
- greater than 25% cover of suitable soft leaved herbs and grasses in winter season throughout the transitional saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained; and
- aggregations of Bewick's swan at feeding, roosting and refuge sites are not subject to significant disturbance.

3.32 **The conservation objective is to maintain the European white-fronted goose population and its supporting habitats in favourable condition, as defined below.**

3.33 The interest feature European white-fronted goose will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the 5 year peak mean population size for the wintering European white fronted goose population is no less than 3,002 individuals (ie the 5 year peak mean between 1988/9-1992/3);
- the extent of saltmarsh at the Dumbles (Appendix 8: Map 1) is maintained;
- the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose (Appendix 8: Map 1) is maintained;
- greater than 25% cover of suitable soft-leaved herbs and grasses is maintained during the winter on saltmarsh areas (Appendix 8: Map 1);
- unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; and
- aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance.

3.34 **The conservation objective is to maintain the dunlin population and its supporting habitats in favourable condition, as defined below.**

3.35 The interest feature dunlin will be considered to be in favourable condition when, subject to natural processes , each of the following conditions are met:

- the 5 year peak mean population size for the wintering dunlin population is no less than 41,683 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- the extent of saltmarsh (Appendix 8)and associated strandlines is maintained;
- the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- the extent of hard substrate habitats (Appendix 8) is maintained;
- the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh (Appendix 8);
- the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats (Appendix 8) is maintained;
- the abundance and macro-distribution of suitable invertebrates in hard substrate habitats (Appendix 8) is maintained;
- unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; and
- aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance.

3.36 **The conservation objective is to maintain the redshank population and its supporting habitats in favourable condition, as defined below.**

3.37 The interest feature redshank will be considered to be in favourable condition when, subject to natural processes each of the following conditions are met:

- the 5 year peak mean population size for the wintering redshank population is no less than 2,013 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- the extent of saltmarsh (Appendix 8) and associated strandlines is maintained;
- the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- the extent of hard substrate habitats (Appendix IV) is maintained;
- the extent of vegetation with a sward height of <10cm throughout the saltmarsh (Appendix 8) is maintained;
- the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats (Appendix 8) is maintained;
- the abundance and macro-distribution of suitable invertebrates in hard substrate habitats (Appendix 8) is maintained;
- unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; and
- aggregations of redshank at feeding or roosting sites are not subject to significant disturbance.

3.38 **The conservation objective is to maintain the shelduck population and its supporting habitats in favourable condition, as defined below.**

3.39 The interest feature shelduck will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the 5 year peak mean population size for the wintering shelduck population is no less than 2,892 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- the extent of saltmarsh (Appendix 8) is maintained;
- the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- the extent of hard substrate habitats (Appendix 8) is maintained;
- the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats (Appendix 8) is maintained;
- unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; and
- aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance.

3.40 **The conservation objective is to maintain the gadwall population and its supporting habitats in favourable condition, as defined below.**

3.41 The interest feature gadwall will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the 5 year peak mean population size for the wintering gadwall population is no less than 330 (ie the 5 year peak mean between 1988/9 - 1992/3);
- the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; and
- aggregations of gadwall at feeding or roosting sites are not subject to significant disturbance.

3.42 **The conservation objective is to maintain the waterfowl assemblage and its supporting habitats in favourable condition, as defined below.**

3.43 The interest feature waterfowl assemblage will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:

- the 5 year peak mean population size for the waterfowl assemblage is no less than 68,026 individuals (ie the 5 year peak mean between 1988/9 - 1992/3);
- the extent of saltmarsh (Appendix 8) and their associated strandlines is maintained;
- the extent of intertidal mudflats and sandflats (Appendix 8) is maintained;
- the extent of hard substrate habitats (Appendix 8) is maintained;
- extent of vegetation of <10cm throughout the saltmarsh (Appendix 8) is maintained;
- the abundance and macroscale distribution of suitable invertebrates in intertidal mudflats and sandflats (Appendix 8) is maintained;
- the abundance and macroscale distribution of suitable invertebrates in hard substrate habitats (Appendix IV) is maintained;
- greater than 25% cover of suitable soft leaved herbs and grasses during the winter on saltmarsh areas (Appendix 8) is maintained;
- unrestricted bird sightlines of >500m at feeding and roosting sites are maintained; and
- waterfowl aggregations at feeding or roosting sites are not subject to significant disturbance.

Threats and Pressures to Site Integrity of SPA[23]

3.44 The following threats and pressures to the site integrity of the Severn Estuary SPA have been identified in Natural England's Site Improvement Plan:

- Public access / disturbance
- Physical modification
- Impacts of development
- Coastal squeeze
- Change in land management
- Changes in species distributions
- Water pollution
- Air pollution: Impact of atmospheric nitrogen deposition
- Marine consents and permits: Minerals and waste
- Fisheries: Recreational marine and estuarine
- Fisheries: Commercial marine and estuarine
- Invasive species
- Marine litter
- Marine pollution incidents

[23] http://publications.naturalengland.org.uk/publication/4590676519944192 [Accessed on the 07/10/2025]

Dunraven Bay SAC

Introduction

3.45 The Dunraven Bay SAC is a 6.45ha large site comprising a range of habitats, including shingle / sea cliffs (26.5%), humid / mesophile grassland (25%), dry grassland / steppes (18.5%), improved grassland (17.5%) and broad-leaved deciduous woodland (12.5%). The site is situated on a southwest facing cliff about 1km south-east of the village of Southerndown in the Vale of Glamorgan. Due to the eroding nature of the coastline, the SAC population has now declined to six individuals due to cliff slides removing plants.

3.46 Its shore dock population of approx. 20 individual plants is the reason for designation of this site. The species lives on damp coastal limestone and is the only remnant of the former Bristol Channel range. The primary causal factor for the disappearance of this species at other sites is the disappearance of damp dune slacks and shingle banks. For this reason, the Dunraven Bay population is a significant seed source for potential recolonisation of dunes and beach heads in the Bristol Channel, once the supporting habitats have been restored to favourable condition.

Qualifying Features[24]

3.47 Annex II species that are a primary reason for selection of this site:

- Shore dock *Rumex rupestris*

Conservation Objectives[25]

3.48 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

3.49 The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as ‘favourable’ when:

- Population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Threats / Pressures to Site Integrity[26]

3.50 The Countryside Council Wales (CCW) specifies the following threats and pressures to the integrity of the Dunraven Bay SAC in the Core Management Plan for the site:

- Erosion and cliff fall

[24] Available at: https://sac.jncc.gov.uk/site/UK0030139 [Accessed on the 07/10/2025]
[25] Available at: https://naturalresources.wales/media/671785/Dunraven%20Core%20SAC%20plan%2015.4.08.pdf [Accessed on the 07/10/2025]
[26] Ibid.

- Scrub

Kenfig SAC

Introduction

3.51 The Kenfig SAC is an extensive site covering 1,189.14ha and comprising a diverse range of habitats, including coastal sand dunes / sand beaches (63%), tidal rivers / estuaries (19%), heath / scrub (7.5%), shingle / sea cliffs (4%), inland waterbodies (2.5%), broad-leaved deciduous woodland (2.5%), salt marshes / salt pastures (1%) and bogs / marshes (0.5%). Owing to its ecological complexity, the SAC is designated for a range of habitats.

3.52 Kenfig represents a largely intact dune system in south Wales with extensive sections of fixed dune vegetation, comprising red fescue *Festuca rubra* and lady's bedstraw *Galium verum*. Semi-fixed dune grassland with marram *Ammophila arenaria* is also present. More acidic vegetation within this habitat includes sand sedge *Carex arenaria*, sheep's-fescue *Festuca ovina* and common bent *Agrostis capillaris*.

3.53 Humid dune slacks are another dune habitat type found within the SAC, which supports the most important example of this habitat in the UK, both in terms of its conservation, structure and function. These calcareous slacks are also among the most species-rich in the UK, supporting assemblages of fen orchid *Liparis loeselii* and various mosses. Some of the dune slacks within the site are still in the early successional stage of development.

Qualifying Features[27]

3.54 Annex I habitats that are a primary reason for selection of this site:

- Fixed coastal dunes with herbaceous vegetation ('grey dunes') (* priority feature)
- Dunes with *Salix repens* ssp. *Argentea* (*Salicion arenariae*)
- Humid dunes slacks
- Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.

3.55 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

3.56 Annex II species that are a primary reason for selection of this site:

- Petalwort *Petalophyllum ralfsii*
- Fen orchid *Liparis loeselii*

Conservation Objectives[28]

3.57 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

[27] Available at: https://sac.jncc.gov.uk/site/UK0012566 [Accessed on the 07/10/2025]
[28] Available at: https://naturalresources.wales/media/672610/Kenfig%20SAC%20management%20plan%2021.4.08%20English.pdf [Accessed on the 07/10/2025]

3.58 The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- Population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Threats / Pressures to Site Integrity[29]

3.59 The following factors affecting the Kenfig SAC are specified in Countryside Council Wales' Core Management Plan for the site:

- Livestock grazing
- Water level
- Water quality
- Natural coastal processes
- Recreational and visitor pressure
- Scrub encroachment
- Air quality
- Agricultural runoff
- Hydrology
- Fishery management
- Introduced alien / exotic species
- Changes in access and recreation
- River bank erosion / sediment deposition
- Trampling by horses
- Pollution
- *Frankenia laevis*

Cardiff Beech Woods SAC

Introduction

3.60 The Cardiff Beech Woods SAC is a 114.45ha large site comprising broad-leaved deciduous woodland (99.5%) and some developed tracts (0.5%). It represents an area of semi-natural broadleaved woodland dominated by beech. The SAC is considered one of the best examples of beech forest in the UK, representing this habitat close to its western limit of distribution. Mosaics and transitions to other woodland types are found throughout the SAC, such as acidic beech woodland and oak *Quercus* and ash *Fraxinus excelsior* woods. Characteristic and notable species in the ground flora include ramsons *Allium ursinum*, sanicle *Sanicula europea*, bird's-nest orchid *Neottia nidus-avis* and yellow bird's-nest orchid *Monotropa hypopitis*.

[29] Ibid.

3.61 The SAC also supports significant stretches of *Tilio-Acerion* forests of slopes, screes and ravines, comprising ash *Fraxinus excelsior*, wych elm *Ulmus glabra* and small-leaved lime *Tilia cordata*. Introduced sycamore *Acer pseudoplatanus* is frequently present throughout.

Qualifying Features[30]

3.62 Annex I habitats that are a primary reason for selection of this site:

- *Asperulo-Fagetum* beech forests

3.63 Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- *Tilio-Acerion* forests of slopes, screes and ravines (* priority feature)

Conservation Objectives[31]

3.64 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

3.65 The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- Population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Threats / Pressures to Site Integrity[32]

3.66 The following performance indicators for factors affecting the Cardiff Beech Woods SAC are specified in CCW's Core Management Plan:

- Recreational use
- Atmospheric pollution
- Development pressure
- Commercial forestry
- Mineral extraction

[30] https://sac.jncc.gov.uk/site/UK0030109 [Accessed on the 07/10/2025]
[31] https://naturalresources.wales/media/672066/FINAL%20Cdf%20Beech%20Woods%20SAC%20Man%20Plan.pdf [Accessed on the 07/10/2025]
[32] Ibid.

Cefn Cribwr Grasslands SAC

Introduction

3.67 The Cefn Cribwr Grasslands SAC is a 57.92ha large site encompassing humid / mesophile grassland (64%), broad-leaved deciduous woodland (25%), heath / scrub (10%) and bogs / marshes (1%). The SAC represents one of four sites selected in south and central Wales to support *Molinia* meadows. Within the site there are extensive stands of *Molinia – Cirsium dissectum* fen-meadow (M24) with cross-leaved heath *Erica tetralix*. Transitions to more acidic *Molinia* and *Juncus* pasture, dry neutral grassland and wet scrub vegetation are well represented. Notable declining species within the SAC are wiper's-grass *Scorzonera humilis* and soft-leaved sedge *Carex montana*.

3.68 Another feature of conservation importance within the site are the marsh fritillary populations, a species that is considered endangered in Europe. The occurrence of the species is tightly linked to its food plant devil's bit scabious. Recent research indicates that the ability of this species to recolonise new geographic areas is limited, with swathes of suitable habitat being required in close proximity. Marsh fritillary populations have been recorded in three of the SSSI component parts of the SAC (Caeau Cefn Cribwr, Bryn Bach and Pen y Castell).

Qualifying Features[33]

3.69 Annex I habitats that are a primary reason for selection of this site:

- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

3.70 Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Marsh fritillary butterfly *Euphydryas aurinia*

Conservation Objectives[34]

3.71 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

3.72 The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- Population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

[33] Available at: https://sac.jncc.gov.uk/site/UK0030113 [Accessed on the 07/10/2025]
[34] Available at: https://naturalresources.wales/media/671199/Cefn%20Cribwr%20Core%20SAC%20plan%20290108%20English.pdf [Accessed on the 07/10/2025]

Threats / Pressures to Site Integrity[35]

3.73 The following performance indicators for factors affecting the Cefn Cribwr Grasslands SAC are specified in CCW's Core Management Plan:

- Livestock grazing
- Hydrological regime
- Adjacent land use
- Extent and quality of the marshy grassland
- Presence of shelter belts
- Burning

Blackmill Woodlands SAC

Introduction

3.74 The Blackmill Woodlands SAC is a 70.05ha large site comprising broad-leaved deciduous woodland (92.5%) and heath / scrub (7.5%). It is an example of old sessile oak woods at the southernmost extent of the habitat's range in Wales. The ground flora within the woods is limited by the dry conditions of the site, encompassing sessile oak *Quercus petraea*, bilberry *Vaccinium myrtillus* and wavy hair-grass *Deschampsia flexuosa*. Moderate fern and bryophyte cover is also present. Notably, the gnarly appearance of many trees highlight the long history of woodland management within the site.

Qualifying Features[36]

3.75 Annex I habitats that are a primary reason for selection of this site:

- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Conservation Objectives[37]

3.76 The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

3.77 The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- Population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and

[35] Ibid.
[36] Available at: https://sac.jncc.gov.uk/site/UK0030090 [Accessed on the 07/10/2025]
[37] Available at: https://naturalresources.wales/media/670998/Blackmill%20Core%20SAC%20plan%20Jan%2008.pdf [Accessed on the 07/10/2025]

- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Threats / Pressures to Site Integrity[38]

3.78 The following performance indicators for factors affecting the Blackmill Woodlands SAC are specified in CCW's Core Management Plan:

- Livestock grazing
- Non-native species
- Air pollution

[38] Ibid.

4. Background Evidence to Impact Pathways

4.1 Where available, existing evidence and stakeholder knowledge has been drawn upon to inform the HRA of the Vale of Glamorgan RLDP. The following sections discuss existing baseline evidence and its relevance for development in the Vale of Glamorgan. Since leaving the EU (and thus the EUs network of internationally important Natura 2000 sites) the government has placed greater attention on the fact that the UKs international conservation sites are also part of the Bern Convention Emerald Network. All English and Welsh Emerald Network Sites (SPA and SAC sites), have Site Improvement Plans (SIPs) or Core Management Plans produced for them by Natural England/Natural Resources Wales. These documents identify existing threats and pressures to Habitats Sites and are drawn upon to inform this Scoping Report. At the same time, some SIPs are several years old and, therefore, more recent Supplementary Advice on Conservation Objectives is also consulted.

Recreational Pressure

4.2 There is concern over the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites have a dual role of fulfilling Conservation Objectives while also providing recreational opportunity. Various research reports have provided compelling links between changes in housing and access levels[39], and impacts on Habitats Sites[40][41]. While this is the case for any habitat, recreational impacts are particularly noteworthy for sites of high conservation importance. Due to different qualifying features and associated sensitivities, Habitats Sites differ in their susceptibility to different forms of recreation. Studies across a range of species have shown that the effects from recreation can be complex. HRAs of strategic planning documents tend to focus on the role of housing growth and new residents in altering usage levels in Habitats Sites. An existing mitigation strategy is already adopted for parts of the Severn Estuary SAC/SPA/Ramsar in England and some Welsh authorities (Monmouthshire, Cardiff) are weighing up the implications of this for their own emerging RLDPs.

Bird Disturbance

4.3 Human recreation can affect wildlife (including birds, mammals, herptiles and invertebrates) in a multitude of ways. Most avian studies have focused on behavioural responses to disturbance, such as alertness responses, reduced foraging rates[42], minor flights and major flights to sub-optimal foraging habitats[43] [44]. One of the consequences of behavioural responses, and particularly major ones, is increased energy expenditure[45] [46]. The timing and type of a behavioural response is likely to be determined by the perceived level of threat as well as the energetic costs involved (e.g. to take major flight). At the extreme end of the spectrum, recreation can also result in mortality either directly or indirectly. For example, free-roaming dogs may predate on eggs and incubating adult birds[47]. Recreational impacts on ground-nesting birds are particularly severe,

[39] Weitowitz D.C., Panter C., Hoskin R. & Liley D. (2019). The effect of urban development on visitor numbers to nearby protected nature conservation sites. *Journal of Urban Ecology* **5**. https://doi.org/10.1093/jue/juz019
[40] Liley D, Clarke R.T., Mallord J.W., Bullock J.M. (2006a). The effect of urban development and human disturbance on the distribution and abundance of nightjars on the Thames Basin and Dorset Heaths. Natural England / Footprint Ecology.
[41] Liley D., Clarke R.T., Underhill-Day J., Tyldesley D.T. (2006b). Evidence to support the appropriate Assessment of development plans and projects in south-east Dorset. Footprint Ecology / Dorset County Council.
[42] Yasué M. (2005). The effects of human presence, flock size and prey density on shorebird foraging rates. *Journal of Ethology* **23**: 199-204.
[43] Burton N.H., Rehfisch M.M. & Clark N.A. (2002). Impacts of disturbance from construction work on the densities and feeding behavior of waterbirds using the intertidal mudflats of Cardiff Bay, UK. *Environmental Management* **30**: 865-871.
[44] Burton N.H.K., Armitage M.J.S., Musgrove A.J. & Rehfisch M.M. (2002). Impacts of man-made landscape features on numbers of estuarine waterbirds at low tide. *Environmental Management* **30**: 857-864.
[45] Stock M. & Hofeditz F. (1997). Compensatory limits: Energy budgets of brent geese, *Branta b bernicla*, the influence of human disturbance. *Journal Fuer Ornithologie* **138**: 387-411.
[46] Nolet B.A., Bevan R.M., Klaassen M., Langevoord O. & Van der Heijden Y. (2002). Habitat switching by Bewick's swans: Maximization of average long-term energy gain? *Journal of Animal Ecology* **71**: 979-993.
[47] Pienkowski M.J. (1984). Breeding biology and population dynamics of ringed plovers *Charadrius hiaticula* in Britain and Greenland: Nest predation as a possible factor limiting distribution and time of breeding. *Journal of the Zoological Society of London* **202**: 83-114.

with many studies concluding that urban sites support lower densities of key species, such as stone curlew and nightjar[48] [49]. Furthermore, recreational access can also result in death through accidental trampling of nests, eggs and chicks[50]. Disturbance may also affect the survival rate of birds by making them more vulnerable to being caught by their natural predators[51].

4.4 However, disturbance can also result in much less obvious (and harder to measure) physiological effects and stress responses, which may in turn affect individual and population-level fitness. While studies on such 'indirect' health impacts are rare, there is empirical evidence that disturbance increase the heart rate[52] and stress hormone levels[53] [54] in birds. Therefore, available research indicates that disturbance responses are inherently complex and certainly encompass more than just flight behaviour.

4.5 Parameters that are likely to influence the magnitude of behavioural responses include group size[55], directional approach[56] and speed of movement[57]. Disturbance may also be associated with a seasonal element in that disturbance in winter is more impactful because natural food shortages make birds more vulnerable at this time of year. In contrast, this may be counterbalanced by fewer recreational users in the winter months and a lower overall sensitivity of birds outside the breeding season.

4.6 Disturbance is known to arise from a wide range of recreational activities, including walking / hiking, dog walking, horse riding, running, cycling / mountain biking and canoeing[58]. Newly emerging activities (e.g. drone-flying) have also been linked to disturbance issues[59]. However, the disturbance potential differs between different types of recreational activities. For example, in one study dog walking led to a significantly higher reduction in bird diversity and abundance compared to hiking[60]. It is also suggested that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers[61]. Furthermore, differences in on-site route lengths and usage patterns from visitor surveys imply that key spatial and temporal parameters (such as the area of a site potentially impacted and the frequency of disturbance) will also differ between recreational activities. This strongly suggests that the activity types undertaken in Habitats Sites ought to be taken into account in HRAs.

Trampling Damage, Soil Compaction and Erosion

4.7 Most terrestrial habitats (especially dune systems and old woodlands) can be affected by trampling and other mechanical damage. Mechanical disturbance dislodges and damages individual plants, leads to erosion and compacts soil. The following studies have assessed the impact of mechanical damage exerted by various types of recreational activities in different habitats:

[48] Clarke R.T., Liley D., Sharp J.M. & Green R.E. (2013). Building development and roads: Implications for the distribution of stone curlews across the Brecks. *PLOS ONE*. https://doi:10.1371/journal.pone.0072984.
[49] Liley D. & Clarke R.T. (2003). The impact of urban development and human disturbance on the numbers of nightjar *Caprimulgus europaeus* on heathlands in Dorset, England. Biological Conservation **114**: 219-230.
[50] Liley D. & Sutherland W.J. (2007). Predicting the population consequences of human disturbance for ringed plovers *Charadrius hiaticula*: A game theory approach. *Ibis* **149**: 82-94.
[51] Brambilla M., Rubolini D. & Guidali F. (2004). Rock climbing and raven *Corvus corax* occurrence depress breeding success of cliff-nesting peregrines *Falco peregrinus*. *Ardeola* **51**: 425-430.
[52] Ellenberg U., Mattern T. & Seddon P.J. (2013). Heart rate responses provide an objective evaluation of human disturbance stimuli in breeding birds. *Conservation Physiology* **1**: doi: 10.1093/conphys/cot013.
[53] Thiel D., Jenni-Eiermann S., Palme R. & Jenni L. (2011). Winter tourism increases stress hormone levels in the Capercaillie *Tetrao urogallus*. *Ibis* **153**: 122-133.
[54] Walker B.G., Dee Boersma P. & Wingfield J.C. (2006). Habituation of adult magellanic penguins to human visitation as expressed through behavior and corticosterone secretion. *Conservation Biology* **20**: 146-154.
[55] Beale C.M. & Monaghan P. (2005). Modeling the effects of limiting the number of visitors on failure rates of seabird nests. *Conservation Biology* **19**: 2015-2019.
[56] Smith-Castro J.R. & Rodewald A.D. (2010). Behavioral responses of nesting birds to human disturbance along recreational trails. *Journal of Field Ornithology* **81**: 130-138.
[57] Bellefleur D., Lee P. & Ronconi R.A. (2009). The impact of recreational boat traffic on marbled murrelets (*Brachyramphus marmoratus*). *Journal of Environmental Management* **90**: 531-538.
[58] Steven R., Pickering C. & Guy Castley J. (2011). A review of the impacts of nature based recreation on birds. *Journal of Environmental Management* **92**: 2287-2294.
[59] Mulero-Pázmány M., Jenni-Eiermann S.
[60] Banks P.B. & Bryant J.Y. (2007). Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* **3**: 14pp.
[61] Miller S.G., Knight R.L. & Miller C.K. (2001). Wildlife responses to pedestrians and dogs. *Wildlife Society Bulletin* **29**: 124-132.

- Wilson & Seney)[62] examined the degree of track erosion caused by hikers, motorcyclists, horse riders and cyclists in 108 plots along tracks in the Gallatin National Forest, Montana. Although the results proved difficult to interpret, it was concluded that horse riders and hikers disturbed more sediment on wet tracks, and thereby causing more erosion, than motorcyclists and cyclists.

- Cole et al[6364] conducted experimental off-track trampling tests in 18 closed forest, dwarf scrub and meadow & grassland communities (each trampled between 0 – 500 times) over five mountain regions in the US. Vegetation cover was assessed two weeks and one year after trampling respectively, and an inverse relationship with trampling intensity was discovered (although this relationship was weaker after one year than two weeks indicating some recovery of vegetation). Differences in plant morphology (structure) was found to explain more variation in response than soil and topographic factors. Low-growing, mat-forming grasses regained their cover best after two weeks and were considered most resistant to trampling, while tall forbs (non-woody vascular plants other than grasses, sedges, rushes and ferns) were considered least resistant. The cover of hemicryptophytes (plants with buds at or near the soil surface) and geophytes (plants with buds below the soil surface) was heavily reduced after two weeks but had recovered well after one year. Chamaephytes (plants with buds above the soil surface) were least resilient to trampling.

- Cole[65] conducted a follow-up study (across four vegetation types) in which shoe type (trainers or walking boots) and trampling weight were varied. Although the immediate damage was greater with walking boots, there was no significant difference after one year. Heavier tramplers caused a greater reduction in vegetation height than lighter tramplers, but there was no differential impact on vegetation cover.

- Cole & Spildie[66] experimentally compared the effects of off-track trampling by hikers and horse riders (at two intensities – 25 and 150 passes) in two woodland vegetation types (one with an erect forb understorey and one with a low shrub understorey). While it was shown that higher trampling intensities cause more disturbance, there were marked differences between recreational activities and woodland types. Horse trampling caused the larger reduction in vegetation cover compared to hiking. The forb-dominated woodland suffered greater disturbance but recovered rapidly.

- Martin et al.[67] used unmanned aerial vehicle (UAV) imagery to document the impacts of a mountain bike, cyclocross bike and a hiker on soil compaction and vegetation composition at pass increments of 25, 75, 200 and 400. They showed that bikes with narrower tyres (cyclocross bikes) lead to higher soil compaction than bikes with wider tyres (mountain bikes), and both cycling types had higher impacts than hikers. However, at high pass intensities, the negative impacts were similar for all activities.

- Pascoe[68] found a significant correlation between trampling intensity and the distribution of field gentian *Gentianella campestris* and autumn lady's-tresses *Spiranthes spiralis* in New Forest grasslands (although it was concluded that the species are not under existential threat from trampling if this does not creep into previously lightly or untrampled areas).

- Woodland trees (particularly ancient and veteran individuals) and their associated ground flora are sensitive to recreational trampling because of their large leaves and thin

[62] Wilson J.P. & Seney J.P. (1994). Erosional impact of hikers, horses, motorcycles and off-road bicycles on mountain trails in Montana. *Mountain Research and Development* **14**: 77-88.
[63] Cole D.N. (1995a). Experimental trampling of vegetation I: Relationship between trampling intensity and vegetation response. *Journal of Applied Ecology* **32**: 203-214.
[64] Cole D.N. (1995b). Experimental trampling of vegetation II: Predictors of resistance and resilience. *Journal of Applied Ecology* **32**: 215-224.
[65] Cole D.N. (1995c). Recreational trampling experiments: Effects of trampler weight and shoe type. Research Note INT-RN-425. U.S. Forest Service, Intermountain Research Station, Utah.
[66] Cole D.N. & Spildie D.R. (1998). Hiker, horse and llama trampling effects on native vegetation in Montana, USA. *Journal of Environmental Management* **53**: 61-71.
[67] Martin R.H., Butler D.R. & Klier J. (2018). The influence of tire size on bicycle impacts to soil and vegetation. *Journal of Outdoor Recreation and Tourism* **24**: 52-58.
[68] Pascoe C. Factors affecting the distribution of *Spiranthes spiralis* and *Gentianella campestris* on Wilverley Plain in the New Forest (BSc). University of Reading, Reading, UK.

cell walls, adaptations to shady conditions. In the New Forest, trampling has been reported to result in the localised loss of characteristic ground flora[69], particularly surrounding well-trodden paths and 'honeypot' sites. Furthermore, trampling results in soil compaction surrounding root zones, which can reduce the ability of trees to extract water, lead to direct physical damage to roots and impacted associated soil fungi[70].

4.8 Sand dunes are dynamic systems that are shaped by factors such as the supply of sand and prevailing wind direction. 80% of dunes in the UK are currently subject to coastal erosion, diminishing the dune itself and creating bare ground. Natural England's Access and Nature Conservation Reconciliation guidance note states that light levels of trampling can increase plant diversity in dune systems, but medium to high levels of trampling promote bare ground, increase soil compaction, reduce plant diversity and change vegetation height. The type of dune habitat also influences its response to recreational pressure. For example, in fixed decalcified dunes the relationship between levels of access and impact is linear (i.e. it shows a proportionate relationship whereby the amount of damage increases gradually and predictably with the amount of footfall). In other dune types (e.g. embryonic shifting dunes), the relationship is curvilinear, suggesting that a small increase in trampling has a disproportionately strong effect, with a flattening of the impact curve under higher trampling regimes[71].

Nutrient Enrichment

4.9 A major concern for nutrient-poor terrestrial habitats (e.g. ancient woodland, heathland) is nutrient enrichment associated with dog fouling (addressed in various reviews, e.g.[72]). It is estimated that dogs will defecate within 10 minutes of starting a walk and therefore most nutrient enrichment arising from dog faeces will occur within 400m of a site entrance. In contrast, dogs will urinate at frequent intervals during a walk, resulting in a more widespread distribution of urine. For example, in Burnham Beeches National Nature Reserve it is estimated that 30,000 litres of urine and 60 tonnes of dog faeces are deposited annually[73]. While there is limited information on the chemical constituents of dog faeces, nitrogen is one of its main components[74].

4.10 A recent study has published further compelling evidence on the relative impact of N and phosphorus (P) deposition arising from dogs. Using 487 direct-count censuses from four peri-urban forests and nature reserves, the modelling data suggested that canine fertilisation rates amount to 11 kg N and 5 kg P per hectare per year respectively[75]. These amounts are significant when compared to atmospheric nitrogen deposition rates and the offsetting achievable through traditional habitat management techniques (e.g. cutting and removal of hay). The nitrogen deposition by dogs is particularly significant given the nitrogen Critical Load that is established for some Habitats Sites. For example, fixed coastal dunes with herbaceous vegetation have a CL range of 8-10 kg N/ha/yr (qualifying feature of the Kenfig SAC) on the Air Pollution Information System (APIS). This implies that the equivalent of the minimum CL of the site (11.1 kg N/ha/yr adjacent to Ogmore Road) is exceeded by N nitrogen deposition from dogs alone, before atmospheric sources are considered. Nutrient availability is the major determinant of plant community composition and the effect of dog defecation in sensitive habitats is comparable to a high-level application of fertiliser, potentially resulting in a shift towards plant communities that are more typical of improved grasslands.

[69] Tubbs C.R. (2001). The New Forest: History, Ecology and Conservation. Lyndhurst, Hampshire: New Forest Ninth Centenary Trust, New Forest Museum.
[70] Lake S., Liley D. & Saunders P. (2020). Recreation use of the New Forest SAC / SPA / Ramsar: Impacts of recreation and potential mitigation approaches. Unpublished report by Footprint Ecology. 96pp.
[71] Coombes E.G. (2007). The effects of climate change on coastal recreation and biodiversity. School of Environmental Sciences. University of East Anglia, Norwich.
[72] Taylor K., Anderson P., Taylor R.P., Longden K. & Fisher P. (2005). Dogs, access and nature conservation. English Nature Research Report, Peterborough.
[73] Barnard A. (2003). Getting the facts – Dog walking and visitor number surveys at Burnham Beeches and their implications for the management process. *Countryside Recreation* **11**:16-19.
[74] Taylor K., Anderson P., Liley D. & Underhill-Day J.C. (2006). Promoting positive access management to sites of nature conservation value: A guide to good practice. English Nature / Countryside Agency, Peterborough and Cheltenham.
[75] De Frenne P., Cougnon M., Janssens G.P.J. & Vangansbeke P. (2022). Nutrient fertilization by dogs in peri-urban ecosystems. *Ecological Solutions and Evidence* **3**: https://doi.org/10.1002/2688-8319.12128

Summary

4.11 Several Habitats Sites relevant to the Vale of Glamorgan RLDP area are designated for habitats and species that are sensitive to recreational pressure. A growth in the local population will lead to an increased demand for access to outdoor areas and recreational greenspaces, especially Habitats Sites.

4.12 Overall, the following Habitats Sites within 15km of the Vale of Glamorgan authority boundary are sensitive to increased recreational footfall and, therefore, could be negatively impacted by residential development delivered under the RLDP:

- **Severn Estuary SAC/SPA/Ramsar** (located along the eastern boundary of the Vale of Glamorgan)
- **Dunraven Bay SAC** (situated in the western part of the authority)
- **Kenfig SAC** (located immediately north of the Vale of Glamorgan in the adjoining authority of Bridgend)
- **Cardiff Beech Woods SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 3.5km to the north-east in the adjoining authority of Cardiff)
- **Cefn Cribwr Grasslands SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 5.2km to the north in the adjoining authority of Bridgend)
- **Blackmill Woodlands SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 6km to the north in the adjoining authority of Bridgend)

Water Quality

4.13 The quality of the water that feeds Habitats Sites is an important determinant of the condition of the habitats and species they support. Poor water quality can have a range of environmental impacts:

- At high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour.
- Eutrophication, the enrichment of water with nutrients, increases plant growth and consequently results in oxygen depletion. Algal blooms, which commonly result from eutrophication, increase turbidity and decrease light penetration. The decomposition of organic wastes that often accompanies eutrophication deoxygenates water further, augmenting its oxygen-depleting effect. The main growth-limiting nutrient in freshwater habitats is phosphorus, whereas bioavailable nitrogen determines algal growth in coastal environments. However, nutrient co-limitation may be present in estuaries, which are jointly determined by the interplay of freshwater and sea water.
- Some pesticides, industrial chemicals and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life.

4.14 The most notable issue in relation to the Vale of Glamorgan RLDP is the potential discharge of treated sewage effluent into the Severn Estuary SAC/SPA/Ramsar, which could increase nutrient concentrations (both phosphorus and nitrogen) in estuarine waters. In local watercourses feeding into the Severn Estuary phosphorus is the main limiting nutrient, whereas nitrogen will be the primary limiting factor in the estuary itself. Due to the proximity of the authority to the SAC/SPA/Ramsar, there is also a risk that surface runoff from impermeable surfaces containing non-toxic and toxic pollutants could directly reach the estuary. The R. Ely has been identified as a significant source of pollutants reaching the estuary. Phosphorus, largely from treated sewage discharge, and domestic/commercial misconnections are having a detrimental ecological impact in that river. The ‘bad’ water quality in the R. Ely is significant in its role as a tributary to the Severn Estuary but is also of paramount importance in determining the habitat characteristics of what

constitutes functionally linked habitat to the estuarine SAC, which is designated for anadromous fish.

4.15 The RLDP provides for development in the geographic area covered by Welsh Water, responsible for wastewater treatment in the Vale of Glamorgan. The potential ecological implications of RLDP development are outlined in Table 3.

Table 3: Wastewater Treatment Works (WwTWs) serving residential and employment development in the Vale of Glamorgan that are in potential hydrological continuity with the Severn Estuary SAC/SPA/Ramsar.

WwTW Catchment	Residential and employment development quantum allocated in the Vale of Glamorgan RLDP	Potential HRA implications
WwTWs operated by Welsh Water	A total of 7,890 dwellings and 67.8ha of employment land will be delivered over the RLDP period.	Discharge of treated sewage effluent into local watercourses that are in hydrological continuity with the estuary Discharge of treated sewage effluent directly into the Severn Estuary SAC/SPA/Ramsar

4.16 The increase in residential and employment development allocated in the RLDP will lead to an increase in the volume of treated sewage effluent discharged into local waterbodies, including the Severn Estuary. Overall, the following Habitats Sites within 15km of the Vale of Glamorgan authority boundary require further consideration in relation to negative water quality impacts (the sites in **bold** are taken forward to the following chapters):

- **Severn Estuary SAC/SPA/Ramsar** (located along the eastern boundary of the Vale of Glamorgan);
- Dunraven Bay SAC (situated in the western part of the authority);
- **Kenfig SAC** (located immediately north of the Vale of Glamorgan in the adjoining authority of Bridgend);
- Cardiff Beech Woods SAC (the closest component part of this SAC to the Vale of Glamorgan lies approx. 3.5km to the north-east in the adjoining authority of Cardiff);
- **Cefn Cribwr Grasslands SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 5.2km to the north in the adjoining authority of Bridgend); and
- Blackmill Woodlands SAC (the closest component part of this SAC to the Vale of Glamorgan lies approx. 6km to the north in the adjoining authority of Bridgend).

4.17 The Dunraven Bay SAC is designated for its population of shore dock, which is located on a damp coastal limestone cliff. While shore dock, like any plant species, is sensitive to a decline in water quality, it is not considered that this SAC has significant linkages to any surface and / or groundwater bodies. Therefore, it is extremely unlikely that treated sewage effluent from WwTWs would be impacting the shore dock population. The SAC is excluded from further consideration in relation to this impact pathway.

4.18 Like all plants, woodlands and their associated ground flora depend on the input of water of sufficient quality (primarily from rainfall) to maintain their ecological integrity. However, the Cardiff Beech Woods SAC and Blackmill Woodlands SAC do not depend on hydrological connectivity to any freshwater or groundwater bodies that could receive substantial input from WwTWs. Therefore, these SACs are excluded from further consideration in relation to this impact pathway.

Water Quantity, Level and Flow

4.19 The water level, its flow rates and the mixing conditions are important determinants of the condition of Habitats Sites and associated qualifying features. Hydrological processes are critical

in influencing habitat characteristics in coastal waters, including current velocity, water depth, dissolved oxygen levels, salinity and water temperature. In turn these parameters determine the short- and long-term viability of plant and animal species, as well as overall ecosystem composition. Changes to the water flow rate within an estuary can be associated with a multitude of further impact pathways, including substratum loss, smothering and changes in wave exposure. Furthermore, freshwater input is essential in determining abiotic conditions in freshwater bodies and terrestrial habitats, where the latter comprise habitats or species with strong hydrological associations (e.g. *Molinia* meadows on calcareous, peaty or clayey-silt laden soils).

4.20 Increases in the quantity and rate of water delivery can result in summer flooding and prolonged/deeper winter flooding. This in turn results in the reduction of feeding and roosting sites for birds. For example, in areas where water is too deep, most waders will be unable to reach their food sources close to the ground.

4.21 Coastal environments rely on hydrological connections with freshwater bodies, such as rivers, streams and lakes. However, while the natural fluctuation of water levels within narrow limits is desirable, excess or too little water supply might cause water levels to be outside of the required range of qualifying birds and fish, or the invertebrate or plant assemblages they depend upon. There are two mechanisms through which urban development might negatively affect the water level in Habitats Sites:

- The supply of new housing with potable water will require increased abstraction of water from surface water and groundwater bodies. Depending on the level of water stress in the geographic region, this may impact the aquatic conditions in Habitats Sites sharing the same catchment.

- The proliferation of impermeable surfaces in urban areas increases the volume and speed of surface runoff, particularly during intense rainfall events. Traditional drainage systems often cannot cope with the volume of stormwater and sewer overflows are designed to discharge untreated water directly into watercourses. Often this pluvial flooding results in downstream inundation of watercourses and larger volumes of water reaching designated sites.

4.22 The potable water supply to residential and industrial developments is protected by legislation and delivered by individual water companies which cover different geographic areas of the UK. The management of available water resources is outlined in Water Resources Management Plans (WRMPs), which specify the Water Available for Use while also protecting environmental needs (such as water level requirements in Habitats Sites). Furthermore, WRMPs consider climate change impacts as a key parameter in determining water availability. Climate change will exacerbate many of the existing threats (e.g. low flows) that are faced by aquatic ecosystems. It is also likely that increased rainfall patterns will lead to an increased need for agricultural irrigation, which may lower flows in surface and groundwater bodies further. However, significant agricultural abstractions are subject to individual licenses from NRW and will be judged against any potential risk of over-abstraction, particularly with regard to the highest tier of environmental protection that is represented in Habitats Sites.

4.23 The Vale of Glamorgan adjoins the Severn Estuary SAC/SPA/Ramsar, which is sensitive to changes in the prevailing hydrological regime. The allocation of residential and employment development in the RLDP means that the following Habitats Sites within 15km of the Vale of Glamorgan authority boundary are at risk regarding changes in water quantity, level and flow (the sites in **bold** are taken forward into the following chapters):

- **Severn Estuary SAC/SPA/Ramsar** (located along the eastern boundary of the Vale of Glamorgan);

- Dunraven Bay SAC (situated in the western part of the authority);

- **Kenfig SAC** (located immediately north of the Vale of Glamorgan in the adjoining authority of Bridgend);

- Cardiff Beech Woods SAC (the closest component part of this SAC to the Vale of Glamorgan lies approx. 3.5km to the north-east in the adjoining authority of Cardiff);

- **Cefn Cribwr Grasslands SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 5.2km to the north in the adjoining authority of Bridgend); and
- Blackmill Woodlands SAC (the closest component part of this SAC to the Vale of Glamorgan lies approx. 6km to the north in the adjoining authority of Bridgend).

4.24 As discussed in relation to the impact pathway water quality, the Dunraven Bay SAC, Cardiff Beech Woods SAC and Blackmill Woodlands SAC are not reliant on hydrological continuity with freshwater or groundwater bodies. The qualifying habitats and species present within these sites have low dependencies on hydrological pathways, beyond a basic requirement for water (which will typically be delivered through precipitation events). Therefore, these SACs are excluded from further consideration in relation to this impact pathway.

Atmospheric Pollution (NH_3 and NOx Emission and N Deposition)

4.25 The main pollutants of concern for Habitats Sites are oxides of nitrogen (NOx), ammonia (NH_3) and sulphur dioxide (SO_2), and are summarised in Table 4. NH_3 can have a directly toxic effect upon vegetation, particularly at close distances to the source such as near road verges[76]. NOx can also be toxic at very high concentrations (far above the annual average Critical Level). However, NOx and NH_3 exert their main impacts on ecosystems via determining the total nitrogen (N) deposition to soils, potentially leading to deleterious knock-on effects. Increases in N deposition from the atmosphere are widely known to enhance soil fertility and lead to eutrophication. This often has adverse effects on community composition and the quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats[77][78].

Table 4: Main sources and effects of air pollutants on habitats and species[79].

Pollutant	Source	Effects on habitats and species
Sulphur Dioxide (SO_2)	The main sources of SO_2 are electricity generation, and industrial and domestic fuel combustion. However, total SO_2 emissions in the UK have decreased substantially since the 1980's. Another origin of sulphur dioxide is the shipping industry and high atmospheric concentrations of SO_2 have been documented in busy ports. In future years shipping is likely to become one of the most important contributors to SO_2 emissions in the UK.	Wet and dry deposition of SO_2 acidifies soils and freshwater, and may alter the composition of plant and animal communities. The magnitude of effects depends on levels of deposition, the buffering capacity of soils and the sensitivity of impacted species. However, SO_2 background levels have fallen considerably since the 1970's and are now not regarded a threat to plant communities. For example, decreases in Sulphur dioxide concentrations have been linked to returning lichen species and improved tree health in London.
Acid deposition	Leads to acidification of soils and freshwater via atmospheric deposition of SO_2, NOx, ammonia and hydrochloric acid. Acid deposition from rain has declined by 85% in the last 20 years, which most of this contributed by lower sulphate levels.	Gaseous precursors (e.g. SO_2) can cause direct damage to sensitive vegetation, such as lichen, upon deposition. Can affect habitats and species through both wet (acid rain) and dry deposition. The effects of acidification include lowering of soil pH, leaf chlorosis, reduced decomposition rates, and compromised reproduction in birds / plants. Not all sites are equally susceptible to acidification. This varies depending on soil type, bed rock geology, weathering rate and buffering capacity. For example, sites with an underlying geology of granite, gneiss and quartz rich rocks tend to be more susceptible.

[76] http://www.apis.ac.uk/overview/pollutants/overview_NOx.htm.
[77] Wolseley P. A.; James P. W.; Theobald M. R.; Sutton M. A. (2006). Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* **38**: 161-176.
[78] Dijk N. (2011). Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: Evidence from a long-term field manipulation. *Global Change Biology* **17**: 3589-3607.
[79] Information summarised from the Air Pollution Information System (http://www.apis.ac.uk/).

Pollutant	Source	Effects on habitats and species
Ammonia (NH_3)	Ammonia is a reactive, soluble alkaline gas that is released following decomposition and volatilisation of animal wastes. It is a naturally occurring trace gas, but ammonia concentrations are directly related to the distribution of livestock. It is also emitted from some vehicles. Ammonia reacts with acid pollutants such as the products of SO_2 and NO_X emissions to produce fine ammonium (NH_4+) - containing aerosol. Due to its significantly longer lifetime, NH_4+ may be transferred much longer distances (and can therefore be a significant trans-boundary issue). While ammonia deposition may be estimated from its atmospheric concentration, the deposition rates are strongly influenced by meteorology and ecosystem type.	The negative effect of NH_4+ may occur via direct toxicity, when uptake exceeds detoxification capacity and via N accumulation. Its main adverse effect is eutrophication, leading to species assemblages that are dominated by fast-growing and tall species. For example, a shift in dominance from heath species (lichens, mosses) to grasses is often seen. As emissions mostly occur at ground level in the rural environment and NH_3 is rapidly deposited, some of the most acute problems of NH_3 deposition are for small relict nature reserves located in intensive agricultural landscapes.
Nitrogen oxides (NO_x)	Nitrogen oxides are mostly produced in combustion processes. Half of NO_X emissions in the UK derive from motor vehicles, one quarter from power stations and the rest from other industrial and domestic combustion processes. In contrast to the steep decline in Sulphur dioxide emissions, nitrogen oxides are falling slowly due to control strategies being offset by increasing numbers of vehicles.	Direct toxicity effects of gaseous nitrates are likely to be important in areas close to the source (e.g. roadside verges). A critical level of NOx for all vegetation types has been set to 30 ug/m3. Deposition of nitrogen compounds (nitrates (NO_3), nitrogen dioxide (NO_2) and nitric acid (HNO_3)) contributes to the total nitrogen deposition and may lead to both soil and freshwater acidification. In addition, NO_x contributes to the eutrophication of soils and water, altering the species composition of plant communities at the expense of sensitive species.
Nitrogen deposition	The pollutants that contribute to the total nitrogen deposition derive mainly from oxidized (e.g. NO_X) or reduced (e.g. NH_3) nitrogen emissions (described separately above). While oxidized nitrogen mainly originates from major conurbations or highways, reduced nitrogen mostly derives from farming practices. The N pollutants together are a large contributor to acidification (see above).	All plants require nitrogen compounds to grow, but too much overall N is regarded as the major driver of biodiversity change globally. Species-rich plant communities with high proportions of slow-growing perennial species and bryophytes are most at risk from N eutrophication. This is because many semi-natural plants cannot assimilate the surplus N as well as many graminoid (grass) species. N deposition can also increase the risk of damage from abiotic factors, e.g. drought and frost.
Ozone (O_3)	A secondary pollutant generated by photochemical reactions involving NOx, volatile organic compounds (VOCs) and sunlight. These precursors are mainly released by the combustion of fossil fuels (as discussed above). Increasing anthropogenic emissions of ozone precursors in the UK have led to an increased number of days when ozone levels rise above 40ppb ('episodes' or 'smog'). Reducing ozone pollution is believed to require action at international level to reduce levels of the precursors that form ozone.	Concentrations of O_3 above 40 ppb can be toxic to both humans and wildlife, and can affect buildings. High O_3 concentrations are widely documented to cause damage to vegetation, including visible leaf damage, reduction in floral biomass, reduction in crop yield (e.g. cereal grains, tomato, potato), reduction in the number of flowers, decrease in forest production and altered species composition in semi-natural plant communities.

4.26 SO_2 emissions overwhelmingly derive from power stations and industrial processes that require the combustion of coal and oil, as well as shipping (particularly on a local scale)[80]. NH_3 emissions primarily originate from agricultural practices[81], with some chemical processes and some vehicles (notably petrol cars) also making notable contributions.

4.27 In contrast, NOx emissions are dominated by the output of vehicle exhausts (more than half of all emissions). A 'typical' housing development will contribute by far the largest portion to its overall NOx footprint (92%) through its associated road traffic. Other sources, although relevant,

[80] http://www.apis.ac.uk/overview/pollutants/overview_SO2.htm.
[81] Pain B.F., Weerden T.J., Chambers B.J., Phillips V.R.; Jarvis, S.C. (1998). A new inventory for ammonia emissions from U.K. agriculture. *Atmospheric Environment* **32**: 309-313.

are of minor importance (8%) in comparison[82]. Therefore, the emerging RLDP, which will increase the population of the Vale of Glamorgan, can be reasonably expected to increase emissions of NOx and NH_3, and thus total N deposition through an increase in vehicular traffic.

4.28 The World Health Organisation has established thresholds for the different atmospheric pollutants, such as the critical NOx concentration (Critical Level) for the protection of vegetation of 30 μgm^{-3}, the NH_3 threshold for vascular plants of 3 μgm^{-3} and the threshold for SO_2 of 20 μgm^{-3}. In addition, ecological studies have determined Critical Loads (CLs)[83] for atmospheric nitrogen deposition (that is, NOx combined with NH_3).

4.29 According to the Department of Transport's Transport Analysis Guidance, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is insignificant (Figure 3 and see reference [84]). Therefore, this is the distance that is used in this HRA to identify major commuter routes along European Sites, which are likely to be significantly affected by development outlined in the RLDP.

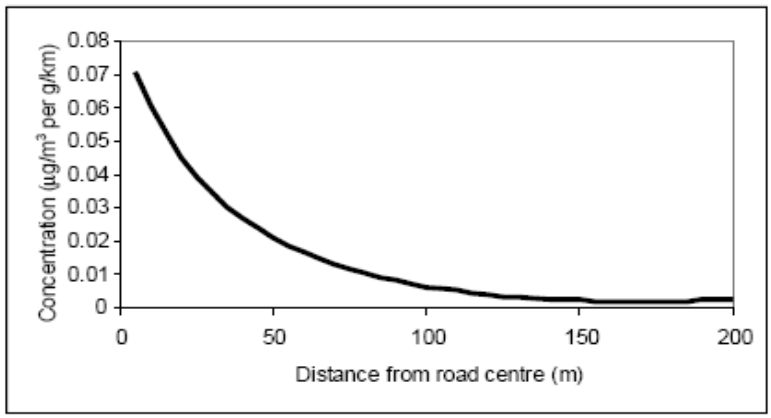

Figure 3: Traffic contribution to concentrations of pollutants at different distances from a road (Source: DfT[85]).

4.30 The UK Government intends to ban the sale of new petrol and diesel cars by 2030 in a push towards facilitating the energy transition and curbing carbon emissions. This will result in a significant shift in the vehicle fleet from traditional fossil-fuelled to electric cars. Improvements in air quality emissions will accompany this modal shift in transport, which is supported by the general improvement in air quality parameters that is evident in the modelled future scenarios of most Air Quality Impact Assessments, even when considering an increase in traffic volume. Notwithstanding this, even when taking account of the improving baseline, traffic growth has the potential to decelerate the vegetation recovery in Habitats Sites (that would otherwise occur under a scenario of no development), many of which have experienced nitrogen concentrations far beyond their CLs for decades. Therefore, despite an improving air quality across the UK, atmospheric pollution and associated negative impacts on sensitive habitats/species continue to be a key consideration in HRAs.

4.31 The following Habitats Sites within 15km of the Vale of Glamorgan authority boundary are sensitive to atmospheric pollution arising from urban growth, primarily due to a significant increase in the number of two-way vehicle trips through or within 200m of these sites (the sites in **bold** are taken forward into the following chapters):

- **Severn Estuary SAC/SPA/Ramsar** (located along the eastern boundary of the Vale of Glamorgan);
- Dunraven Bay SAC (situated in the western part of the authority);

[82] Proportions calculated based upon data presented in Dore CJ et al. (2005). UK Emissions of Air Pollutants 1970 – 2003. UK National Atmospheric Emissions Inventory. http://www.airquality.co.uk/archive/index.php
[83] The Critical Load is the rate of deposition beyond which research indicates that adverse effects can reasonably be expected to occur
[84] Available at: http://www.dft.gov.uk/webtag/documents/expert/unit3.3.3.php#013 [Accessed on the 02/05/2023].
[85] http://www.dft.gov.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf; accessed 13/07/2018

- **Kenfig SAC** (located immediately north of the Vale of Glamorgan in the adjoining authority of Bridgend);
- **Cardiff Beech Woods SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 3.5km to the north-east in the adjoining authority of Cardiff);
- **Cefn Cribwr Grasslands SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 5.2km to the north in the adjoining authority of Bridgend);
- **Blackmill Woodlands SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 6km to the north in the adjoining authority of Bridgend)

4.32 The Dunraven Bay SAC is designated for shore dock, which has a nitrogen CL of 10-20 kg N/ha/yr. Generally, an exceedance of the minimum CL would pose the risk of a shift in community composition towards graminoids, which would result in the concurrent loss of shore dock cover. However, review of mapping on MAGIC shows that the SAC lies far from potential journey-to-work routes (the closest road of note being the B4265) and, therefore, an increase in commuter traffic will not affect the designated shore dock population. This site is not considered further in relation to this impact pathway.

Loss of Functionally Linked Habitat

4.33 While most Habitats Sites have been geographically defined to encompass the key features that are necessary for coherence of their structure and function, and the support of their qualifying features, this is not necessarily the case. A diverse array of qualifying species including birds, fish, mammals and invertebrates are not always confined to the boundary of designated sites.

4.34 For example, the highly mobile nature of both wader and waterfowl species implies that areas of habitat of crucial importance to the integrity of qualifying populations lie outside the physical limits of Habitats Sites. Despite not being part of the formal designation, these habitats are integral to the maintenance of the structure and function of the designated site, for example by encompassing important foraging grounds. Therefore, land use plans that may affect such functionally linked habitat require further assessment.

4.35 There is now an abundance of authoritative examples of HRA cases on plans affecting bird populations, where Natural England recognised the potential importance of functionally linked land[86]. For example, bird surveys in relation to a previous HRA established that approximately 25% of the golden plover population in the Somerset Levels and Moors SPA were affected while on functionally linked land, and this required the inclusion of mitigation measures in the relevant plan policy wording. Another important case study originates from the Mersey Estuary SPA / Ramsar, where adjacently located functionally linked land had a peak survey count of 108% of the 5 year mean peak population of golden plover. This finding led to considerable amendments in the planning proposal to ensure that the site integrity was not adversely affected.

4.36 Generally, the identification of an area as functionally linked habitat is not always a straightforward process. The importance of non-designated land parcels may not be apparent and thus might require the analysis of existing data sources (e.g. Bird Atlases or data from record centres) to be firmly established. In some instances, data may not be available at all, requiring further survey work.

4.37 Natural England has published guidance on SSSI Impact Risk Zones (IRZs)[87] associated with different types of development on various functional groups of birds (see Table 5). These IRZs provide a high-level screening tool for assessing the risk of planning applications to affect important habitats outside designated site boundaries. The guidance identifies that functionally linked habitats may extend up to the maximum foraging distances from roost locations, although it also notes that the proportion of designated foraging birds will decrease with distance from the Habitats Site. Importantly, the IRZ guidance note does not define the required abundance

[86] Chapman C & Tyldesley D. 2016. Functional linkage: How areas that are functionally linked to Habitats Sites have been considered when they may be affected by plans and projects – A review of authoritative decisions. *Natural England Commissioned Reports* **207**. 73pp
[87] Knight M. (March 2019). Impact Risk Zones Guidance Summary – Sites of Special Scientific Interest Notified for Birds. Version 1.1. 8pp.

threshold needed to meet the criterion of functional habitat linkage. However, Natural Resources Wales and Natural England generally advocate that usage of a land parcel of 1% of the qualifying SPA / Ramsar population is needed for that parcel to be defined as functionally linked habitat.

4.38 Overall, the available baseline information suggests that the following Habitats Sites within 15km of the Vale of Glamorgan authority boundary are sensitive to the loss of functionally linked habitat due to the presence of mobile waterfowl, waders and butterflies (the **sites in bold** are taken forward into the following chapters):

- **Severn Estuary SAC/SPA/Ramsar** (located along the eastern boundary of the Vale of Glamorgan); and
- **Cefn Cribwr Grasslands SAC** (the closest component part of this SAC to the Vale of Glamorgan lies approx. 5.2km to the north in the adjoining authority of Bridgend).

Table 5: Natural England Impact Risk Zones (IRZs) for different functional groups of birds.

Bird Assemblage	IRZs
Wintering birds (except wintering waders and grazing wildfowl; wigeon and geese)	Up to 500m
Dabbling ducks such as teal, mallard and gadwall	Home ranges could extend beyond site boundaries at coastal sites, but less likely to do so at inland water bodies.
Wintering waders (except golden plover and lapwing), brent goose & wigeon	Maximum foraging distance is 500m
Wintering lapwing and golden plover	Maximum foraging distance is 15-20km. Golden plover can forage up to 15km from a roost site within a protected site. Lapwing can also forage similar distances. Both species use lowland farmland in winter and it is difficult to distinguish between designated populations and those present within the wider environment. Developments affecting functionally linked land more than 10km from the site are unlikely to impact significantly on designated populations.
Wintering white-fronted goose, greylag goose, Bewick's swan, whooper swan, pink-footed goose & wintering bean goose	Maximum foraging distance is 10km although studies have shown that pink-footed geese will fly 20km from their roosting site to feed[88]. A bespoke functional land IRZ has replaced the individual Birds 6/7 IRZs for sites supporting the following goose and swan species: pink-footed geese, barnacle goose, Bewick's swan, white-fronted goose and whooper swan. The IRZ is based on GIS distribution records of feeding pink-footed geese from a study undertaken for Natural England by the Wildfowl & Wetlands Trust and the results of work undertaken by the British Trust for Ornithology to identify functionally connected habitat used by barnacle goose, Bewick's swan, white-fronted goose and whooper swan based on WeBS site and BirdTrack data and focuses on only the areas of land that we know are being used as functional habitat by designated populations

4.39 The Severn Estuary SAC is also partly designated for several anadromous fish species, including sea lamprey, river lamprey and twaite shad. Individuals of all these species undertake annual migrations from the sea/estuary to upstream spawning sites. Where construction activities are undertaken in close proximity to freshwater courses, there is the potential for noise/vibration disturbance in the water column potentially impeding the ability of anadromous fish to reach their reproductive habitats. Since this relates to noise impacts it is covered in this HRA as part of the noise assessment.

Noise and Visual Disturbance (During Construction)

4.40 Development can result in noise or visual disturbance to qualifying species in Habitats Sites, particularly during the construction phase of planning proposals. This may result in temporary behavioural changes in qualifying birds (e.g. interruption or cessation foraging, minor and major

[88] https://monitoring.wwt.org.uk/wp-content/uploads/2018/12/Mapping-feeding-Pinkfeet-in-England-Final-report-vFinal.Jan15-2.pdf [accessed 14/04/2021]

flight responses). Three of the most important factors determining the magnitude of disturbance from development schemes on ecological receptors appear to be individual species sensitivity, proximity of the disturbance source and timing / duration of the disturbance.

4.41 An increasing amount of research on noise and visual disturbance to waders and waterfowl from construction (and other activities) is now available. Both noise and visual stimuli may elicit disturbance responses, potentially affecting the fitness and survival of qualifying birds. Noise is a complex disturbance parameter requiring the consideration of multiple factors, including its non-linear scale, nonadditive effect and source-receptor distance. A high level of noise disturbance constitutes a sudden noise event of over 60dB or prolonged noise of over 72dB. Bird responses to high noise levels include cessation of feeding or major flight, both of which might affect the survival of birds, particularly if other stressors are also present (e.g. cold weather, food scarcity).

4.42 Generally, research has shown that above noise levels of 84dB waterfowl show a flight response, while at levels below 55dB there is no effect on their behaviour[89]. Therefore, these two thresholds are considered useful as defining two extremes. The same authors have advised that regular noise levels should remain below 70dB at bird receptors, which will habituate to noise levels below this level[90]. Generally, noise is attenuated by 6dB with every doubling of distance from the source. Impact piling, the noisiest construction activity of approx. 110dB at 0.67m from source, will thus reduce to 67-68dB by 100m away from the source. This implies that the loudest construction noise should have fallen to below disturbing levels by 100m, and certainly by 200m, away from the source even without mitigation. Note that this is a rule of thumb and does not obviate the need for application-level noise modelling. However, comparison with baseline noise levels will also be important in any assessment rather than purely using comparison with the 70dB metric.

4.43 An alternative approach to using absolute noise disturbance thresholds has emerged in recent years. Most birds habituate to disturbance stimuli due to repeated exposure to these in their natural habitats. As such, absolute noise thresholds are not necessarily the most meaningful way to assess the potential for disturbance. For example, noise levels above the 69dB established threshold may cause little to no disturbance in areas with existing loud soundscapes, depending on the pre-development baseline. Absolute noise thresholds may overestimate the threat that construction noise poses in some localities and place undue burdens on developers. As a more robust alternative, the absolute change in noise level between the baseline and construction activities may be used to assess this impact pathway. This requires the collection of baseline noise measurements at identified receptor locations and contrasting these with the outputs of noise models informed by construction parameters (e.g. location, type and duration of construction methods).

4.44 Visual stimuli are considered to have a higher disturbance potential than noise stimuli as, in most instances, visual stimuli will elicit a disturbance response at much greater distances than noise[91]. For example, a flight response is triggered in most species when they are approached to within 150m across a mudflat. Visual disturbance can be exacerbated by workers operating equipment outside machinery, undertaking sudden movements and using large machinery. Several species are particularly sensitive to visual disturbance[58], including curlew (taking flight at 275m), redshank (at 250m), shelduck (at 199m) and bar-tailed godwit (at 163m). Overall, specific regard should be given to assemblage composition when identifying threshold levels for both visual and noise disturbance.

4.45 The following Habitats Site within 15km of the Vale of Glamorgan authority boundary is sensitive to noise and visual disturbance arising in the construction period of development sites allocated in the RLDP (the site in **bold** is taken forward into the following chapters):

- **Severn Estuary SAC/SPA/Ramsar** (located along the eastern boundary of the Vale of Glamorgan)

[89] Cutts N & Allan J. (1999). Avifaunal Disturbance Assessment. Flood Defence Works: Saltend. Report to Environment Agency.
[90] Cutts N., Phelps A. & Burdon D. (2009). Construction and waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA, Institute of Estuarine and Coastal Studies, University of Hull.
[91] Research undertaken by the Institute of Estuarine & Costal Studies, University of Hull. 2013. Available at: http://bailey.persona-pi.com/Public-Inquiries/M4%20-%20Revised/11.3.67.pdf [Accessed on the 24/04/2023].

Coastal Squeeze

4.46 Coastal squeeze is a well-established process that results in the net contraction and eventual disappearance of intertidal habitats, which may be designated features themselves and / or critical supporting habitats for SPA / Ramsar waders and waterfowl. Specifically, this impact pathway is facilitated by brownfield development immediately inland from the coastline, which results in intertidal habitat loss by preventing the landward migration of these habitats in response to sea level rise. The published literature[92] provides the following definition of coastal squeeze: '*the loss of natural habitats or deterioration of their quality arising from anthropogenic structures or actions, preventing the landward transgression of those habitats that would otherwise naturally occur in response to sea level rise in conjunction with other coastal processes. Coastal squeeze affects habitat on the seaward side of existing structures.*' Several modelling studies on the implications of coastal squeeze have been undertaken. For example, provided that no additional space for accommodating sea level rise is provided (e.g. through nature-based coastal management approaches and Managed Realignment), a global loss of coastal wetland up to 30% is forecast to 2100[93]. A study comparing armoured and unarmoured coastal segments determined that defended coasts lacked dry upper beach zones and comprised narrower mid-beach zones. Furthermore, areas with frontline defences were also characterised by lower abundance, biomass and size of upper intertidal macroinvertebrates, and lower abundance and species richness of shorebirds[94].

4.47 Given the increasing density of urban development along coastlines, which interferes with natural adaptive processes of coastal habitats, coastal squeeze is becoming an increasingly important consideration in the HRA process. The approaches for coastal management are typically set at the strategic level in Shoreline Management Plans (SMPs) and Coastal Management Strategies (CMS). While being bound under the Habitats and Species Regulations 2017 (as amended), Local Planning Authorities are also legally required to protect important human receptors, including homes, businesses and critical infrastructure (e.g. roads and railway lines). These objectives may be conflicting, which means that in many instances protection of coastal assets cannot be achieved without adverse effects on site integrity. Clearly, the development allocated in the Vale of Glamorgan RLDP would constitute important human assets in close proximity to the coastline and its protection would be identified in the overarching SMP/CMS.

4.48 The following Habitats Site within 15km of the Vale of Glamorgan authority boundary is vulnerable to pressure from coastal squeeze, potentially arising from development allocated in the emerging RLDP (the site in **bold** is taken forward into the following chapters):

- **Severn Estuary SAC/SPA/Ramsar** (stretching along the south-east boundary of the authority).

[92] Environment Agency. (February 2021). Flood and Coastal Erosion Risk Management Research and Development Programme. Available at: https://www.gov.uk/flood-and-coastal-erosion-risk-management-research-reports/what-is-coastal-squeeze#:~:text=Coastal%20squeeze%20is%20now%20defined,conjunction%20with%20other%20coastal%20processes [Accessed on the 01/08/2022]
[93] Schuerch M, Spencer T, Temmerman S, Kirwan ML, Wolff C, Lincke D, McOwen CJ, Pickering MD, Reef R, Vafeidis AT, Hinkel J, Nicholls RJ & Brown S. (2018). Future response of global coastal wetlands to sea-level rise. *Nature* **561**: 231-234.
[94] Dugan JE, Hubbard DM, Rodil IF, Revell DL & Schroeter S. (2008). Ecological effects of coastal armoring on sandy beaches. *Marine Ecology* **29**: 160-170.

5. Screening for Likely Significant Effects (LSEs)

Recreational Pressure

Severn Estuary SAC/SPA/Ramsar

5.1 The Severn Estuary SAC/SPA/Ramsar adjoins the eastern shoreline of the Vale of Glamorgan in proximity to the conurbation of Penarth. The designated habitats in the SAC and non-breeding waterfowl and waders in the SPA/Ramsar are all sensitive to recreational pressure via different mechanisms. Data from visitor surveys across the UK's estuarine Habitats Sites, indicate that these exert strong recreational draws and are characterised by large core recreational catchments.

5.2 Through its allocation of 7,890 dwellings (of which 3,520 will be net new dwellings in Key Sites, Housing Allocations and Rural Affordable Housing Led Sites[95]), 7 residential gypsy and traveller pitches, and its support for tourism-related development, the Vale of Glamorgan will result in an increase in the authority's population. In turn, this will result in heightened demand for outdoor greenspaces and could result in increased footfall within the Severn Estuary SAC/SPA/Ramsar. **Therefore, LSEs of the RLDP on the estuarine complex in relation to recreational pressure cannot be excluded and this impact pathway is screened in for AA.**

Cardiff Beech Woods SAC

5.3 The Cardiff Beech Woods, approx. 3.5km from the boundary of the Vale of Glamorgan, are designated for *Asperulo-Fagetum* beech forests and *Tilio-Acerion* forests of slopes, screes and ravines. Woodlands of European conservation interest are sensitive to recreational pressure via a range of pathways. Increased footfall over sensitive root zones results in soil compaction and changes to the ability of soil to hold water and nutrients. Trampling can also lead to direct damage to tree roots, which is particularly important where ancient or veteran trees are affected. Access by dog walkers also contributes to the process of nutrient enrichment, which can change the composition of the ground flora if sufficiently great.

5.4 Through its allocation of 7,890 dwellings (of which 3,520 will be net new dwellings in Key Sites, Housing Allocations and Rural Affordable Housing Led Sites[96]), 7 residential gypsy and traveller pitches, and its support for tourism-related development, the Vale of Glamorgan will result in an increase in the local population. At 3.5km from the Vale of Glamorgan, the authority lies within a typical core recreational catchment of woodland sites. **Therefore, LSEs of the RLDP on the Cardiff Beech Woods SAC in relation to recreational pressure cannot be excluded and this impact pathway is screened in for AA.**

Dunraven Bay SAC

5.5 The Dunraven Bay SAC, designated for its population of shore dock, is situated in the western part of the Vale of Glamorgan to the south of Dunraven Bay. Shore dock and the associated species-rich neutral grassland community, like any botanical assemblage, is sensitive to negative impacts arising from recreational use. These include trampling damage to individual plants, track-side erosion, soil compaction and nutrient enrichment.

5.6 However, it is considered that the Dunraven Bay SAC is unlikely to be materially impacted by housing growth allocated in the RLDP. While it is situated along the Wales Coast Path, the RLDP does not allocate a significant quantum of homes within a routine travel distance from the SAC.

[95] 1,124 dwellings will be delivered on Major Land Bank Sites that do not require assessment, since they already have extant planning permission.
[96] 1,124 dwellings will be delivered on Major Land Bank Sites that do not require assessment, since they already have extant planning permission.

The closest Key Site lies approx. 12.7km to the east of the SAC, even beyond a precautionary 10km core recreational catchment for coastal Habitats Sites. Furthermore, a review of mapping on Outdooractive indicates that the SAC is characterised by extremely steep terrain. In addition, the shore dock is generally found in locations that are avoided by recreational visitors as they are slippery underfoot. Any visitors to the site are likely to stick to existing footpaths for health and safety reasons. NRW's Core Management Plan does not identify recreational use as a factor potentially affecting the shore dock qualifying feature.

5.7 In conclusion, while the Dunraven Bay SAC lies within the Vale of Glamorgan, it is concluded that there will be no LSEs of the RLDP on the SAC regarding recreational pressure. This is due to a combination of the pattern of growth allocation within the RLDP as well as the prevailing topography within the SAC.

Kenfig SAC

5.8 The Kenfig SAC adjoins the Vale of Glamorgan and is situated in the authority of Bridgend. It is a very biodiverse site comprising coastal as well as freshwater habitats. It supports three types of dune habitats (i.e., fixed coastal dunes with herbaceous vegetation, dunes with *Salix repens* and humid dune slacks), all of which are sensitive to recreational footfall. The humid dune slacks within the SAC also support an important fen orchid population, which is also sensitive to negative recreational impacts such as direct trampling damage, soil compaction and nutrient enrichment. Natural Resources Wales' Core Management Plan specifies recreational and visitor pressure as a key factor affecting the feature. It states that '*vehicles or pressure from visitors including camping can cause damage or loss off to slack vegetation, compaction and erosion.*' Furthermore, illegal off-road motorcycling and 4x4 driving, and uncontrolled horse riding are listed as recreational activities of particular concern for the SAC.

5.9 Atlantic saltmarsh at the interface between the river and open coastline is another qualifying feature of the site. The Core Management Plan highlights trampling by horses as a key factor affecting the saltmarsh. The upper edge of the saltmarsh is regularly used by strings of 20+ horse riders from the trekking centre at Ogmore Castle Farm. As evidenced through aerial photography, a loss of saltmarsh habitat occurred between 1991 and 2000. Natural Resources Wales are concerned that an increase in usage of the site by horse riders (and other users) has the potential to widen the single access route through the saltmarsh, encroaching further onto adjoining marsh habitat.

5.10 It is noted that wardening and surveillance of recreational activities (e.g., camping, illicit vehicle usage) and access is already in place. Furthermore, restrictions are in place to reduce vehicle usage in humid dune slacks and dunes with *Salix repens*. Horse riding among certain areas of dune slacks at Merthyr Mawr is also being undertaken, with access to sensitive habitats being discouraged by footpath deviations to less sensitive areas. Due to the increasing popularity of horse riding within the SAC, erosion impacts on the qualifying saltmarsh have intensified. However, the introduction of a Horse Riding Permit Scheme by the Countryside Council for Wales (CCW; predecessor of Natural Resources Wales) was successful in reducing the number of riding visits to the SAC. Furthermore, this scheme also confined riding to selected routes, reducing recreational pressure on more sensitive parts of the SAC. The Core Management Plan highlights that the access management measures are ongoing.

5.11 Given its location, most of the recreational footfall in the SAC will be contributed by residents from Porthcawl and the town of Bridgend. The nearest housing allocation (a Rural Affordable Housing Led Site, Land to the East of Colwinston) lies approximately 6.2km from the SAC and only allocates 25 dwellings. However, the highest portion of growth (in particular the Key Sites) is allocated at considerably greater distances. The closest Key Site allocated in the Vale of Glamorgan RLDP (i.e., Land West of St Athan), lies approximately 15.6km to the south-east of the Kenfig SAC. This is even beyond the core catchments of most popular coastal destinations, typically taken to be 10km. As such, residential growth allocated in the RLDP, is very unlikely to materially contribute to the recreational burden in the SAC. Therefore, there will be no LSEs of the RLDP on the Kenfig SAC regarding recreational pressure and this impact pathway is screened out from AA in relation to this Habitats Site.

Cefn Cribwr Grasslands SAC

5.12 The Cefn Cribwr Grasslands SAC, designated for *Molinia* meadows and marsh fritillary butterfly, lies approx. 5.2km from the Vale of Glamorgan. *Molinia* meadows are potentially sensitive to recreational pressure via a range of pathways, including soil direct physical damage to plants, soil compaction, erosion and nutrient enrichment. Marsh fritillary could be impacted where recreational access reduces the availability of devil's-bit scabious, the preferred food plant of the butterfly at its larval stage.

5.13 Notwithstanding this, the SAC lies beyond a typical core recreational catchment for inland terrestrial sites of 5km. Moreover, while *Molinia* meadows are potentially sensitive to recreational disturbance, in practice they are not significant recreational draws as the large Molinia tussocks can make walking through the sward difficult. It is also noted that the Core Management Plan for the site does not identify recreational access as a factor impacting on the condition of the SAC. Overall, therefore, there will be no LSEs of the RLDP on the Cefn Cribwr Grasslands SAC regarding recreational pressure and this impact pathway is screened out from AA in relation to this Habitats Site.

Blackmill Woodlands SAC

5.14 The Blackmill Woodlands SAC, designated for old sessile oak woods with *Ilex* and *Blechnum*, lies approx. 6km from the Vale of Glamorgan. As highlighted in relation to the Cardiff Beech Woods SAC above, qualifying woodlands are sensitive to recreational impacts through a variety of mechanisms. However, the Vale of Glamorgan lies beyond the typical 5km core recreational catchment for inland Habitats Sites and it should be noted that there are other woodland sites much closer to Vale of Glamorgan residents (e.g. the Cardiff Beech Woods SAC). Furthermore, the Core Management Plan does not identify recreational access as a factor affecting the condition of the oak woods. Overall, therefore, there will be no LSEs of the RLDP on the Blackmill Woodlands SAC regarding recreational pressure and this impact pathway is screened out from AA in relation to this Habitats Site.

Screening of RLDP Policies

5.15 All policies included in the Vale of Glamorgan RLDP were screened for LSEs in relation to recreational pressure. It was determined that the following policies require assessment in the AA:

- Policy SP1 (Sustainable Growth Strategy) – identifies the broad strategic growth strategy for the Vale of Glamorgan for the period between 2021 and 2036, including the provision of 7,890 dwellings. The geographic locations for growth are also identified.
- Policy SP2 (Settlement Hierarchy) – specifies the settlement hierarchy for the Vale of Glamorgan, including the Key Settlement, Service Centre Settlements and Primary Settlements, and therefore outlines the spatial distribution of growth.
- Policy SP6 (Housing Requirement) – reaffirms that a total of 7,890 dwellings will be delivered over the RLDP period, but that a portion of this growth will be delivered through an existing landbank of sites.
- Policy HG1 (Housing Allocations) – stipulates the number of dwellings that will be delivered on Key Sites (2,278 units), Housing Allocations (1,120 units), Major Landbank Sites (1,124 units) and Rural Affordable Housing Led Sites (122 units).
- Policy HG1 KS1 (Land at North West Barry) – allocates a 18.7ha large Key Site for up to 376 dwellings over the RLDP period.
- Policy HG1 KS2 (Land to the North of Dinas Powys) – allocates a 13.3ha large Key Site for up to 250 dwellings over the RLDP period.
- Policy HG1 KS3 (Land at Readers Way, Rhoose) – allocates a 29.2ha large Key Site for up to 520 dwellings over the RLDP period.

- Policy HG1 KS4 (Land at Church Farm, St Athan) – allocates a 24.1ha large Key Site for up to 532 dwellings over the RLDP period.
- Policy HG1 KS5 (Land to the West of St Athan) – allocates a 29.6ha large Key Site for up to 600 dwellings over the RLDP period.
- Policy SP9 (Gypsy and Traveller Site Provision) – identifies that 7 traveller pitches will be delivered on Land at Llangan over the RLDP period.

Water Quality

Severn Estuary SAC/SPA/Ramsar

Treated Sewage Effluent

5.16 The Severn Estuary SAC/SPA/Ramsar stretches along the eastern coastline of the Vale of Glamorgan. It is designated for a range of aquatic habitats (e.g., estuaries, intertidal sand- and mudflats, and Atlantic saltmarsh) and fish (i.e., sea lamprey, river lamprey and twaite shad). All qualifying features of the SAC are sensitive to changes in water quality. For example, toxic pollutants, such as fuels, oils, paints and solvents may have direct toxicity on aquatic plants, invertebrates and fish. Furthermore, non-toxic contaminants (e.g., sediments and nutrients; specifically nitrogen in the marine environment) can trigger significant changes in habitat conditions with knock-on effects on invertebrate assemblages and fish.

5.17 The joint Regulation 33 advice note published by Natural England and CCW, provides extensive evidence for the sensitivity of the SAC to water pollution. For example, regarding anadromous fish present in the estuary, negative changes in various water quality parameters (e.g., temperature, salinity, turbidity, pH and dissolved oxygen [DO]) '*may act as barriers to migration. For example, the timing, duration and consistency of their upstream migration are believed to be closely related to temperature changes as well as pheromone triggers from the juveniles during periods of high water flow.*' DO concentrations can be significantly reduced in stretches of the estuary receiving organic-rich sediments and / or high nitrogen loadings. Furthermore, Atlantic salt meadows are more vulnerable to nutrient enrichment than previously assumed. Elevated concentrations of nitrogen or phosphorus can increase the growth of specific seaweed species, smothering glasswort species and altering the overall community composition within the SAC.

5.18 Qualifying species in the Severn Estuary SPA/Ramsar are unlikely to be directly impacted by water pollution (except where large amounts of toxic pollutants are released, such as in oil spills). The main impact of water pollution is likely to occur via trophic cascades, whereby the composition of invertebrate or faunal communities is altered. Eutrophication can also lead to the excessive growth of algal mats on mudflats, reducing access of birds to their preferred invertebrate prey. Notwithstanding this, it should be noted that high nutrient levels may also be beneficial to some bird species by increasing the density and size of certain invertebrate species.

5.19 Sewage generated by the residential development allocated in the emerging RLDP will be treated in WwTWs, some of which may be in hydrological continuity with the Severn Estuary SAC/SPA/Ramsar. A review of all WwTWs owned and operated by Welsh Water, indicates that there is at least one WwTW (Cog Moors WwTW) in the eastern part of the Vale of Glamorgan. Furthermore, several Key Sites (i.e., Land North of Dinas Powys, Land at North West Barry) are coming forward in this part of the authority, indicating that the demand for headroom at this WwTW is expected to increase.

5.20 Overall, there is a clear mechanism linking the RLDP to the Severn Estuary SAC/SPA/Ramsar regarding potential water quality impacts. **Therefore, LSEs of the RLDP on the estuarine complex in relation to water pollution from treated sewage effluent cannot be excluded and this impact pathway is screened in for AA.**

Surface Runoff

5.21 Negative water quality impacts can also arise due to runoff from impermeable surfaces associated with developments, particularly following intense rainfall events. Rainwater and/or floodwater carried on impermeable surfaces has the potential to mobilise toxic and non-toxic contaminants. Any development allocated along the Penarth frontage may result in increased

surface runoff into the Severn Estuary SAC/SPA/Ramsar, particularly where hydrological flows are inadequately managed.

5.22 The RLDP does not allocate any Key Sites or employment allocations at a distance to the Severn Estuary SAC/SPA/Ramsar within which material water quality impacts from surface runoff are likely to arise. However, a significant proportion of residential growth will be delivered on windfall sites. At least some of these developments could lie within a few hundred metres of the SAC/SPA/Ramsar. **Therefore, LSEs of the RLDP on the estuarine complex in relation to water pollution from uncontrolled surface runoff cannot be excluded and this impact pathway is screened in for AA.**

Kenfig SAC

Treated Sewage Effluent

5.23 This coastal and estuarine site adjoins the north-western part of the Vale of Glamorgan and is situated in the authority of Bridgend. Some of the SAC's qualifying features critically depend on hydrological input, including the humid dune slacks and dunes with *Salix repens*, hard oligo-mesotrophic waters with benthic vegetation, Atlantic saltmarsh and fen orchid (the latter being primarily associated with humid dune slacks).

5.24 The Kenfig dune system and its associated characteristic plant assemblages are directly dependent on the prevailing hydrochemical regime. The main threat to the water quality within the SAC has been identified as elevated macronutrient concentrations, such as those resulting from the discharge of treated sewage effluent. Elevated nitrogen concentrations have been measured at Burrows Well (a karstic spring) on the Merthyr Mawr component of the site and the slacks have been identified as becoming increasingly eutrophic. The high permeability of the underlying limestone aquifer implies that relatively distant point-source and diffuse pollution sources have the potential to affect water quality in the SAC.

5.25 Kenfig Pool, an example of a hard oligo-mesotrophic freshwater system, is also sensitive to nutrient enrichment. Being a freshwater ecosystem, the main growth-limiting nutrient is considered to be phosphorus (currently at 20ug/l-1). Notwithstanding this, mean annual total nitrogen concentrations are likely to play an important supplementary role as N can be used at various stages in the growth cycle. The Core Management Plan for the SAC stipulates that there should be no evidence of sedimentation or excessive growth of cyanobacteria and green algae.

5.26 A high-level review indicates that there is at least one WwTW serving a population greater than 2,000 that discharges treated sewage effluent in the vicinity of the SAC (Pen-Y-Bont, Merthyr Mawr). However, the closest site that is allocated in the RLDP lies approx. 6km to the south-east of the SAC and is not served by this WwTW. Overall, therefore, LSEs of the Vale of Glamorgan RLDP on the Kenfig SAC regarding water quality impacts from treated sewage effluent can be excluded. The site is screened out from AA in relation to this impact pathway.

Surface Runoff

5.27 Negative water quality impacts can also arise due to runoff from impermeable surfaces associated with developments, particularly following intense rainfall events. Rainwater and / or floodwater carried on impermeable surfaces has the potential to mobilise toxic and non-toxic contaminants. Any development allocated within the north-west part of the Vale of Glamorgan may result in increased surface runoff into the R. Ogmore, particularly where hydrological flows are inadequately managed. While the river will generally carry any runoff towards the Bristol Channel, some lateral connectivity with the Kenfig SAC is likely to exist.

5.28 With the closest site located approx. 6km away, the RLDP does not allocate any sites at a distance to the SAC within which material water quality impacts from surface runoff are likely to arise. Therefore, LSEs of the RLDP on the Kenfig SAC in relation to water pollution from uncontrolled surface runoff can be excluded and this impact pathway is screened out from AA.

Cefn Cribwr Grasslands SAC

5.29 The Cefn Cribwr Grasslands SAC is designated for *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils and marsh fritillary butterfly. *Molinia* meadows are a type of wet grassland

with impeded drainage, which are critical in supporting its characteristic plant community composition. The Core Management Plan for the SAC indicates that the '*marshy grassland communities are strongly influenced by the quantity and base status of the groundwater. Reductions in the quality and quantity of the water in the springs and watercourses feeding the site may lead to a loss of marshy grassland or changes in species composition.*' It follows that marsh fritillary butterfly, which depend on devil's bit scabious (a characteristic component of the SAC flora) as their key food plant, will also be sensitive to water quality changes.

5.30 However, it is considered that there is no potential for the Vale of Glamorgan RLDP to impact on the water quality in the SAC. The SAC is situated approx. 5.2km to the north-west of the authority, whereas the relevant WwTWs serving emerging development would discharge to rivers that drain south towards the Bristol Channel. Therefore, there is no apparent hydrological link between growth in the Vale of Glamorgan and the SAC. Furthermore, at approx. 5.2km distance to the Vale of Glamorgan, there is no potential for water quality changes through surface runoff from impermeable surfaces. In conclusion, LSEs of the Vale of Glamorgan RLDP on the Cefn Cribwr Grasslands SAC regarding water quality can be excluded. The site is screened out from AA in relation to this impact pathway.

Screening of RLDP Policies

5.31 All policies included in the Vale of Glamorgan RLDP were screened for LSEs in relation to water quality. It was determined that the following policies require assessment in the AA:

- Policy SP1 (Sustainable Growth Strategy) – identifies the broad strategic growth strategy for the Vale of Glamorgan for the period between 2021 and 2036, including the provision of 7,890 dwellings and 67.8ha of employment land. The geographic locations for residential growth are also identified.
- Policy SP2 (Settlement Hierarchy) – specifies the settlement hierarchy for the Vale of Glamorgan, including the Key Settlement, Service Centre Settlements and Primary Settlements, and therefore outlines the spatial distribution of growth.
- Policy SP6 (Housing Requirement) – reaffirms that a total of 7,890 dwellings will be delivered over the RLDP period, but that a portion of this growth will be delivered through an existing landbank of sites.
- Policy HG1 (Housing Allocations) – stipulates the number of dwellings that will be delivered on Key Sites (2,278 units), Housing Allocations (1,120 units), Major Landbank Sites (1,124 units) and Rural Affordable Housing Led Sites (122 units).
- Policy HG1 KS1 (Land at North West Barry) – allocates a 18.7ha large Key Site for up to 376 dwellings over the RLDP period.
- Policy HG1 KS2 (Land to the North of Dinas Powys) – allocates a 13.3ha large Key Site for up to 250 dwellings over the RLDP period.
- Policy HG1 KS3 (Land at Readers Way, Rhoose) – allocates a 29.2ha large Key Site for up to 520 dwellings over the RLDP period.
- Policy HG1 KS4 (Land at Church Farm, St Athan) – allocates a 24.1ha large Key Site for up to 532 dwellings over the RLDP period.
- Policy HG1 KS5 (Land to the West of St Athan) – allocates a 29.6ha large Key Site for up to 600 dwellings over the RLDP period.
- Policy SP9 (Gypsy and Traveller Site Provision) – identifies that 7 traveller pitches will be delivered on Land at Llangan over the RLDP period.
- Policy SP12 (Retail Floorspace Provision) – identifies that up to 5,862m^2 of convenience and up to 679m^2 of comparison floorspace will be delivered over the RLDP period.
- Policy SP14 (Employment Growth) – specifies that a net 182ha of employment land will be allocated for B1, B2 and B8 employment uses across the Vale of Glamorgan.

Water Quantity, Level and Flow

Severn Estuary SAC/SPA/Ramsar

5.32 The Severn Estuary SAC/SPA/Ramsar is an estuarine complex that is designated for wide array of habitats, fish and non-breeding waterfowl/waders. All qualifying features depend on complex hydrodynamic conditions, shaped by the interplay between freshwater and saltwater sources. Mixing conditions in the estuary shape a range of critical habitat parameters for the characteristic plant and invertebrate assemblages in SAC habitats. In turn, overwintering birds depend on the availability of their preferred foraging resources for the adequate replenishment of energy reserves.

5.33 The allocation of 7,890 dwellings and 67.8ha of employment floorspace will increase the potable water requirements in the Vale of Glamorgan. Depending on how this water demand is proposed to be met, there may be hydrological implications across the Vale of Glamorgan, including, potentially, in Habitats Sites that depend on sufficient hydrological input. **Overall, the available evidence base indicates that LSEs of the Vale of Glamorgan RLDP on the Severn Estuary SAC/SPA/Ramsar regarding water quantity, level and flow cannot be excluded. This site is screened in for AA, where further evidence will be consulted.**

Kenfig SAC

5.34 The Kenfig SAC is a coastal site comprising habitats with critical dependencies on hydrological inputs, likely both from freshwater sources and influx of saline groundwater. Natural Resources Wales' Core Management Plan highlights the water level as a factor potentially affecting the dune systems within the SAC. It states that '*the exceptional wetness and diversity of the Kenfig dune system is directly dependent on the hydrological… regime. The slack vegetation is influenced and maintained by both a high water table and maintenance of suitable water quality.*' Furthermore, '*the nature of the underlying limestone aquifer means that off-site activities a considerable distance away can potentially have an impact on the SAC.*'

5.35 Similarly, the qualifying feature 'hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.' depends on the maintaining a natural hydrological regime. The SAC lake is fed by a combination of dune seepage, three ephemeral streams and a deep Carboniferous Limestone aquifer. Owing to its primary dependence on groundwater sources, it is difficult to estimate its precise catchment area. Overall, Natural Resources Wales recommends that abstraction in the catchment of the SAC should be regulated.

5.36 Through the allocation of 7,890 new dwellings and 67.8ha of employment space, the Vale of Glamorgan will increase the potable water demand within the authority. It is a legal requirement of water companies (in this case Welsh Water) to supply new developments with potable water. If this additional water demand cannot be met within existing abstraction consents, this may require an increase in abstraction volumes from existing sources or the development of new sources. Where this affects water resources in hydrological connectivity with the Kenfig SAC, this may result in reduced water availability for designated SAC features.

5.37 **Overall, the available evidence base indicates that LSEs of the Vale of Glamorgan RLDP on the Kenfig SAC regarding water quantity, level and flow cannot be excluded. This site is screened in for AA, where further evidence will be consulted.**

Screening of RLDP Policies

5.38 All policies included in the Vale of Glamorgan RLDP were screened for LSEs in relation to water quantity, level and flow. It was determined that the following policies require assessment in the AA:

- Policy SP1 (Sustainable Growth Strategy) – identifies the broad strategic growth strategy for the Vale of Glamorgan for the period between 2021 and 2036, including the provision of 7,890 dwellings and 67.8ha of employment land. The geographic locations for residential growth are also identified.

- Policy SP2 (Settlement Hierarchy) – specifies the settlement hierarchy for the Vale of Glamorgan, including the Key Settlement, Service Centre Settlements and Primary Settlements, and therefore outlines the spatial distribution of growth.
- Policy SP6 (Housing Requirement) – reaffirms that a total of 7,890 dwellings will be delivered over the RLDP period, but that a portion of this growth will be delivered through an existing landbank of sites.
- Policy HG1 (Housing Allocations) – stipulates the number of dwellings that will be delivered on Key Sites (2,278 units), Housing Allocations (1,120 units), Major Landbank Sites (1,124 units) and Rural Affordable Housing Led Sites (122 units).
- Policy HG1 KS1 (Land at North West Barry) – allocates a 18.7ha large Key Site for up to 376 dwellings over the RLDP period.
- Policy HG1 KS2 (Land to the North of Dinas Powys) – allocates a 13.3ha large Key Site for up to 250 dwellings over the RLDP period.
- Policy HG1 KS3 (Land at Readers Way, Rhoose) – allocates a 29.2ha large Key Site for up to 520 dwellings over the RLDP period.
- Policy HG1 KS4 (Land at Church Farm, St Athan) – allocates a 24.1ha large Key Site for up to 532 dwellings over the RLDP period.
- Policy HG1 KS5 (Land to the West of St Athan) – allocates a 29.6ha large Key Site for up to 600 dwellings over the RLDP period.
- Policy SP9 (Gypsy and Traveller Site Provision) – identifies that 7 traveller pitches will be delivered on Land at Llangan over the RLDP period.
- Policy SP12 (Retail Floorspace Provision) – identifies that 5,862m^2 of convenience and 679m^2 of comparison floorspace will be delivered over the RLDP period.
- Policy SP14 (Employment Growth) – specifies that a net 182ha of employment land will be allocated for B1, B2 and B8 employment uses across the Vale of Glamorgan.

Atmospheric Pollution

Severn Estuary SAC/SPA/Ramsar

5.39 Emissions from road traffic have the potential to result in direct toxicity effects (by elevating NH_3 and NOx above their Critical Level), as well as increasing overall nitrogen deposition to sensitive SAC habitats. The main concern in relation to qualifying habitats in the Severn Estuary SAC would be a significant increase in nitrogen deposition, triggering eutrophication-like impacts and potentially resulting in shifts in plant community composition. APIS provides nitrogen Critical Loads (CLs) for pollution-sensitive habitats in the SAC. For example, saltmarsh has as CL of 10-20 kg N/ha/yr. It is noted that the lower end of this range should be applied to the more densely vegetated upper saltmarsh and areas of marsh subjected to direct runoff from adjacent catchments. Furthermore, embryonic shifting dunes also have a reported nitrogen CL of 10-20 kg N/ha/yr, with potential exceedance impacts including community composition changes, acceleration of successional stages, and loss of lichens and mosses.

5.40 Despite the sensitivity of the Severn Estuary SAC/SPA/Ramsar to atmospheric pollution impacts it is considered that the Vale of Glamorgan RLDP will make no material contribution to pollutant concentrations in these designated sites. A review of the existing road infrastructure indicates that there is no major commuter route within 200m of the site boundary in the Vale of Glamorgan. The closest 'A' road within the authority is the A4055, but this lies approx. 1.7km from the estuary at its closest. Even local residents that will commute to and from Cardiff City (by far the most important destination for and source of commuters from/to the Vale of Glamorgan according to Census 2001 data) are highly unlikely to travel on a major road within 200m of the designated site boundaries. The fastest route from Penarth to Cardiff would involve the aforementioned A4055 and A4232, neither of which run within 200m of the Severn Estuary SAC/SPA/Ramsar.

Overall, LSEs of the Vale of Glamorgan RLDP on the Severn Estuary SAC/SPA/Ramsar regarding atmospheric pollution can be excluded. The site is screened out from AA in relation to this impact pathway.

Dunraven Bay SAC

5.41 The Dunraven Bay SAC, a coastal site situated in the western part of the Vale of Glamorgan, is designated for shore dock. According to APIS, this species has a nitrogen CL range of 5-15 kg N/ha/yr. An exceedance of the minimum CL is likely to lead to an increased cover of graminoids (grasses) and mesophilic forbs, as well as a decrease in oligotrophic species. Generally, most species of conservation importance are adapted to low nutrient concentrations, which places them at a competitive disadvantage under elevated nutrient regimes. There is no data of current nitrogen deposition rates within the SAC boundary on APIS.

5.42 However, the SAC is situated in a very rural part of the Vale of Glamorgan with no major commuter route within 200m. The closest road is the B4265 approx. 1.6km distance and the nearest A road lies considerably further away. Even if assuming that the Dunraven Bay SAC is a highly popular destination, it is unlikely that traffic volumes to Dunraven Bay car park resemble anything close to what would be regarded as material commuter traffic flows. In conclusion, LSEs of the Vale of Glamorgan RLDP on the Dunraven Bay SAC regarding atmospheric pollution can be excluded. The site is screened out from AA in relation to this impact pathway.

Kenfig SAC

5.43 Situated along the coastline to the north of Vale of Glamorgan, the Kenfig SAC is designated for a range of habitats that are sensitive to atmospheric pollution, particularly its host of dune systems. The most sensitive dune habitat are the fixed coastal dunes with herbaceous vegetation with a nitrogen CL range of 5-10 kg N/ha/yr, which is followed by dunes with *Salix repens* (5-15 kg N/ha/yr). Sand dune habitats are one of the most natural remaining habitat types in the UK and generally infertile, making them highly sensitive to N deposition. For example, the reported impacts of nutrient enrichment in UK fixed dune grasslands is a decrease in species diversity and an increase in total biomass. Other habitat types within the Kenfig SAC (e.g. Atlantic saltmarsh; nitrogen CL of 10-20 kg N/ha/yr) are also sensitive to nitrogen deposition.

5.44 While there are no A roads within 200m of the Kenfig SAC, the B4524 runs within approx. 98m from the SAC boundary to the north of Ogmore-by-Sea. An assessment of Natural Resources Wales' Interactive Map Viewer indicates that the B4524 runs within approx. 126m of dune habitat and 178m of saltmarsh, both designated and sensitive SAC habitats. There are no significant employment destinations in this part of the authority, meaning that any impact from the B4524 would primarily arise due to commuters living in Ogmore-by-Sea and Southerndown, particularly those travelling to the adjoining authority of Bridgend. However, the Vale of Glamorgan RLDP does not allocate Key Sites in this part of the authority, which would have the potential to materially increase the traffic volume along the B4524. Overall, therefore, it is concluded that the Vale of Glamorgan RLDP will not result in LSEs on the Kenfig SAC regarding atmospheric pollution. This site is screened out from AA in relation to this impact pathway.

Cardiff Beech Woods SAC

5.45 The Cardiff Beech Woods SAC is located to the north-east of Vale of Glamorgan in the adjoining authority of Cardiff. This composite woodland site stretches along the A470, which adjoins Cardiff with Rhondda Cynon Taf to the north. The SAC is designated for two types of woodland, both of which are sensitive to nitrogen deposition. According to APIS, *Asperulo-Fagetum* beech forest (nitrogen CL of 10-15 kg N/ha/yr) is slightly more sensitive to atmospheric pollution than *Tilio-Acerion* forests of slopes, screes and ravines (15-20 kg N/ha/yr). Current deposition trends for the 1km grid squares covering the SAC indicate that the minimum CLs for both woodland types are currently being exceeded. For example, nitrogen deposition in the closest component part to the A470 is currently modelled as 22.1 kg N/ha/yr. Natural Resources Wales' Core Management Plan for the SAC highlights atmospheric pollution as a factor potentially affecting the qualifying woodland. '*The location of the woodland in industrialised South Wales, together with the presence of nearby quarrying and associated activities, means that there is the potential for localised atmospheric pollution.*'

5.46 In evaluating whether there is likely to be a reasonable link between the Vale of Glamorgan RLDP and atmospheric pollution in the SAC, it must be evaluated whether commuter traffic from and to the Vale of Glamorgan is likely to flow within 200m of the Cardiff Beech Woods SAC (i.e. on the aforementioned A470). A review of Census 2011 data indicates that Cardiff is the most likely destination for commuters from the Vale of Glamorgan (63.6% of all commuters travelling by car or van), as well as the most important source of commuters working within the Vale of Glamorgan (39.9%). However, most employment centres, which are concentrated in the south of Cardiff, would not require travelling past the SAC. Similarly, there is little housing in Cardiff within the vicinity of the Cardiff Beech Woods SAC, such that employment allocations in the emerging Vale of Glamorgan RLDP are unlikely to receive many commuters from this part of the authority.

5.47 Notwithstanding this, Rhondda Cynon Taf, the authority connected to Cardiff via the A470, is the second most important source (2,065 daily inflows, 19%) and third most important destination (1,457 daily outflows, 7.2%) of commuter traffic associated with the Vale of Glamorgan. The fastest routes between some of the major settlements in the Vale of Glamorgan and potential destinations in Rhondda Cynon Taf (e.g. Pontypridd, Porth and Abercynon) would all involve driving along the A470 within close proximity to the SAC. **Therefore, LSEs of the Vale of Glamorgan RLDP on the Cardiff Beech Woods SAC regarding atmospheric pollution cannot be excluded. The site is screened in for AA in relation to this impact pathway.**

Blackmill Woodlands SAC

5.48 The Blackmill Woodlands SAC is situated to the north of the Vale of Glamorgan in the adjoining authority of Bridgend. The site is designated for its old sessile oak woods with *Ilex* and *Blechnum*, which have a nitrogen CL range of 10-15 kg N/ha/yr as identified on APIS. An exceedance of the minimum CL may lead to a range of impacts on trees, including preferential investment in upward rather than root growth (concomitant with increased risk of drought stress and uprooting), changes in mycorrhizal flora, increased litter production and winter desiccation.

5.49 At its closest, the Blackmill Woodlands SAC lies approx. 35m from the A4061 that runs all the way to the town of Bridgend. While there clearly is a potential for traffic-derived atmospheric pollution within the SAC, it is very unlikely that the Vale of Glamorgan will materially contribute to NH_3, NOx and total nitrogen deposition within the site. Much of the commuter traffic associated with the emerging RLDP (both outflows and inflows) will be to/from the town of Bridgend. Any travel to the town of Bridgend would not involve driving on the A4061 near the SAC, which lies considerably further north. It is also noted that the SAC is situated in a very rural area that encompasses little urban development. Overall, LSEs of the Vale of Glamorgan RLDP on the Blackmill Woodlands SAC regarding atmospheric pollution are excluded. The site is screened out from AA in relation to this impact pathway.

Cefn Cribwr Grasslands SAC

5.50 The Cefn Cribwr Grasslands SAC, situated in the adjoining authority of Bridgend, is designated for a habitat (*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils) and marsh fritillary butterfly, both of which are sensitive to atmospheric pollution impacts. For example, APIS identifies a nitrogen CL range of 6-10 kg N/ha/yr for marsh fritillary butterfly. An exceedance of the minimum CL may result in indirect impacts on butterflies by altering the plant community composition within their wider habitat. For example, excessive nitrogen deposition may lead to an increase in graminoids, while decreasing species that are critical to the butterflies (e.g. devil's bit scabious). *Molinia* meadows have a nitrogen CL range of 15-25 kg N/ha/yr.

5.51 The Cefn Cribwr Grasslands SAC is a composite site with many SSSIs lying relatively far beyond 200m from any major roads. However, the Waun-fawr SSSI lies only approx. 130m from the M4, a major traffic artery permeating the authorities of Cardiff, Rhondda Cynon Taf, Bridgend and Neath Port Talbot an on east-west axis. While Census 2011 data indicate that there is an important exchange of commuter traffic with Bridgend (the authority within which the SAC lies), this is likely to focus predominantly on the town of Bridgend, with little urban development lying in the wider area around the Cefn Cribwr Grasslands SAC.

5.52 Census 2011 data also show that Neath Port Talbot is on the top ten destinations for/sources of commuter traffic associated with the Vale of Glamorgan. The M4 is by far the quickest and most

direct route into Neath Port Talbot, a journey that would involve driving within 200m of the SAC. However, the volume of traffic exchange with this authority is very low. Of a total of 10,879 daily inflows, only 289 journeys (2.7%) are from Neath Port Talbot. Similarly, of the 20,136 out-commuters from the Vale of Glamorgan, only 232 journeys (1.2%) are undertaken to Neath Port Talbot. Therefore, any material traffic-associated air quality impacts on the Cefn Cribwr Grasslands SAC are unlikely due to the low volume of Annual Average Daily Traffic (AADT) involved. Overall, LSEs of the Vale of Glamorgan RLDP on the Cefn Cribwr Grasslands SAC regarding atmospheric pollution are excluded. The site is screened out from AA in relation to this impact pathway.

Screening of RLDP Policies

5.53 All policies included in the Vale of Glamorgan RLDP were screened for LSEs in relation to atmospheric pollution. It was determined that the following policies require assessment in the AA:

- Policy SP1 (Sustainable Growth Strategy) – identifies the broad strategic growth strategy for the Vale of Glamorgan for the period between 2021 and 2036, including the provision of 7,890 dwellings and 67.8ha of employment land. The geographic locations for residential growth are also identified.
- Policy SP2 (Settlement Hierarchy) – specifies the settlement hierarchy for the Vale of Glamorgan, including the Key Settlement, Service Centre Settlements and Primary Settlements, and therefore outlines the spatial distribution of growth.
- Policy SP6 (Housing Requirement) – reaffirms that a total of 7,890 dwellings will be delivered over the RLDP period, but that a portion of this growth will be delivered through an existing landbank of sites.
- Policy HG1 (Housing Allocations) – stipulates the number of dwellings that will be delivered on Key Sites (2,278 units), Housing Allocations (1,120 units), Major Landbank Sites (1,124 units) and Rural Affordable Housing Led Sites (122 units).
- Policy HG1 KS1 (Land at North West Barry) – allocates a 18.7ha large Key Site for up to 376 dwellings over the RLDP period.
- Policy HG1 KS2 (Land to the North of Dinas Powys) – allocates a 13.3ha large Key Site for up to 250 dwellings over the RLDP period.
- Policy HG1 KS3 (Land at Readers Way, Rhoose) – allocates a 29.2ha large Key Site for up to 520 dwellings over the RLDP period.
- Policy HG1 KS4 (Land at Church Farm, St Athan) – allocates a 24.1ha large Key Site for up to 532 dwellings over the RLDP period.
- Policy HG1 KS5 (Land to the West of St Athan) – allocates a 29.6ha large Key Site for up to 600 dwellings over the RLDP period.
- Policy SP9 (Gypsy and Traveller Site Provision) – identifies that 7 traveller pitches will be delivered on Land at Llangan over the RLDP period.
- Policy SP12 (Retail Floorspace Provision) – identifies that 5,862m^2 of convenience and 679m^2 of comparison floorspace will be delivered over the RLDP period.
- Policy SP14 (Employment Growth) – specifies that a net 182ha of employment land will be allocated for B1, B2 and B8 employment uses across the Vale of Glamorgan.

Loss of Functionally Linked Habitat

Severn Estuary SPA/Ramsar

5.54 The Severn Estuary SPA/Ramsar is designated for a range of overwintering waterfowl and waders, including Bewick's swan, European white-fronted goose, dunlin, redshank, shelduck and

gadwall. The mobility of all these species implies that they may regularly utilise habitats beyond the designated site boundary for foraging, roosting, loafing and moulting. Maintaining adequate nutritional reserves is particularly important for wintering birds to enable their long journeys back to their summer grounds.

5.55 The joint Regulation 33 advice note published by Natural England and CCW identifies the key supporting habitats for all qualifying species in the SPA. It is highlighted that Bewick's swan '*graze on a range of 'soft' meadow grasses such as Agrostis stolonifera and Alopecurus geniculatus found in wet meadows which are outwith the European Marine Site Boundary.*' Both Bewick's swan and European white-fronted goose are also known to utilise agricultural land parcels, where they forage on overwinter stubble, spilt grain and left-over potatoes. The overall conclusion in Natural England's and CCW's advice note states that '*some species will also use areas of land and coastal waters outside the boundaries of both the European Marine Site, SPA and Ramsar Site. Relevant authorities need to have regard to such adjacent interests, as they might be affected by activities taking place… adjacent to the European Marine Site.*'

5.56 All bird species have core foraging ranges, i.e., the distance that most individuals will travel to feeding grounds. Goose species are known to have particularly large maximum foraging distances (up to 20km), although the travel distance of most individuals will be under 10km. The emerging Vale of Glamorgan RLDP allocates three Key Sites comprising arable land within 10km of the Severn Estuary SPA/Ramsar and, therefore, within the expected core foraging range of Bewick's swan and European white-fronted goose. The conversion of agricultural land to brownfield development has the potential to result in a net loss in off-site foraging opportunities for some of the qualifying SPA/Ramsar species. **Overall, LSEs of the Vale of Glamorgan RLDP on the Severn Estuary SPA/Ramsar regarding the potential loss of functionally linked habitat cannot be excluded. This site is taken forward to AA in relation to this impact pathway.**

Cefn Cribwr Grasslands SAC

5.57 The qualifying marsh fritillary in the Cefn Cribwr Grasslands SAC have limited mobility. Generally, this is thought to be a highly localised and sedentary species that forages on devil's bit scabious within the designated site boundary in the larval stage of its life cycle. However, in its adult life stage, both male and female butterflies may disperse from their former foraging patches. Research indicates that the average dispersal distances for male and female marsh fritillary are 1.5km and 510m respectively[97]. Therefore, any wet grassland with devil's bit scabious within 1.5km from the SAC boundary could constitute functionally linked habitat for the resident butterfly population.

5.58 However, the Cefn Cribwr Grasslands SAC lies approx. 5.2km to the north of the Vale of Glamorgan authority boundary, placing it relatively far beyond the dispersal distance for marsh fritillary butterfly. Therefore, any loss of wet grassland within the Vale of Glamorgan (if present), would not impact on the availability of supporting habitat to the SAC population. In conclusion, LSEs of the Vale of Glamorgan RLDP on the Cefn Cribwr Grasslands SAC regarding the potential loss of functionally linked habitat can be excluded. The site is screened out from AA in relation to this impact pathway.

Screening of RLDP Policies

5.59 All policies included in the Vale of Glamorgan RLDP were screened for LSEs in relation to the loss of functionally linked habitat. It was determined that the following policies require assessment in the AA:

- Policy SP1 (Sustainable Growth Strategy) – identifies the broad strategic growth strategy for the Vale of Glamorgan for the period between 2021 and 2036, including the provision of 7,890 dwellings and 67.8ha of employment land. The geographic locations for residential growth are also identified.

[97] Wahlberg, N., Klemtti, T., Selonen, V. & Hanski, I. (2002). Metapopulation structure and movements in five species of checkerspot butterflies. *Oecologia* **130**: 2074-2091.

- Policy SP2 (Settlement Hierarchy) – specifies the settlement hierarchy for the Vale of Glamorgan, including the Key Settlement, Service Centre Settlements and Primary Settlements, and therefore outlines the spatial distribution of growth.
- Policy SP6 (Housing Requirement) – reaffirms that a total of 7,890 dwellings will be delivered over the RLDP period, but that a portion of this growth will be delivered through an existing landbank of sites.
- Policy HG1 (Housing Allocations) – stipulates the number of dwellings that will be delivered on Key Sites (2,278 units), Housing Allocations (1,120 units), Major Landbank Sites (1,124 units) and Rural Affordable Housing Led Sites (122 units).
- Policy HG1 KS1 (Land at North West Barry) – allocates a 18.7ha large Key Site for up to 376 dwellings over the RLDP period.
- Policy HG1 KS2 (Land to the North of Dinas Powys) – allocates a 13.3ha large Key Site for up to 250 dwellings over the RLDP period.
- Policy HG1 KS3 (Land at Readers Way, Rhoose) – allocates a 29.2ha large Key Site for up to 520 dwellings over the RLDP period.
- Policy HG1 KS4 (Land at Church Farm, St Athan) – allocates a 24.1ha large Key Site for up to 532 dwellings over the RLDP period.
- Policy HG1 KS5 (Land to the West of St Athan) – allocates a 29.6ha large Key Site for up to 600 dwellings over the RLDP period.
- Policy SP9 (Gypsy and Traveller Site Provision) – identifies that 7 traveller pitches will be delivered on Land at Llangan over the RLDP period.
- Policy SP12 (Retail Floorspace Provision) – identifies that 5,862m^2 of convenience and 679m^2 of comparison floorspace will be delivered over the RLDP period.
- Policy SP14 (Employment Growth) – specifies that a net 182ha of employment land will be allocated for B1, B2 and B8 employment uses across the Vale of Glamorgan.

Visual and Noise Disturbance (During Construction)

Severn Estuary SAC/SPA/Ramsar

5.60 The Severn Estuary SAC is partly designated for several anadromous fish species, including sea lamprey, river lamprey and twaite shad. Individuals of all these species undertake annual migrations from the sea/estuary to upstream spawning sites. Where construction activities are undertaken in close proximity to freshwater courses, there is the potential for noise/vibration disturbance in the water column potentially impeding the ability of anadromous fish to reach their reproductive habitats. In consultation feedback on the Preferred Strategy RLDP, Natural Resources Wales identified the River Ely and its tributaries as a particularly important stretch of functionally linked habitat for anadromous fish. However, a review of the sites allocated in the RLDP indicates that none lie in close proximity to the River Ely and connected watercourses. Therefore, LSEs of the Vale of Glamorgan RLDP on the Severn Estuary SAC regarding potential noise/vibration disturbance from construction works to anadromous fish can be excluded. The site is screened out from AA in relation to this impact pathway.

5.61 The Severn Estuary SPA/Ramsar is designated for several individual waterfowl and wader species (as well as an overarching waterbird assemblage), which will utilise habitat within and functionally linked habitat outside the designated site boundary. While all bird species are sensitive to visual and noise disturbance, the magnitude of behavioural and physiological responses will show considerable intra- and inter-specific variation. The SPA/Ramsar designation includes a thin strip of intertidal habitats adjoining the eastern Vale of Glamorgan coastline.

5.62 The RLDP allocates several Key Sites, which will deliver a large portion of the development over the Plan period. The closest Key Site (Land North of Dinas Powys) lies at approx. 2.5km distance

from the SPA/Ramsar. According to research published by the Institute for Estuarine and Coastal Studies, this is far beyond a precautionary screening distance of 300m within which material disturbance impacts are likely to arise. However, it is noted that small-/large-scale windfall development may be coming forward under the RLDP. Any of these additional developments could come forward much closer to the Severn Estuary SPA/Ramsar, within the visual and noise impact buffer zone for qualifying birds. Furthermore, visual and noise disturbance is also an important consideration in relation to functionally linked habitats utilised by SPA/Ramsar bird species.

5.63 **Therefore, as a precautionary measure, LSEs of the Vale of Glamorgan RLDP on the Severn Estuary SPA/Ramsar (both within the designated site and in functionally linked habitats) regarding visual and noise disturbance from construction works cannot be excluded. The site is screened in for AA in relation to this impact pathway.**

Screening of RLDP Policies

5.64 All policies included in the Vale of Glamorgan RLDP were screened for LSEs in relation to visual and noise disturbance during construction. It was determined that the following policies require assessment in the AA:

- Policy SP1 (Sustainable Growth Strategy) – identifies the broad strategic growth strategy for the Vale of Glamorgan for the period between 2021 and 2036, including the provision of 7,890 dwellings and 67.8ha of employment land. The geographic locations for residential growth are also identified.
- Policy SP2 (Settlement Hierarchy) – specifies the settlement hierarchy for the Vale of Glamorgan, including the Key Settlement, Service Centre Settlements and Primary Settlements, and therefore outlines the spatial distribution of growth.
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- Policy HG1 KS4 (Land at Church Farm, St Athan) – allocates a 24.1ha large Key Site for up to 532 dwellings over the RLDP period.
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- Policy SP14 (Employment Growth) – specifies that a net 182ha of employment land will be allocated for B1, B2 and B8 employment uses across the Vale of Glamorgan.

Coastal Squeeze

Severn Estuary SAC/SPA/Ramsar

5.65 The Severn Estuary is an extensive coastal site that comprises extensive areas of qualifying intertidal habitats, including Atlantic saltmarsh as well as sand- and mudflats. Any negative impacts from coastal squeeze would reduce the area of qualifying habitat, equating to adverse effects on site integrity. The aforementioned intertidal habitats also represent key foraging and roosting sites for SPA/Ramsar waterfowl and waders, such that any loss from coastal squeeze would indirectly impact these birds by diminishing food and resting resources. Any development allocations on greenfield sites immediately inland from the estuary would reduce the capacity of qualifying habitats to naturally retreat landward in line with sea level rise.

5.66 While none of the development sites that are allocated in the RLDP lie adjacent to the coastline, a relatively large quantum of housing will be delivered on windfall development, some of which could be located in close proximity to the coastline. **Therefore, as a precautionary measure, LSEs of the Vale of Glamorgan RLDP on the Severn Estuary SAC/SPA/Ramsar regarding coastal squeeze cannot be excluded. The site is screened in for AA in relation to this impact pathway.**

Screening of RLDP Policies

5.67 All policies included in the Vale of Glamorgan RLDP were screened for LSEs in relation to coastal squeeze. It was determined that the following policies require assessment in the AA:

- Policy SP1 (Sustainable Growth Strategy) – identifies the broad strategic growth strategy for the Vale of Glamorgan for the period between 2021 and 2036, including the provision of 7,890 dwellings and 67.8ha of employment land. The geographic locations for residential growth are also identified.
- Policy SP2 (Settlement Hierarchy) – specifies the settlement hierarchy for the Vale of Glamorgan, including the Key Settlement, Service Centre Settlements and Primary Settlements, and therefore outlines the spatial distribution of growth.
- Policy SP6 (Housing Requirement) – reaffirms that a total of 7,890 dwellings will be delivered over the RLDP period, but that a portion of this growth will be delivered through an existing landbank of sites.
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- Policy HG1 KS4 (Land at Church Farm, St Athan) – allocates a 24.1ha large Key Site for up to 532 dwellings over the RLDP period.
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- Policy SP9 (Gypsy and Traveller Site Provision) – identifies that 7 traveller pitches will be delivered on Land at Llangan over the RLDP period.
- Policy SP12 (Retail Floorspace Provision) – identifies that 5,862m^2 of convenience and 679m^2 of comparison floorspace will be delivered over the RLDP period.

- Policy SP14 (Employment Growth) – specifies that a net 182ha of employment land will be allocated for B1, B2 and B8 employment uses across the Vale of Glamorgan.

6. Appropriate Assessment

Recreational Pressure

Severn Estuary SAC/SPA/Ramsar

6.1 The Severn Estuary site complex is situated along the eastern edge of the Vale of Glamorgan. As highlighted in the LSEs screening section, public access / disturbance represents the most important pressure and threat to the integrity of the site. Specifically, Natural England's SIP states that '*Public access and recreation… may have an impact on bird species sensitive to disturbance, causing displacement from feeding, roosting and moulting areas, and if severe could affect long term survival and population numbers and distributions within the Estuary. There are a wide range of recreational activities within the site (walking, dog walking, horse riding, biking, beach activities, angling, wildfowling, other shooting (e.g. clay pigeon)) that may cause damage to habitats where pressure is high.*' Due to the existing recreational pressure within the estuary, one of the actions identified in the SIP is to undertake a programme of targeted education and awareness raising amongst key recreational user groups, such as angling groups, holiday makers, local residents and schools.

6.2 Site total waterfowl and wader species counts are a critical performance indicator for Habitats Sites. The accompanying Conservation Objectives typically aim at maintaining or, where significant declines have occurred, increasing population numbers. According to British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) data, the Severn Estuary supported a total bird abundance of 86,831 in 2017/18, which dropped to its lowest point in 2020/21 (64,877). However, by 2021/22 the population had recovered to 82,619, almost reaching the total population recorded in 2017/18. Overall, abundance data for the Severn Estuary SPA / Ramsar appear to indicate that the qualifying bird populations are relatively stable.

6.3 The main determinants of the extent of recreational usage of Habitats Sites include proximity to urban centres and existing infrastructure enabling access. The town of Penarth, specified as a Service Centre Settlement in the Vale of Glamorgan RLDP, borders onto the stretch of the Severn Estuary SAC / SPA / Ramsar within the Vale of Glamorgan, placing its residents within easy walking distance of the estuary. Barry, identified as the Key Settlement within the RLDP, lies approx. 4.1km to the west of the SAC / SPA / Ramsar. While this would be too far for most residents to walk, this is well within routine driving distance for regular site visitors. The RLDP directs a significant portion of the 7,890 dwellings to be delivered over the Plan period to the settlements of Barry and Penarth, indicating that the demand for recreational greenspaces in this part of the authority will increase.

6.4 As one of the main destinations on offer, it is reasonable to assume that recreational footfall within or adjoining the Severn Estuary SAC / SPA / Ramsar will also increase compared to the pre-RLDP baseline. Notwithstanding this, it must also be noted that various alternative destinations with similar characteristics exist along the southern coastline of the Vale of Glamorgan, including Sully Bay, and the areas around Barry Harbour and Porthkerry (none of which are designated under the Severn Estuary SAC / SPA / Ramsar). Therefore, the additional recreational burden due to the RLDP will not solely focus on the designated sites and will be somewhat absorbed by non-designated stretches of the coastline.

6.5 The section of the Severn Estuary SAC / SPA / Ramsar most likely to be visited by future Vale of Glamorgan residents due to proximity from home, extends between Penarth Head and Lavernock Point. The Wales Coast Path, a long-distance hiking trail, adjoins Mean High Water between Penarth Pier all the way south to Lavernock, bringing recreational users in close proximity to intertidal habitats that are themselves qualifying features of the SAC and / or supporting qualifying SPA / Ramsar bird species. As highlighted above, residential development within Penarth is within easy walking distance of the estuary, indicating that much of the current recreational burden in this part of the SAC / SPA / Ramsar is likely to stem from nearby housing. However, there is also one large formal car park serving this part of the coastline (Cliff Parade Car Park with 100+

parking spaces). It is considered that this car park may represent a focal point for car-based visitors travelling from further afield within the Vale of Glamorgan (e.g. Barry).

6.6 Generally, the maximum area of intertidal habitat (i.e. the habitat between Mean High Water and Mean Low Water) potentially subjected to disturbance is relatively limited, particularly when considered in relation to its entirety in the Severn Estuary SAC / SPA / Ramsar. The maximum width of the intertidal zone along the Vale of Glamorgan is approx. 467m at Ranny Point, which is considerably narrower than in other parts of the authority. It follows that the importance of the Vale of Glamorgan coastline in terms of the abundance and diversity of qualifying birds supported is also likely to be more limited.

6.7 Additionally, at least a portion of the intertidal zone is dominated by rocky cliffs and outcrops, which are of comparatively limited suitability for SPA / Ramsar bird species. Most qualifying species predominantly graze in saltmarsh (Bewick's swan, white-fronted goose) or probe for invertebrates in mudflats, but these habitats are of limited prevalence along the Vale of Glamorgan. Notwithstanding this, Natural England's and Natural Resources Wales' joint conservation advice package for the Severn Estuary European Marine Site (EMS) also specifies hard substrate habitats (rocky shores) as being important for wintering dunlin, redshank and shelduck for foraging of suitable invertebrates, such as *Carcinus*, *Crangon*, Corophium, Hydrobia, *Macoma*, *Mytilus*, *Hediste* and *Talitrus* spp.

Recreation Evidence Base

6.8 The Severn Estuary SPA / Ramsar is a destination with a unique funnel shape, meaning that it runs diagonally along several authorities, including Forest of Dean, Stroud, Monmouthshire, Cardiff and the Vale of Glamorgan. Due to its scenery and geography, the site has a unique recreational draw on residents in adjoining authorities, and these are likely to visit stretches of the estuary with suitable access points that are closest to home. No visitor data on access points within the Vale of Glamorgan is available. However, the following visitor survey data are available for other stretches of the Severn Estuary SAC / SPA / Ramsar:

- Comprehensive overview of recreational boating in the estuary published by the Association of Severn Estuary Relevant Authorities (ASERA)[98];
- Visitor survey undertaken by Footprint Ecology in 2017 to inform a recreation strategy within Forest of Dean District[99];
- Visitor survey undertaken by EPR in 2016 for the part of the Severn Estuary SAC/SPA/Ramsar within Stroud District[100];
- Visitor survey undertaken by AECOM on the Welsh side of the estuary for the emerging RLDPs for Monmouthshire and Torfaen; and
- Updated visitor survey undertaken by Footprint Ecology on behalf of the Gloucestershire LPAs and Natural England, extending the scope of EPR's 2016 survey[101].

6.9 These surveys were conducted to establish a baseline of recreational usage within the estuary and to assess the potential implications of residential growth in the respective authorities in terms of recreational footfall. Due to the unique shape of the estuary, the data from these surveys are not directly relevant to the Vale of Glamorgan, illustrated by the fact that the surveys did not capture visitors from this authority. Nevertheless, the data show that Vale of Glamorgan lies within the core recreational catchment of the site and some of the patterns of visitor use highlighted in

[98] Association of Severn Estuary Relevant Authorities. (November 2016). Recreational boating in the Severn Estuary. 85pp. Available at: https://asera.org.uk/wp-content/uploads/sites/3/2016/11/ASERA-Water-Based-Recreation-Report-Nov-2016-Low-Res2.pdf [Accessed on the 04/04/2023]

[99] Liley D., Panter C. & Hoskin R. 2017. Lydney Severn Estuary Visitor Survey and Recreation Strategy. Unpublished report by Footprint Ecology for the Forest of Dean District Council. 55pp. Available at: https://www.footprint-ecology.co.uk/reports/Liley%20et%20al%202017%20Lydney%20Severn%20Estuary%20Visitor%20Survey%20and%20Recreation%20Strategy.pdf [Accessed on the 31/10/2019]

[100] Southgate J. & Colebourn K. 2016. Severn Estuary (Stroud District) Visitor Survey Report. Report for Stroud District Council. Ecological Planning & Research, Winchester. 68pp. Available at: https://www.stroud.gov.uk/media/2902/severnestuaryvs_report_15581c_final_060616.pdf [Accessed on the 31/10/2019]

[101] Caals Z. & Liley D. 2022. Severn Estuary Visitor Survey 2022. Report by Footprint Ecology. 97pp. Available at: https://www.footprint-ecology.co.uk/reports/Caals%20and%20Liley%20-%202022%20-%20Severn%20Estuary%20Visitor%20Survey%202022.pdf [Accessed on the 13/10/2025]

these surveys are likely to be similar for the authority (for example, the high proportion dog walkers constitute of the total recreational burden). Furthermore, the visitor management interventions discussed in Footprint Ecology's Lydney recreation strategy provide useful context and potential guidance on mitigation measures that may be needed in relation to the Vale of Glamorgan RLDP. The main results from each of the recreational surveys are discussed in the following.

Recreational Boating

6.10 Water-based activities are likely to be particularly disturbing to overwintering birds because they may bring visitors closer to sensitive areas, such as roosts or foraging sites. Furthermore, the infrastructure associated with boating activities (e.g. moorings) is known to be particularly damaging to benthic habitats, leading to erosion, abrasion and sediment displacement. The Association of Severn Estuary Relevant Authorities (ASERA) published a study of water-based recreation in the Severn Estuary EMS (which covers parts of the SAC / SPA / Ramsar designation) in 2016. It summarises the key environmental impacts of boating, gives an overview of current boat usage trends and suggests steps for managing water-based activities. Recreational boats access the estuary using 35 launching and access points (31 slipways and four sets of locks). Of these, three slipways are located along the Penarth frontage. Most slipways are owned or managed by recreational boat clubs and usage of slipways is restricted to club members or requires prior permission for non-members. For example, the Vale of Glamorgan Council slipways are used by Penarth Yacht Club, Penarth Water Ski Club and the Royal National Lifeboat Institution (RNLI). Very popular slipways, such as those in Penarth and Cardiff Bay, are managed through a permit system. These broad management systems are important because they inherently limit the peak number of boat users in the estuary at any one time.

6.11 The Royal Yachting Association (RYA) identified indicative boating routes of varying levels of intensity in their UK Coastal Atlas of recreational Boating (2008). Cardiff Bay and the estuarine section along the Vale of Glamorgan are focal areas for routes with heavy recreational use, with at least six or more boats at all times on summer days. For the Penarth seafront, an estimated peak of up to 30 boats / day is provided for summer weekend, dropping to 8-9 boats / day in winter. Overall, the indicative level of boating activity in summer is 'medium', compared to a 'low' level of boating in winter.

6.12 Most disturbance impacts from water-based recreation are likely to be temporary (with birds ceasing foraging and moving to less disturbed areas but then returning to their roosting / feeding ground). However, if prolonged disturbance impacts are present, this may result in permanent displacement, often to sub-optimal foraging habitats. Disturbance is likely to be biggest where the rapid movement of boats across the water is accompanied by loud noises (e.g. powerboating, water-skiing, jet-skiing). Generally, recreational boating is unlikely to be of concern in the open water, but mainly in proximity to intertidal zones and important bird roost sites. Another main risk is associated with disturbance from intermittent activity at landing and launching points in close proximity to intertidal habitats.

6.13 However, the RYA report concluded that recreational boating is unlikely to be causing significant disturbance to foraging and roosting overwintering birds for the following reasons:

- Seasonal separation between peak recreational boating use and peak bird use between October and March;
- Tidal separation between boat usage (frequently restricted to high tides when intertidal mudflats are unavailable for birds) and foraging periods;
- Infrequent and temporary exposure to boating on the winter days where this does occur (likely to a maximum of four hours in any 24 hour period); and
- High levels of disturbance from other sources (e.g. dog walkers, people wildfowling, port and shipping operations) particularly near busy cities will mean that many birds will have already habituated to human activity.

6.14 To minimise the negative impacts of water-based activities, education management tools are in place in the estuary. The RYA's approach relies on the principle that education tends to be more effective than regulation. It runs courses that provide resources and practical advice on a range

of environmental topics, which are completed by more than 155,000 people per year. The Green Blue, a partnership between the RYA and British Marine, has published a series of guides and factsheets with the aim to raise awareness among the industry and recreationists. For example, Fact Sheet 1 discusses the effects of boating and watersports on wildlife, with the aim to generate awareness of overwintering birds. As part of the UK Marine SACs Project, good practice guidelines were developed for recreation activities in European Marine Sites to promote good behaviour towards the environment.

Lydney Visitor Survey

6.15 The Lydney visitor survey covered the four main access points to the part of the Severn Estuary SAC / SPA / Ramsar closest to Lydney, where new development was proposed at the time of survey. Across all survey points, the total number of people entering the wider area around the estuary was 153, equating to an hourly rate of 9.6 people entering. Of 83 interviewees, 36 visitors (43%) undertook dog walking and 14 visitors (17%) were walking. Boating was undertaken by only 5 interviewees (6%). The visit duration was similarly short for all activities (mostly between 30 minutes and 1 hour, except for boating). Dog walking was the recreational activity that involved the highest proportion of frequent visits, with a total of 41% of dog walkers visiting daily or most days (180+ visits per year). Most interviewees tended to live very close to the SAC. For example, dog walkers travelled a median distance of 2.3km to their access points (typically on foot), highlighting the potential significance of new nearby residential development. Overall, the Lydney survey highlighted that the Severn Estuary SAC / SPA / Ramsar is subject to regular disturbance from particular user groups, especially dog walkers.

6.16 Footprint Ecology places the visitor data in the context of bird distribution data within the wider area around Lydney, derived from Mills & Smart (2017)[102]. Importantly, Mills & Smart also considered habitat that might be functionally linked and integral to supporting the SPA / Ramsar qualifying species (e.g. New Grounds, Lydney to Aylburton). It was shown that the area covered by the visitor survey is important for roosting / feeding curlew, shelduck and lapwing in winter, and whimbrel on passage (April-May, July-September). It was also determined that for mallard, lapwing, curlew and whimbrel the counts in some habitats outside the designated site boundary exceed 1% of the designated relevant SPA / Ramsar populations, meaning that the area fulfils the criterium for functionally linked habitat. A proportion of the visitor use in Lydney occurs in areas that are important to SPA / Ramsar species, and Footprint Ecology therefore provided the following recommendations for the management and mitigation of recreational pressure in Lydney:

- Provision of steps to access the foreshore in less sensitive areas and additional planting to increase attractiveness and variety;
- Updating interpretation boards along the estuary to communicate the importance of nature conservation to visitors;
- Discouraging people from venturing south-west across New Grounds (high sensitivity area) by highlighting the ‘long’ and ‘difficult’ walk involved, as well as displaying dog-on-lead signage;
- Creating a marked circular cycle lane from Lydney along Harbour Road to link up with Naas Lane;
- Improving footpath surfacing, planting and connectivity to create an attractive, circular walk that draws users away from New Grounds; and
- Establishing a clearly signposted and well surfaced default route that attracts dog walking visitors.

Stroud Visitor Survey

6.17 EPR’s Stroud visitor survey focussed on the upper section of the Severn Estuary SAC / SPA / Ramsar near the confluence of the River Severn with the estuary. It surveyed nine access points, which were either parking locations or Public Right of Ways (PRoWs) providing direct access on

[102] Mills B. & Smart M. 2017. Lydney New Grounds. Desk Based Review of Bird Assemblages in Relation to the Severn Estuary Special Protection Area. Unpublished report for Forest of Dean District Council.

to the estuary. Overall, 461 people accessed the area over two survey days, equating to 30.7 people per hour. Furthermore, 185 dogs were recorded over the two days of surveying, equating to an average of 12.3 dogs entering per hour. 51.6% of interviewed groups had at least one dog with them, which is slightly less than observed at other marine sites such as the Solent (53%) and North Kent (65%). The average (mean) distance travelled by visitors to access points was 14.5km. Visitors arriving on foot, i.e. local residents, had travelled an average of 5.4km. Using postcode data, the study also identified a visitor catchment for the Severn Estuary SAC / SPA / Ramsar, using the 75th percentile of distance to home to delineate the catchment buffer. Interestingly, and in contrast to Lydney, where visitors travelled very short distances to the site, the estuary in Stroud has indicative recreational catchments of 17.7km (all visitors) and 7.7km (Stroud residents only) respectively. The main reason for this disproportionately large catchment is most likely the low housing density in this part of Stroud District, which is significantly lower than in other coastal areas of the UK (e.g. the Solent).

Monmouthshire and Torfaen Visitor Survey

6.18 The Monmouthshire RLDP makes provision for 8,366 new dwellings over the plan period, including the Strategic Growth Areas of Chepstow and Severnside. A considerable portion of this housing will be delivered within a 1km walking distance from the estuary, such that the RLDP is likely to increase the recreational burden within the SPA / Ramsar / SAC considerably. Based on a recommendation by AECOM, Monmouthshire Council and Torfaen Council (the latter authority also progressing their RLDP inclusive of housing growth) jointly commissioned a visitor survey at four access points (covering both parking and foot access locations) to provide the first in-combination visitor data along the Welsh part of the estuary.

6.19 The visitor count at surveyed locations ranged between 127 (Caldicot Coast Path, foot access only) and 613 (RSPB Newport Wetlands, large car park available at the RSPB site) people over two survey days, indicating that the estuary in Wales is busier than some of its counterpart sections in England (e.g. in Lydney the busiest location only had 98 visitors entering over 16 hours). As applies to most other Habitats Sites, dog walking was by far the most common activity (48.9% of interviewees), followed by walking (29.8%) and family outings (5.9%). The proportion of dog walkers was considerably higher at Caldicot Coast Path and Black Rock Car Park, most likely because both survey points lie in easy walking distance to nearby residential development.

6.20 Generally, the responses indicate that interviewees are very loyal to the SAC / SPA / Ramsar, with 51.6% visiting either daily, most days (180+ visits per annum) or 1 to 3 times per week (40 to 180 visits per annum). No strong seasonal pattern in recreational trends were discernible, indicating that the disturbance potential does not diminish in the overwintering period of SPA / Ramsar birds. Home postcodes were collected to establish a core recreational catchment for the Welsh part of the Severn Estuary SAC / SPA / Ramsar. Only one visitor from the Vale of Glamorgan was recorded in the survey at RSPB Newport Wetlands. Pooling data by all interviewees visiting from home, a core catchment of 6.5km was established for the site, which is broadly similar to the core catchment established for Stroud District (7.7km) and the West of England authorities (7.4km). AECOM recommended to utilise a precautionary, standardised catchment of 7km for the Severn Estuary SAC / SPA / Ramsar in emerging strategic mitigation approaches and AAs.

Updated Visitor Survey Covering the English part of the Severn Estuary SAC/SPA/Ramsar

6.21 On behalf of a partnership of Local Planning Authorities (LPAs; including Cheltenham Borough Council, Cotswold District Council, Forest of Dean District Council, Gloucester City Council and Tewkesbury Borough Council), Stroud District Council commissioned an updated visitor survey in 2022 in anticipation of its new Local Plan and to underpin a potential update to its existing mitigation strategy (which was in place between 2017 and 2022). This visitor survey update covered a much larger geographical area (with visitor survey locations both on and somewhat more distant from the estuary) and represents a concerted effort towards identifying a more consistent core recreational catchment and, ultimately, approach to mitigation.

6.22 Overall, 21 locations were surveyed but only data from the 14 survey points that provide direct access to the estuary are considered here. The data indicate that the attractiveness of the estuary to visitors differs spatially, with Lydney Harbour standing out as the busiest location by far (362 people and 77 dogs over a 16-hour survey period). Beachley, the survey point closest to the

Welsh part of the estuary, was moderately busy with 64 people and 38 dogs recorded over a similar period of time. During the survey, 393 visitors were successfully interviewed at the estuary survey points, with the vast majority of these undertaking dog walking (200 interviewees; 51%) and walking (138 interviewees; 35%). Most interviewees reached the site by car/van (68%), with 28% of interviewees walking to their respective survey location from home. Amongst the main reasons for visiting the Severn Estuary SAC/SPA/Ramsar, interviewees cited proximity to home (36%), scenery/variety of views (21%), habit/familiarity (13%) and near coast/water (12%). Interestingly, and despite other sections of the estuary being available much closer to the relevant authorities, nine interviewees (3%) originated from Monmouthshire and there was a single interviewee from Cardiff (<1%).

6.23 The most important evidence that emerged from the visitor survey was the updated core recreational catchment associated with the SAC/SPA/Ramsar when considering this broader geographical extent. While the initial visitor survey undertaken for Stroud District only suggested a 7.7km core catchment, the 2022 survey indicates that 75% of interviewees travelling directly from home to estuarine survey points originate from within 12.6km. This is a considerable increase compared to the initial 7.7km catchment used in the Interim Impact Avoidance Strategy developed by Stroud District Council and the 6.5km catchment established in the Monmouthshire and Torfaen visitor surveys. It is to be noted that there are no visitor survey data available for the stretch of the SAC/SPA/Ramsar in the Vale of Glamorgan. To facilitate the move towards a more standardised mitigation approach across all involved cross-border LPAs, the 12.6km core catchment is, therefore, applied to identify residential sites within the Vale of Glamorgan that could materially contribute to the recreational burden within the Severn Estuary SAC/SPA/Ramsar.

RLDP Allocations within the Core Recreational Catchment

6.24 The RLDP allocates 7,890 dwellings within the Vale of Glamorgan over the Plan period. However, only a portion of these will be delivered through the allocation of new residential sites. The RLDP also includes large sites with extant planning permission (with 100 dwellings or more remaining) and sites that are rolled forward from the previous RLDP. However, these sites would have been assessed for their environmental impacts in previous HRAs and, therefore, are not reassessed here. This HRA focuses on emerging residential sites that are proposed for allocation in the RLDP.

6.25 Table 6 identifies that three Key Sites and several other housing allocations lie within the 12.6km core recreational catchment that has been deemed most appropriate for the Severn Estuary SAC/SPA/Ramsar. Therefore, it is likely that 1,275 of the net new dwellings, roughly equating to an increase in 3,060 residents, will regularly contribute to recreational footfall alongside or within the designated site boundary. In line with numerous approaches for other Habitats Sites and Local Planning Authorities across the UK, it is recommended that these allocations should contribute to targeted mitigation measures, both in terms of Strategic Access Management and Monitoring (SAMM; on-site) and the provision of alternative greenspaces (off-site).

Table 6: Residential sites allocated in the Deposit RLDP for the Vale of Glamorgan.

Type of Site	Site ID	Settlement	Name	Number of Residential Dwellings Proposed	Number of Additional Residents[103]	Approx. Distance to the Severn Estuary SAC / SPA / Ramsar (km)[104]	Mitigation Required (Yes / No)
Key Sites	KS1	Barry	Land at North West Barry	376	902	6.8	Yes
	KS2	Dinas Powys	North of Dinas Powys, off Cardiff Road	250	600	2.6	Yes
	KS3	Rhoose	Land at Readers Way	520	1,248	13	No
	KS4	St Athan	Land at Church Farm	532	1,277	14.4	No
	KS5	St Athan	Land to the West of St Athan	600	1,440	15	No
Housing Allocations	HG1 (1)	Barry	Land to the west of Pencoedtre Lane	135	324	5.3	Yes
	HG1 (2)	Barry	Land at the Mole	65	156	4	Yes
	HG1 (3)	Barry	Land at Hayes Lane	70	168	2.6	Yes
	HG1 (4)	Barry	Land at Neptune Road	40	96	5.2	Yes
	HG1 (5)	Llantwit Major	Land between the Northern Access Road and Eglwys Brewis Road (Site C –	235	564	17.5	No

[103] Assuming a per-dwelling occupancy of 2.4 persons.
[104] It is to be noted that all Candidate Sites (except for Land North of Dinas Powys) lie closer to the Sully Island SSSI component part of the Severn Estuary SPA / Ramsar than the main estuarine channel itself. However, Sully Island is not readily accessible and, therefore, unlikely to be impacted by recreational pressure resulting from the RLDP.

Type of Site	Site ID	Settlement	Name	Number of Residential Dwellings Proposed	Number of Additional Residents[103]	Approx. Distance to the Severn Estuary SAC / SPA / Ramsar (km)[104]	Mitigation Required (Yes / No)
			Central Parcel)				
	HG1 (6)	Cowbridge	Land adjoining St Athan Road	105	252	17.9	No
	HG1 (7)	St Athan	Former Stadium Site, adjacent to Burley Place	80	192	14.7	No
	HG1 (8)	St Athan	Clive Road, St Athan	51	122	14.8	No
	HG1 (9)	Rhoose	Land north of the Railway Line (East)	339	814	9	Yes
Rural Affordable Housing Led Sites (Policy HG4)	HG4 (1)	Colwinston	Land to the East of Colwinston	25	60	23.6	No
	HG4 (2)	Aberthin	Land west of Maendy Road	25	60	17.8	No
	HG4 (3)	Wick	Land at Heol Fain	50	120	24.9	No
	HG4 (4)	Fferm Goch	Land north of West Winds Business Park	22	53	22.1	No
Total Number of Dwellings and Residents Requiring Mitigation				**1,275**	**3,060**		

Policy Mitigation Contained in the RLDP

6.26 The Vale of Glamorgan RLDP recognises the importance of the authority's natural assets and need for their continued protection, maintenance and enhancement. For example, **Policy SP20 (Biodiversity and Ecosystem Resilience)** is the principal mechanism through which Habitats Sites will be safeguarded. It specifies that development should improve the resilience and connectivity of ecosystems. For example, to achieve this all developments must:

'*1. Avoid areas of high ecological value.*

4. Ensure that International and UK protected species and habitats are protected in accordance with statutory requirements.

6. Incorporate existing green infrastructure at the early stages of design, that protects and enhances existing site features and improves the connectivity of the ecological network.

8. Make provision for the on-going maintenance and management of existing and newly created nature conservation interests proportionate to the nature and scale of the development.'

6.27 Overall, Policy SP20 provides a high degree of specificity on how the integrity of ecological networks (which includes the Severn Estuary SAC/SPA/Ramsar) will be protected. Regarding its mitigation potential it should be viewed alongside other policies in the RLDP. For example, **Policy SP19 (Green Infrastructure)** sets out that developments should protect and enhance high-quality green infrastructure, such as by enhancing connectivity between existing assets, providing amenity open space and facilitating other environments that promote mental and physical health. The delivery of multi-functional greenspace networks is typically regarded as one of the main mechanisms for deflecting recreational pressure from Habitats Sites. Generally, the idea behind green infrastructure provision is to create desirable alternative recreation destinations with a view to reduce the number of recreational visits to more sensitive Habitats Sites.

6.28 **Policy HG1 KS1 (Land at North West Barry)** and **Strategic Policy HG1 KS2 (Land to the North of Dinas Powys)** both include a requirement for the provision and enhancement of appropriate green infrastructure, leisure, sport and recreation space. For example, the policy requirement for site KS1 includes the provision of a key area of open space (minimum 2.3ha) to the south of the site adjoining Porthkerry Country Park. These recreational resources have the potential to act synergistically, providing a contiguous, attractive recreational realm. Furthermore, several other well-designed areas of open space (e.g. informal and equipped play spaces) are also required. While this will help absorb some of the recreational pressure associated with the new housing at-source and away from the estuary, it is unlikely that these measures alone would extend sufficient protection to the SAC/SPA/Ramsar. In order to represent adequate mitigation, policy wording should have sufficient specificity and identify deliverables that secure effective protection.

Mitigation through an Interim Impact Avoidance Strategy

6.29 It is likely that any housing development delivered in close proximity to the Vale of Glamorgan coastline will increase the visitor pressure in the Severn Estuary SAC/SPA/Ramsar, with potential adverse effects on overwintering birds and qualifying habitats. In line with the broad Interim Impact Avoidance Strategy established for Stroud and as has been recommended for other Welsh authorities, it is advised that a range of avoidance and mitigation measures are considered for the authority:

- Delivery of Suitable Alternative Greenspaces (SANGs) or smaller scale recreational greenspaces, where possible in close proximity to emerging housing sites (although it is noted that it will be difficult to replicate the feel and attractiveness of the estuary);
- On-site Strategic Access Management and Monitoring (SAMM) measures around key themes of wardening, signage, information boards, education and awareness, zoning and bylaws (e.g. controls on dogs), parking provision, path improvements, dog waste bins, benches/seating and off-site training facilities for dogs[105];
- Collaboration with key stakeholders (e.g. Natural Resources Wales, adjoining authorities and Parish councils) to achieve a coordinated, integrated, sustainable and long-term outcome; and
- Future monitoring of recreation levels to assess changing recreation patterns and abundances / distributions of overwintering birds to assess the effectiveness of mitigation measures.

[105] Note that this is a list of measures typically requested by visitors interviewed in Habitat Sites and/or delivered in SAMM programmes elsewhere.

6.30 Now that the definitive geographic distribution of residential growth and the quantum of housing requiring mitigation has been identified, a key next step in the development of an Impact Avoidance Strategy for the Vale of Glamorgan will be to identify SAMM measures that would buffer the Severn Estuary SAC/SPA/Ramsar from increased recreational pressure. Engagement with Natural Resources Wales and the Vale of Glamorgan Council ecologist should follow to identify those measures best suited for the stretch of the estuary adjoining the authority. From an initial appraisal of the estuary adjoining the Vale of Glamorgan, the following potential, but fairly limited SAMM measures could be deployed along the Vale of Glamorgan estuarine shoreline:

- The initial footpath from Lavernock to Cosmeston runs at an elevation and is shielded off from the estuary by dense shrubs – opportunities for footpath improvements and dog waste bins;
- The Clifftop Walk along Cosmeston provides no direct access onto the foreshore and is unlikely to pose disturbance risk to SPA/Ramsar birds. Furthermore, it is noted that planning permission has been granted for an active travel route between Cosmeston and Sully, which will provide an alternative travel route for visitors and has the potential to route some visitors further away from the SAC/SPA/Ramsar – opportunities for information boards and waste receptacles; and
- The Esplanade within Penarth is situated amidst dense urban development with high recreational disturbance potential and offers ample opportunities for accessing the foreshore – opportunities for wardening, dog-on-lead zones, etc.

6.31 Once identified, these interventions would need to be assessed and costed, with the view on setting an adequate per-dwelling tariff for developments that fall within the 12.6km core recreational catchment in the Vale of Glamorgan. Where any SAMM measures within the Vale of Glamorgan are deemed impracticable or ineffective, financial contributions could also be directed towards stretches of the estuary in other LPAs, such as Cardiff and Monmouthshire (effectively working towards a multi-authority mitigation solution).

6.32 To safeguard that this will happen over the RLDP period and the integrity of the Severn Estuary Marine Site is adequately protected, it is recommended that a policy to this effect is included in the Plan submitted for Examination. The following policy wording should be included: '***Development proposals that would result in an increase in visitor pressure on features of the Severn Estuary SAC, SPA, Ramsar site, or Functionally Linked Land will not be supported unless it can be demonstrated that no adverse impact on the integrity of the European Marine Site will occur***'

Conclusion

6.33 The Vale of Glamorgan RLDP identifies the quantum and geographic distribution of residential growth across the authority. Overall, 1,275 of the allocated residential dwellings have been identified to fall within the 12.6km core recreational catchment of the Severn Estuary SAC/SPA/Ramsar. As highlighted above, some form of mitigation will need to be provided to reduce recreational pressure within the estuarine site. Provided that the above suggested wording is introduced into the RLDP, it is concluded that there will be no adverse effects on the integrity of the SAC/SPA/Ramsar regarding recreational pressure.

In-Combination Assessment

6.34 Potential impacts of recreational pressure may be increased when considered in-combination with the residential growth allocated in other authorities adjoining the Severn Estuary SAC / SPA / Ramsar. However, it is considered that the Vale of Glamorgan will require mitigation 'alone', which will entirely address any adverse effects arising from the RLDP. Furthermore, the planning process requires each strategic development plan to undergo, meaning that other authorities in the core catchment of the estuary will also need to deliver mitigation to address negative recreational pressure effects. Therefore, provided that the Vale of Glamorgan RLDP mitigates its own impact (see previous sections), there is no potential for in-combination effects on the Severn Estuary SAC / SPA / Ramsar.

Cardiff Beech Woods SAC

6.35 The Cardiff Beech Woods SAC is designated for two woodland habitat types, namely *Asperulo-Fagetum* beech forests and *Tilio-Acerion* forests of slopes, screes and ravines (the latter being a priority feature). Trees, particularly ancient and veteran trees, and their associated ground flora are sensitive to negative impacts from recreational use, such as direct trampling damage and soil compaction surrounding root zones. For example, trampling and soil compaction reduces pore spaces and the ability of soil to hold water. This potentially limits the uptake of water and essential minerals through the root network of trees. Furthermore, the heavy usage of habitats of conservation importance by dog walkers has also been linked with nutrient enrichment by nitrogen and phosphorus deposited in dog faeces. If sufficiently great, over time this fertilisation effect has the potential to change local plant community composition – typically towards species of lower conservation value.

6.36 NRW's Core Management Plan identifies recreational use as a performance indicator potentially affecting both qualifying woodland types. The site experiences heavy recreational pressure along its network of paths and bridleways (particularly the Castell Coch SSSI and Fforestganol a Chwm Nofydd SSSI component parts), with some areas being specifically managed for public use. However, recreational patterns within the SAC have not been fully explored and any current adverse impacts on the qualifying habitats are unclear. NRW note that '*access issues need to be kept under review*', but no Operational Limits regarding recreational pressure have been set.

6.37 Key attractions within the Castell Coch Woodlands are the Taff train and historic building of Castell Coch. While these features may increase the access pressure on the woodlands, they are also considered to act as focal point and concentrate access to well defined limits within the site. This will serve to concentrate recreation-related impacts to limited areas, while protecting sensitive habitat features and natural woodland processes in other parts of the site. Currently, visitor management of the woodlands focuses on maintaining the network of public footpaths and access routes to high standards. This is important in discouraging visitors from seeking out new routes with the potential for formation of desire lines and spreading of impacts onto sensitive habitats. NRW, in collaboration with Cardiff County Council and individual landowners, is managing the balance between nature conservation importance, recreational use and cultural heritage.

6.38 By virtue of its steep terrain, recreational use within the *Tilio-Acerion* forests of screes, ravines and slopes is inherently limited. Notwithstanding this, recreation in some component SSSIs supporting this habitat has been growing, meaning that this impact pathway still requires assessment. As discussed in relation to the *Asperulo-Fagetum* woodland, access management primarily centres around maintaining / enhancing the extensive network of public footpaths and bridleways to facilitate natural woodland regeneration in more remote parts of the SAC.

6.39 A visitor survey at 11 survey points was undertaken to provide data on the recreational baseline within the SAC for the emerging Cardiff RLDP, covering both parking and foot access locations. Eight survey points were located at access points to and within the SAC, with a further three covering non-designated parts of the woodland. The survey utilised a standard methodology established by Footprint Ecology at numerous other Habitats Sites. As is typically the case, dog walking was by far the most common recreational activity (62% of interviewees) followed by walking (23% of interviewees).

6.40 Another important trend that emerged from the data related to site loyalty, with 58% of interviewees visiting the site daily, most days (180+ annual visits) and 1 to 3 times per week (equating to 40 to 180 annual visits). This highlights that the Cardiff Beech Woods SAC is a firmly established destination for those that visit. Most importantly in relation to the Vale of Glamorgan RLDP, the survey also established a core recreational catchment using postcode data of interviewees visiting from home (i.e. those that are likely to contribute to the recreational burden within the site most regularly). Based on the 75th percentile of visitor postcodes, the core catchment was determined to be 6km.

6.41 At approx. 3.4km to the closest part of the SAC, parts of the Vale of Glamorgan clearly fall within the 6km zone. Notwithstanding this, it is considered that the contribution of Vale of Glamorgan residents to the in-combination recreational pressure in the SAC is, and will in the future, likely

to be low. For example, of the 91 interviewees providing a valid postcode in the visitor survey, 83 interviewees (91%) came from the authority of Cardiff. Only a single interviewee originated from the Vale of Glamorgan. It should also be noted that the northern part of the Vale of Glamorgan, the part closest to the SAC, supports a relatively low population density. The most populous settlements in the authority (the Key Settlements, Service Centre Settlements and Primary Settlements that most growth is directed to) lie in the south and south-west of the Vale of Glamorgan, at considerably greater distances to the SAC (falling far beyond the recreational catchment). For example, the closest Key Site allocated in the RLDP (Land North of Dinas Powys) lies approx. 10.4km from the closest part of the Cardiff Beech Woods SAC (Garth Wood SSSI). The quantum of dwellings in the smaller housing allocations and on windfall sites coming forward within the 6km catchment is very small.

6.42 Overall, despite parts of the Vale of Glamorgan falling within the SAC's catchment, due to only one visitor from the Vale of Glamorgan being recorded in the visitor survey and the geographic distribution of residential growth allocated in the RLDP, it is considered that the Vale of Glamorgan RLDP will not make a material contribution to any deviation from the current recreational baseline within the SAC. Therefore, there will be no adverse effects of the Vale of Glamorgan RLDP on the Cardiff Beech Woods SAC regarding recreational pressure, both alone and in-combination. There is no need for RLDP-specific policy mitigation in relation to this impact pathway and Habitats Site.

In-Combination Assessment

6.43 As discussed in the previous section, there is very little evidence that the Vale of Glamorgan is contributing to recreational impacts within the Cardiff Beech Woods SAC. Given this, it is also concluded that the RLDP will not make a material contribution to any in-combination recreational pressure effects. Furthermore, those authorities that contribute significantly to the recreational burden, will need to provide bespoke measures to mitigate their impacts on the qualifying woodland. Overall, the Vale of Glamorgan RLDP will not result in in-combination recreational pressure impacts on the Cardiff Beech Woods SAC.

Water Quality

Severn Estuary SAC/SPA/Ramsar

Treated Sewage Effluent

6.44 Owing to the location of the Vale of Glamorgan adjoining the Severn Estuary SAC/SPA/Ramsar, LSEs of the RLDP on the estuarine complex could not be excluded in the previous chapter. Natural England's Site Improvement Plan (SIP), which summarises pressures and threats to both the Welsh and English parts of the estuary, specifies water pollution as an important issue for the estuary. It states that '*there is uncertainty over water quality in the Estuary due to diffuse (including agricultural) or direct pollution (e.g. Industrial, sewage treatment works, thermal, radioactive)… Macrophytobenthos (benthic macro algae) have been identified in localised hotspots and may be having adverse impacts on the invertebrate communities there. The extent of issues like this, the presence and mobilisation of a range of contaminants and reasons behind the moderate statuses need to be understood.*' While there appear to be remaining uncertainties over water quality in the estuary, its setting amidst urban development centres clearly implies that any existing water-related pressures on the estuary are likely to increase, particularly when considering the projected cumulative urban growth across Welsh and English authorities.

6.45 Estuarine ecosystems represent receiving 'end points' in terms of wastewater and industrial discharge. Waterbodies that pass WwTWs, industrial developments and impermeable surfaces inland from the estuary collect non-toxic and toxic substances, carrying these to estuaries many kilometres downstream within their hydrological catchments. While the overall travel distance of freshwater in river bodies and mixing with seawater in the estuary itself will provide a degree of natural attenuation and dilution, it is nonetheless considered that water pollutants accumulate in the water column and sediments of estuaries. The Severn River Basin Management Plan (SRBMP) highlights that 83% of the waterbodies flowing into the Severn Estuary SAC/SPA/Ramsar have moderate ecological status, with only 17% receiving good ecological status. This status quo is at clear odds with the targets set out in the Water Framework Directive (WFD), which aims to restore all rivers (and associated flora and fauna) to good ecological status.

6.46 Natural Resources Wales has released interim guidance regarding nutrient (dissolved inorganic nitrogen) issues in various marine SACs and SPAs wholly in Wales[106]. However, since Severn Estuary SAC/SPA/Ramsar site is a cross-border Welsh/English site, no guidance has been released at time of writing for that site. Welsh Water has produced a Drainage and Wastewater Management Plan (DWMP24) which sets out how Welsh Water intends to extend, improve and maintain a robust and resilient drainage and wastewater system. The plan, which is based on robust population growth estimates, has a timeline of at least 25 years and therefore goes well beyond the end of the RLDP period. The DWMP was subject to HRA. That assessment concluded that wastewater treatment and discharge proposals would not adversely affect the integrity of the Severn Estuary Habitats Sites.

6.47 Natural Resources Wales' Water Watch Wales website was consulted to assess the current water quality baseline in the Severn Estuary SAC/SPA/Ramsar. In the Cycle 3 WFD assessment, the Lower Severn transitional waterbody is identified as having moderate hydrochemical and ecological status (noting that the overall classification for fish is 'good'). According to available data, there are two waterbodies with relevance to the Vale of Glamorgan that are feeding into the wider setting of the estuary. The River Ely runs northward along the Vale of Glamorgan, feeding into the estuary to the north of Penarth. According to the Cycle 3 WFD assessment, this section of the river (Ely River – confluence Nant Clun to Allot Gardens) has overall moderate chemical and poor ecological status, particularly due to 'poor' status for invertebrates and fails for several fish species. The River Cadoxton (which encompasses its headwaters to its tidal limit) is attributed moderate scores for hydrochemistry and ecology, primarily due to unfavourable DO concentrations. However, the R. Cadoxton joins the Bristol Channel to the south-east of Barry, approx. 3.6 miles in flowpath distance from the Severn Estuary SAC/SPA/Ramsar. Given the open nature and mixing effect of the marine environment, it is considered unlikely that the water quality in the R. Cadoxton has a meaningful impact on water quality in the SAC/SPA/Ramsar.

6.48 The WwTW responsible for treating sewage effluent in the Vale of Glamorgan that lies closest to the Severn Estuary SAC/SPA/Ramsar is the Cog Moors WwTW. This serves a population equivalent of 214,936, including the main urban centres of Barry, Penarth, Sully and Dinas. A review of waterbodies surrounding the Cog Moors WwTW, indicates that treated sewage is most likely to be discharged to Sully Brook. This rises in Cosmeston, joining R. Cadoxton to the south of Palmerstown. Given the distance between the point where the R. Cadoxton flows into the Bristol Channel and the Severn Estuary SAC/SPA/Ramsar, it is unlikely that there is any material hydrological link between treated sewage effluent resulting from the RLDP and the designated site. Furthermore, the open marine environment will also result in the natural attenuation and dilution of any treated sewage that is discharged here. There are no other operational WwTWs in the Vale of Glamorgan that have discharge locations in hydrological continuity with the SAC/SPA/Ramsar. The discharge locations of WwTWs serving the Vale of Glamorgan also have no hydrological connections to the River Ely and its tributaries, stretches of important functionally linked habitats for the anadromous SAC fish species. Overall, therefore, adverse effects of the Vale of Glamorgan RLDP on the Severn Estuary SAC/SPA/Ramsar regarding water quality impacts from treated sewage effluent can be excluded.

In-Combination Assessment

6.49 As evidenced in the previous section, there will be no 'alone' impact of the Vale of Glamorgan RLDP on the water quality in the Severn Estuary SAC/SPA/Ramsar through the discharge of treated sewage effluent, principally due to there being no hydrological connections between relevant WwTWs and the estuary. It follows that there is no potential for the RLDP to contribute to any in-combination effect on the estuary in relation to this impact pathway.

Surface Runoff

6.50 Large volumes of untreated surface runoff can further deteriorate the water quality in aquatic ecosystems that are already under pressure from point-source pollution, such as WwTWs and industrial developments. As highlighted in the LSEs Screening chapter, surface runoff from developments along the Vale of Glamorgan coastline could materially contribute to the pollutant loading in the Severn Estuary SAC/SPA/Ramsar. While no Key Sites are allocated in close proximity to the estuary, there is the potential that further site allocations and extensive windfall

[106] Natural Resources Wales / Advice to planning authorities for planning applications affecting nutrient sensitive Special Areas of Conservation

could be developed within its surface water catchment. Therefore, it is considered important that an adequate policy mechanism exists to protect the SAC/SPA/Ramsar from surface water impacts.

6.51 Negative ecological impacts from surface runoff are primarily mitigated by deploying Sustainable Drainage Systems (SuDS), which aim at reducing runoff to greenfield rates, increasing storage times, mixing/diluting pollutants and attenuating relevant substances through uptake into plant tissue. SuDS measures are a form of nature-based solutions and are increasingly becoming the norm in new developments.

6.52 **Policy SP20 (Biodiversity and Ecosystem Resilience)** in the RLDP is the main mechanism for protecting biodiversity and ecosystem resilience in the Vale of Glamorgan, which includes the water quality in Habitats Sites. Furthermore, the policy also encompasses important wording regarding the incorporation of nature-based solutions, which by definition would include the delivery of SuDS. The policy specifies that all developments must '*2. Be accompanied by an ecological survey and assessment of the likely impacts of the proposal on the biodiversity and ecosystem resilience of the development site. The survey and assessment to be proportionate to the nature and scale of the ecological value of the site and the nature and scale of the proposed development… 4. Ensure that International and UK protected species and habitats are protected in accordance with statutory requirements. 7… Incorporate nature-based solutions within the development to support biodiversity and build ecosystem resilience within the site and the wider area.*' **Policy SP19 (Green Infrastructure)** expands on the importance of SuDS by requiring new developments to '*8. Integrate green infrastructure provision with sustainable drainage systems…*' According to the policy's supporting text, all new developments will be required to provide SuDS schemes.

6.53 Overall, very few developments with the potential to directly contribute untreated surface runoff to the Severn Estuary SAC/SPA/Ramsar are coming forward under the Vale of Glamorgan RLDP. Furthermore, the RLDP encompasses adequate policy wording making the provision of SuDS a mandatory feature of new developments. Therefore, adverse effects of the Vale of Glamorgan RLDP on the Severn Estuary SAC/SPA/Ramsar regarding untreated surface runoff can be excluded.

In-Combination Assessment

6.54 Developments that are allocated in the Vale of Glamorgan RLDP will mitigate their own potential impacts relating to surface runoff through the delivery of SuDS, as secured by adequate policy wording. This will address any potential contribution to an in-combination impact on water quality in the Severn Estuary SAC/SPA/Ramsar. Likewise, any developments coming forward in other authorities within close proximity to the SAC/SPA/Ramsar will need to deliver their own mitigation to avoid negative impacts associated with surface runoff. Therefore, there will be no in-combination effect on the estuary in relation to this impact pathway.

Water Quantity, Level and Flow

Kenfig SAC

6.55 As highlighted in the Screening for LSEs chapter, the Kenfig SAC depends on a natural hydrological regime to sustain its qualifying dune system and Kenfig Pool. A significant deviation from the required hydrological baseline could lead to drying up of wet dune and lake habitat, with negative impacts on their characteristic plant assemblages. The primary mechanism through which the emerging Vale of Glamorgan RLDP could impact the SAC is due to the statutory supply of potable water to all new developments.

6.56 Welsh Water is the company responsible for the public water supply across large parts of Wales. All water suppliers are under a legal requirement to publish 5-yearly Water Resources Management Plans (WRMPs), detailing how the projected water requirements across their water supply zones will be met without harmful environmental impacts. WRMPs take a range of important factors into account when deriving their projections, including changing water availability due to climate change impacts, environmental needs and population-level behavioural

changes. Therefore, these documents are as precautionary as possible, given the quality of data available for analysis.

6.57 Welsh Water has published its WRMP to 2024, taking account of the latest climate change and growth projections for its supply area. The water company serves a population of approx. 1.3 million households and businesses across Wales, Herefordshire and parts of Deeside. Over the last 25 years, the quantity of water supply to Welsh Water customers, and therefore the total volume of freshwater excluded from the environment, has reduced from an average of over 1,000 million litres per day (Ml/d) to about 850Ml/d. This is due to a combination of reduced leakage, demand from heavy industries and individual customers. Pressure on water resources is highest in the major cities, towns and surrounding conurbations of south Wales.

6.58 Wales receives a significant amount of rain that provides for regular replenishment of freshwater bodies. According to Welsh Water, only approx. 3% of the effective rainfall is captured with the remaining volume left for the environment and agriculture. In comparison, in areas with high water scarcity such as south-east England, roughly 50% of the effective rainfall are used for the public water supply. Potable water supplied by Welsh Water comes from a range of sources, including impounding reservoirs, abstractions from lowland rivers (e.g. Rivers Wye, Usk, Tywi, Cleddau and Teifi) and groundwater abstractions (less than 5% of the water requirements at company level). Notwithstanding this, the proportion of sources contributing to water supply at the local level may considerably differ, with some areas receiving all their water from groundwater sources.

6.59 At its core, the WRMP24 aims to provide the strategic basis for securing customer water demand over the next 25 years, particularly in light of climate change and increasing pressures from droughts. The key aims of the WRMP are:

- Demonstrating reliable water resources and treatment capacity to meet future demand over the next 25 years (this would include any projected population growth delivered by the Vale of Glamorgan RLDP);
- Meeting any Government targets regarding drought resilience and accounting for latest climate change science (UKCP18 datasets); and
- Securing sufficient long-term water availability for the environment by taking account of environmental obligations set out by regulators as a minimum.

6.60 For management purposes, Welsh Water's operational area is divided into 23 discrete Water Resource Zones (WRZs), within each of which the available water resources are shared and all customers are subject to the same risk of outages in response to events such as severe droughts. The Vale of Glamorgan is divided between two of the WRZs, specifically the Tywi Gower and the South-East Wales Conjunctive Use System (SEWCUS) WRZs. Welsh Water have generated supply-demand balances for each of the WRZs to evaluate whether the available resources are sufficient to meet projected demand. Under a 1 in 200-year level of drought resilience, both the Tywi Gower (28Ml/d) and SEWCUS (44Ml/d) WRZs are projected to be in a supply-demand deficit within the 25-year period to 2050. Therefore, using precautionary modelling scenarios and best available scientific evidence, management interventions will be required to meet the forecast demand of the south Wales population (including future Vale of Glamorgan residents) to 2050.

6.61 Further research has been undertaken to identify the Preferred Options for addressing the supply-demand balance deficits in the two WRZs covered by the Vale of Glamorgan. For the SEWCUS WRZ it has been identified that limitations in network connectivity between high-level reservoir systems and low-level storage systems are key factors in determining the supply-demand deficit. Two schemes that address this zonal connectivity issue and increase zonal resilience are to be carried out. However, both schemes relate to how water is transported and stored within company infrastructure, rather than increasing abstraction from specific surface or groundwater sources. It is considered that there is no potential for the chosen supply-side options for the SEWCUS WRZ to affect hydrological conditions in the Kenfig SAC.

6.62 A similar pattern is evident for the Tywi Gower WRZ, where the forecast supply-demand deficit is also the consequence of network connectivity rather than insufficient water available for use (WAFU). Two of the company's water storage reservoirs (Ystradfellte and Crai) fall to very low levels under dry weather and, due to limitations in connectivity, cannot be offset by surplus water

in another reservoir (Llyn Brianne). The Preferred Options proposed by Welsh Water include improvements and increases to capacity at relevant pumping stations (and connected Water Treatment Works), none of which propose an increase in abstraction volumes beyond currently consented limits. Welsh Water projects that implementation of these supply-side options would bring the supply-demand balance into a surplus of over 50Ml/d by 2050.

6.63 Overall, this AA has shown that the options required to meet the future potable water demand of the south Wales population (including any growth due to the Vale of Glamorgan RLDP) would not require the use of any additional surface or groundwater sources beyond currently consented limits. Therefore, the RLDP will not lead to adverse effects on the Kenfig SAC regarding impacts on water quantity, level and flow, either alone or in-combination.

Severn Estuary SAC/SPA/Ramsar

6.64 The Severn Estuary SAC/SPA/Ramsar is an estuarine ecosystem that depends on the complex interplay between freshwater and saltwater input. While tidal flushing is a key dynamic force shaping habitat conditions in any estuary, many freshwater sources (both small and large) will also play a role in habitat dynamics. Natural England's and Natural Resources Wales' joint Regulation 33 advice note highlights several processes related to freshwater supply that may impact upon SPA/Ramsar birds. None of these processes represent direct harmful impacts on the birds themselves, but rather indirect impacts via supporting habitats and prey items that the birds depend upon. Reduced freshwater supply to the estuary could lead to changes in the volume of suspended sediments, increased desiccation, reduced water flow rates, changes in nutrient loading and increased salinity. For example, an increase in salinity within Atlantic saltmarsh would alter the existing zonation of plant communities, with potential knock-on effects on bird species that graze in this habitat (e.g. Bewick's swan, white-fronted goose).

6.65 Negative impacts of reduced freshwater input will be more direct on SAC habitats and species. For example, intertidal sand- and mudflats are often supplied by a network of freshwater bodies, which are influential in determining their characteristic faunal community composition. Changes in the degree of freshwater supply can change the macro-spatial distribution pattern of these communities, affecting the condition of this qualifying habitat. Furthermore, anadromous fish species (e.g. sea lamprey and river lamprey) can be negatively impacted by reduced hydrological flows through a variety of mechanisms, such as impacts on their foraging resources and impedance of migration to their upstream foraging grounds.

6.66 The provision of 7,890 dwellings and 67.8ha of employment land implies that the Vale of Glamorgan RLDP will clearly result in an increased consumption of potable water. Depending on how this additional demand will be met, there is the potential that this would reduce the volume of freshwater available to the environment, including the Severn Estuary SAC/SPA/Ramsar. The exploitation of water resources may also directly impact the estuarine environment, if supply-side options developed by the water company involved desalination plants.

6.67 As discussed in relation to the Kenfig SAC, Welsh Water is the company responsible for the potable water supply across large parts of Wales, including the Vale of Glamorgan. The WRMP published by Welsh Water identifies that a portion of the potable water supplied to its customers originates from lowland reaches of the R. Wye and R. Usk, both of which are in hydrological continuity with the Severn Estuary SAC/SPA/Ramsar. Any resource options that increase abstraction volumes beyond existing consents would, therefore, have the potential to significantly reduce freshwater supply to the estuary.

6.68 The relevant content of the WRMP was extensively discussed in relation to the Kenfig SAC. In summary, the Vale of Glamorgan is covered by two WRZs (SEWCUS and Tywi Gower), both of which are modelled to enter a supply-demand balance deficit in the period to 2050. However, analyses undertaken by Welsh Water have shown that the projected deficit is a consequence of inadequate network connectivity rather than insufficient WAFU. Therefore, the supply-side options that have been taken forward to address the supply-demand deficit solely improve network connectivity. The WRMP does **not** propose any increase in abstraction volumes at existing sources or the development of new sources (including desalination plants).

6.69 Overall, therefore, adverse effects of the Vale of Glamorgan RLDP on the Severn Estuary SAC/SPA/Ramsar regarding impacts on water quantity, level and flow can be excluded. No additional policy wording is required in relation to this impact pathway.

In-Combination Assessment

6.70 WRMPs and the options delivered to ensure adequate water supply to all emerging residential and industrial developments, inherently have an in-combination scope. In this instance, it was shown that the growth allocated in the Vale of Glamorgan has no potential for the drawdown of freshwater resources in the Kenfig SAC and Severn Estuary SAC/SPA/Ramsar. Given that there is no negative impact potential associated with the Vale of Glamorgan RLDP regarding water quantity, level and flow, there is no possibility of in-combination effects to arise.

Loss of Functionally Linked Habitat

Severn Estuary SPA / Ramsar

6.71 As identified in the Screening for LSEs chapter, the mobile qualifying species in the Severn Estuary SPA / Ramsar likely routinely travel beyond the designated site boundary for foraging and / or roosting. Off-site habitat parcels differ considerably in their importance to the qualifying species of the Severn Estuary SPA / Ramsar. For example, wooded or scrubby habitat parcels are not considered to hold much ecological value, while improved / wet grassland and agricultural fields may be routinely visited. Whether or not a specific habitat parcel is concluded to be functionally linked to a Habitats Site also depends on various other parameters. Habitats are considered to be functionally linked where they support a meaningful proportion of the designated population (typically taken to be 1% of the qualifying population of a given species). Functional linkage also becomes more evident if the site regularly exceeds this critical population threshold, rather than qualifying birds being present only on a single occasion.

6.72 The dependence of a species on land outside a Habitats Site boundary is predominantly dictated by its foraging ecology, as a consequence of which there is considerable variation in the degree of dependence between SPA / Ramsar species. Many overwintering swan and goose species have strong associations with habitats outside Habitats Sites, particularly with low-lying wet pasture and agricultural stubble, where they feed on plant material including tubers, shoots and leaves. For example, white-fronted goose forage on a wide range of plant material, grasses, clover, spilt grain, winter wheat and potatoes. While this species also forages in peat bogs, dune grassland and saltmarsh, its use of agricultural grasslands and stubble has been increasing in recent years. In contrast, the dependence of waders is often less pervasive, with most habitat use being limited to intertidal mudflats and rocky shores. For example, dunlin preferentially feed on marine invertebrates in intertidal muds (e.g. ragworms, *hydrobia* snails). Only if severe storms impact these primary habitats do some birds revert to foraging on inland fields, where they target earthworms and other soil invertebrates. Redshank primarily winter in close proximity to the coast, favouring *Hydrobia* and *Corophium* spp. in mudflats, estuaries and muddy river channels. Smaller numbers (likely below 1% of qualifying populations will occur near inland lakes and large rivers. In reality, the off-site habitats predominantly utilised by waders (i.e., intertidal habitats, rocky shores and inland waterbodies) are unlikely to be lost as a result of RLDP growth. Most residential and industrial development that is allocated in strategic plans will avoid these habitats for deliverability reasons. Table 7 provides a full assessment of supporting habitat requirements of the qualifying species in the Severn Estuary SPA / Ramsar.

Table 7: Qualifying individual species in the Severn Estuary SPA / Ramsar and their dependence on functionally linked habitats outside the designated site boundary.

Species	Description of foraging and / or roosting habits	Overall dependence on functionally linked habitats
Bewick's swan *Cygnus columbianus bewickii*	Key supporting habitats are intertidal sand- and mudflats, and saltmarsh (feed on the	High

Species	Description of foraging and / or roosting habits	Overall dependence on functionally linked habitats
	transition between saltmarsh and coastal grazing marsh. This species grazes on a range of 'soft' meadow grasses (e.g. *Agrostis stolonifera*, *Alopecurus geniculatus*) in wet meadows outside the designated site boundary.	
White-fronted goose *Anser albifrons albifrons*	Roost on estuarine sandbanks at night and typically fly up to 10km to daytime feeding grounds. Graze on a range of saltmarsh grasses and herbs, such as common saltmarsh grass *Puccinellia maritima* and sea barley *Hordeum marinum*. Mainly in the transition between saltmarsh and coastal grazing marsh in front of sea defences in the upper estuary (The Dumbles). Supporting habitats outside the designated site boundary may include permanently wet herb-rich fen pasture fields as well as agricultural fields (e.g. barley stubble).	High
Dunlin *Calidris alpina alpina*	Distributed widely throughout the estuary, where they feed on marine polychaete worms. Crustaceans and molluscs (e.g. Baltic tellin *Macoma balthica*) Foraging / roosting in supporting habitats, such as freshwater coastal grazing marsh, improved grassland and open standing waters (particularly at high tide and on the English side of the estuary) – most supporting habitats are included in the SPA designation	Low
Redshank *Tringa totanus*	Distributed widely throughout the estuary, where they feed on marine polychaete worms. Crustaceans and molluscs (e.g. Baltic tellin *Macoma balthica*)	Low

Species	Description of foraging and / or roosting habits	Overall dependence on functionally linked habitats
	Foraging / roosting in supporting habitats, such as freshwater coastal grazing marsh, improved grassland and open standing waters (particularly at high tide and on the English side of the estuary) – most supporting habitats are included in the SPA designation	
Shelduck *Tadorna tadorna*	Shelduck primarily forage on the rich invertebrate assemblages in intertidal mudflats (*Hydrobia* spp., *Mytilus edulis* and the common shore crab *Carcinus maenas*) Roosting and moulting habitats also in the estuary, such as in Bridgwater Bay	Medium
Gadwall *Anas strepera*	Forage in intertidal areas that receive freshwater inflow from streams and pills. Taking animal material including aquatic insects, molluscs, annelids, small fish and amphibians. However, as freshwater plant feeders, they are expected to forage in freshwater bodies (including areas outside the designated site boundary).	Medium

6.73 The likelihood that a greenfield site represents functionally linked habitat reduces with distance from designated site boundaries. Generally, the further a site lies from the important roosts, the fewer individuals will undertake that 'commute' and lower proportion of a qualifying population will be supported. Government organisations for environmental protection in other countries have published guidance on the potential impact distance associated with different types of development. For example, Natural England have provided guidance on the extent of functionally linked habitat used by designated bird populations and identified Impact Risk Zones (IRZs) for different bird groups[107]. Wintering waders in Bird Group 3 have a maximum foraging distance of 2km, which implies that redshank and dunlin would be restricted to a relatively narrow band north-west of the Severn Estuary. White-fronted goose and Bewick's swan in Bird Group 6 have maximum foraging distances of 10km, which is based on GIS distribution records, WeBS data and BirdTrack information. Scottish Natural Heritage (SNH) have provided core foraging ranges for various designated species in Scotland[108], including dunlin (500m) and white-fronted goose

[107] Knight M. (March 2019). Impact Risk Zones Guidance Summary – Sites of Special Scientific Interest Notified for Birds. Version 1.1. 8pp.
[108] Scottish Natural Heritage. (June 2016). Assessing Connectivity with Special Protection Areas (SPAs) – Guidance. 4pp. Available at: https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf [Accessed on the 17/04/2023]

(5-8km). It is to be noted that these ranges should only act as a rough starting point for assessment, rather than for setting specific bird survey requirements.

6.74 The Vale of Glamorgan RLDP allocates several Key Sites and Major Employment Allocations delivering substantial growth in the authority. All Key Sites and Major Employment Allocations are much larger than 2ha (the reasonable minimum plot size required to realistically support 1% of a qualifying population taking into account the effects of encroaching hedgerows and other features on smaller plots in reducing sightlines) and comprise at least some arable land and/or grassland. Given these general features, there is clearly the potential that at least some of these allocations **could** be functionally linked to the Severn Estuary SPA / Ramsar. Table 8 assesses the characteristics of all Key Sites and Major Employment Allocations included in the RLDP in more detail and provides an overall conclusion on their likely suitability as functionally linked habitat to the qualifying species in the SPA / Ramsar.

Table 8: Summary of Key Sites and Major Employment Allocations included in the Vale of Glamorgan RLDP and important parameters for establishing potential functional linkage to the Severn Estuary SPA / Ramsar.

Key Site Name	Site ID	Areal extent (ha)	Distance to Severn Estuary SPA / Ramsar (km)	Habitats present on site	Other characteristics	Potential for functional linkage to Severn Estuary SPA / Ramsar
North of Dinas Powys, off Cardiff Road	KS2	44	2.6	Improved / semi-improved grazing land and arable fields	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Penarth). Relatively poor sightlines for early threat detection due to treelines separating individual arable plots.	Medium – High
Land at North West Barry	KS1	18.6	6.8	Improved / semi-improved grazing land and arable fields	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Barry, Sully). Situated directly adjacent to development. Relatively clear sightlines for early threat detection, although short hedgerows separating individual arable / grazing plots are present.	Medium – High

Land at Readers Way	KS3	29.4	10.4	Arable fields	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Barry). Relatively clear sightlines for early threat detection within the site itself, although short hedgerows separating individual arable plots are present. Directly adjoining existing housing and Cardiff Airport, suggesting that disturbance due to noise and visual stimuli is high.	Medium[109]
Land at Church Farm	KS4	8.5	14.4	Improved / semi-improved grazing land	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Rhoose, Cardiff Airport, Barry). Relatively clear sightlines for early threat detection within the site itself, although short hedgerows separating individual arable plots are present.	Low
Land to the West of St Athan	KS5	28.1	14.9	Improved / semi-improved grazing land	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Rhoose, Cardiff Airport, Barry). Habitat parcel is surrounded by development in the form of housing, road	Low

[109] Classified as 'Medium' due to it lying just beyond the core foraging ranges for Bewick's swan and white-fronted goose.

					infrastructure and train track.	
Land east of Cardiff Airport, Rhoose	Major Employment Allocation	37	8.7	Arable fields, scrub and existing brownfield development	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Barry). Relatively poor sightlines for early threat detection due to treelines separating individual habitat parcels. Habitat parcel is adjoined by industrial developments, Cardiff Airport and road infrastructure.	Low – Medium
Land south of Port Road (Model Farm), Rhoose	Major Employment Allocation	93.1	7.7	Arable fields, semi-improved grassland, scrub and tree clusters	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Barry). Relatively clear sightlines for early threat detection within parts of the site itself, although short hedgerows separating individual plots are present. Habitat parcel is adjoined by industrial developments, Cardiff Airport and road infrastructure to its west. However, natural habitats (e.g. Porthkerry Country Park and coastline) to its south-east.	Medium
Bro Tathan Aerospace	Major Employment Allocation	311.2	14.9	Predominantly comprises existing industrial	Sight- and flightlines from / to the SPA / Ramsar interrupted by	Low

and Business Park				brownfield development; some small parcels of grassland and arable land	development (Barry).
Land to the South of Junction 34 of the M4, Hensol	Major Employment Allocation	67.3	14.4	Predominantly covered by woodland parcels; small individual parcels of arable fields and semi-improved grassland	Sight- and flightlines from / to the SPA / Ramsar interrupted by development (Penarth, Cardiff).	Low

6.75 It is to be noted that the Vale of Glamorgan seeks to deliver some of its projected growth on rolled forward LDP sites and large sites with extant planning permission. This is positive because both sets of sites would have been previously assessed for their importance as supporting habitats for birds and it reduces the land requirements of the RLDP. However, while the RLDP seeks to re-use previously developed brownfield land wherever possible, all allocated Key Sites comprise previously undeveloped greenfield sites. Furthermore, the distribution of additional site allocations and greenfield sites, and associated land requirements are not yet known.

6.76 To minimise the potential for the emerging RLDP to result in the loss of functionally linked habitat, it is recommended that the following text (or similar) is inserted to an appropriate policy of the Deposit Plan in line with the same approach taken to functionally linked land in Monmouthshire Deposit Plan: '***Development proposals that would result in an increase in visitor pressure on features of the Severn Estuary SAC, SPA, Ramsar site, or loss of Functionally Linked Land will not be supported unless it can be demonstrated that no adverse impact on the integrity of the European Marine Site will occur.***' That policy was also accompanied by the supporting text that 'Any development proposal that could have a significant effect on the integrity of a SAC, SPA or Ramsar site will not be in accordance with the development plan. This also applies to Functionally Linked Land, which is defined as habitat outside the designated site boundary that is fundamental to the ability of the designations to reach their Conservation Objectives. The parameters for this being specific to each designated site'.

6.77 With the inclusion of this policy wording in the RLDP, it is concluded that the Vale of Glamorgan RLDP does not result in adverse effects on the integrity of the Severn Estuary SPA / Ramsar regarding the loss of functionally linked habitat. It is noted that some growth over the RLDP period will be delivered on windfall sites. By their nature, the precise distribution and characteristics of windfall development will not be known prior to the adoption of the RLDP (although these sites are likely to be small in extent). However, including policy wording that requires developers to provide the necessary evidence of functional linkage (or absence thereof), sets up an adequate mechanism for ensuring that the integrity of the Severn Estuary SPA / Ramsar is safeguarded in any event.

In-Combination Assessment

6.78 The magnitude of functionally linked habitat loss associated with the Vale of Glamorgan RLDP could be exacerbated by development allocated in other authorities adjoining the Severn Estuary SPA / Ramsar. There is increasing pressure from development on greenfield sites with supporting foraging / roosting function adjoining the estuary. However, the preceding sections highlight that adverse effects could arise from the Vale of Glamorgan RLDP 'alone' and the policy wording recommended above would entirely mitigate potential impacts from the RLDP. Similar protective policy mechanisms will be required for other strategic development plans with the potential to affect habitats that are functionally linked to the Severn Estuary SPA / Ramsar. Overall, provided that the above policy wording is included in the Deposit RLDP, it will not result in the loss of functionally linked habitat in-combination with other plans and projects.

Visual and Noise Disturbance (During Construction)

Severn Estuary SPA / Ramsar

6.79 The Severn Estuary SPA / Ramsar is designated for several waterfowl and wader species that are sensitive to visual and noise disturbance. LSEs of the Vale of Glamorgan RLDP could not be excluded at the screening stage of HRA. Disturbance may result from both visual and aural stimuli, although it is well recognised that there is a paucity of response data particularly in relation to avifaunal responses to construction noise. For the noisiest types of construction activities (e.g. piling, which generates approx. 120dB at source) and considering an acceptable noise level of 70dB at birds, it is generally assumed that non-disturbing sound levels will be reached by about 100m, and certainly by 200m. This is based on field observations of behavioural responses to noise disturbance events, adopting a standard distance decay rate for noise across open areas. However, both the source of noise and bird species involved are important considerations in identifying potential noise disturbance impacts. For example, sudden irregular noise events may evoke bird responses at lower sound levels (approx. 60dB) than more prolonged noise events. Table 9 presents data on the sensitivity of qualifying SPA / Ramsar species to visual and noise disturbance stimuli. It also provides an overall summary of disturbance sensitivity for each of the species.

Table 9: Assessment of qualifying species in the Severn Estuary SPA / Ramsar[110] to visual and noise disturbance stimuli.

Qualifying Species	Sensitivity to Visual Stimuli	Sensitivity to Aural Stimuli	Overall Likelihood of Disturbance
Bewick's swan[111]	Large waterfowl species are highly sensitive to visual stimuli, with minimum approach distance no less than 100m. Sensitivity increases when roosting or loafing, with first behavioural reactions shown at approx. 200m distance.	High sensitivity to noise stimuli, particularly overflying aircraft. Generally, assuming that waterfowl tolerate the visual presence of workers up to approx. 100m, this would require construction works of between 110-115dB at source to result in noise disturbance.	Overall sensitivity rating: High
White-fronted goose	Large waterfowl species are highly sensitive to visual stimuli, with minimum approach distance no less than 100m. Sensitivity increases when roosting or loafing, with first behavioural reactions shown at approx. 200m distance.	High sensitivity to noise stimuli, particularly overflying aircraft. Generally, assuming that waterfowl tolerate the visual presence of workers up to approx. 100m, this would require construction works of between 110-115dB at source to result in noise disturbance.	Overall sensitivity rating: High
Dunlin	Displays behavioural responses to stimuli at 150m distance (during foraging), increasing to 300m for roost sites (mass flight)	Moderate sensitivity to noise disturbance, moving away from sources of high disturbance.	Overall sensitivity rating: Low

[110] The visual and noise disturbance sensitivity assessment presented here focuses on individual qualifying species rather than component species of the qualifying overwintering waterbird assemblage.
[111] No visual and noise disturbance data are available for Bewick's swan and white-fronted goose. Therefore, IECS disturbance data on Brent goose is summarised here as a proxy for larger waterfowl.

		Some birds may react to individual construction events (e.g. moving trucks), with others foraging within 20m of works following habituation.	
Redshank	Relatively tolerant species to visual stimuli, allowing people / workers to approach within 70-115m before flushing.	High sensitivity to noise disturbance, so caution should be applied when exposing birds to noise above 55dB	Overall sensitivity rating: High
Shelduck	High sensitivity to visual disturbance with individuals not approaching construction works to more than 300m. Visual disturbance impacts from individual sources up to 500m away from source.	Reactions to sudden noise above 60dB and any noise above 70dB in about 30% of all exposure events.	Overall sensitivity rating: High
Gadwall	Flight initiation distances (FID) to visual stimuli from pedestrians along the shoreline were between 50-60m.	FIDs to motorised (motorboat) and non-motorised watercraft reported to be 65m and 64.5m respectively. A buffer zone of 200m surrounding commercial vehicle / machine construction activities has been recommended.	Overall sensitivity rating: Medium
Wigeon	Alert distances (ADs) to visual stimuli from pedestrians along the shoreline were between 30-125m. Median FID for the presence of pedestrians was 75.5m.	FID to motorised watercraft was 250m in nearshore waters off Denmark. A buffer zone of 200m surrounding commercial vehicle / machine construction activities has been recommended.	Overall sensitivity rating: High

6.80 Generally, visual stimuli will typically result in a measurable disturbance effect before associated noise begins to have an impact. For example, Cutts et al. (2013) report that most species will show a flight response when approached to within 100-150m in intertidal sand- or mudflats. Generally, disturbance associated with visual stimuli will be highest where workers operate outside of equipment, large plant is involved, and works are undertaken at high speeds and close to birds. Behavioural responses to visual stimuli are not necessarily straightforward to predict due to a range of confounding factors, such as conspicuousness, visibility conditions and degree of habituation. For example, a lone worker in open habitat may trigger a major flight response at further distances than the operation of large plant. However, despite inter-specific variation, it is now commonly accepted that there are likely to be minimal visual disturbance impacts beyond a 300m distance away from the source.

6.81 Most bird species show a degree of habituation to disturbance stimuli due to repeated exposure in their natural habitats. As a result, some seemingly very high noise levels may cause little to no disturbance in areas with existing loud soundscapes. Using absolute noise thresholds may greatly overestimate the threat that construction noise poses in some areas and place undue burdens on developers. An alternative impact assessment methodology has been developed that compares the absolute change in noise level between the pre-construction and construction

phases[112]. This comparison is enabled by undertaking pre-construction baseline noise measurements at receptor locations and contrasting these with noise models informed by construction parameters (e.g. location, type and duration of construction methods). Comparative noise impact assessments provide a valuable alternative and, potentially, more meaningful approach to evaluating construction noise impacts to SPA / Ramsar birds. A comparative approach is likely to be adequate in industrialised south Wales. Generally, the intertidal habitats along the Vale of Glamorgan coastline (and the rest of the Severn Estuary SPA / Ramsar) are situated in a highly developed context and it is considered that the baseline noise and visual disturbance level experienced by qualifying birds is relatively high.

6.82 Overall, it is assumed that a precautionary 300m buffer from the SPA / Ramsar site boundary captures the area within which construction works due to the Vale of Glamorgan RLDP may lead to material visual and noise disturbance to qualifying birds. While the RLDP does not allocate any Key Sites or employment allocations within this disturbance buffer zone, there is the potential that windfall development, the precise location of which will be unknown in advance, will occur in the wider area around Penarth. To ensure that the qualifying species in the Severn Estuary SPA / Ramsar are protected from disturbance and adequate mitigation measures will be delivered at planning application level, it is recommended that a policy mechanism to this effect is included in the RLDP.

6.83 The following recommendations are made for the RLDP and have been added to the supporting text of Policy SP20:

- To minimise the potential for visual and noise disturbance, it is recommended that any construction works within 300m of the Severn Estuary SPA / Ramsar are undertaken in the summer months, when qualifying populations in the site will not be present.
- If construction works cannot be timed to avoid the non-breeding season (i.e. passage and winter periods), noise impact assessments will need to be undertaken to ensure that noise levels at sensitive receptors will remain non-disturbing. HRAs accompanying relevant planning applications would need to demonstrate this by either (a) using an absolute threshold of 60dB[113] or (b) comparing construction noise levels to the pre-development baseline (likely to better apply to an urbanised context, which may already exceed the established 60dB disturbance threshold). Where construction-phase noise levels are shown to be disturbing, mitigation measures (e.g. noise screens, selection of less noisy construction techniques, damping / noise shielding of equipment, avoidance of lighting) are likely to be required.
- Construction works within 300m of any established high-tide roosts or key foraging areas within or outside the SPA / Ramsar should have appropriate screening in place to minimise visual disturbance.

6.84 An important secondary aspect to visual and noise disturbance are potential impacts to off-site supporting habitats used by significant numbers of SPA/Ramsar birds; i.e. functionally linked habitats. As discussed in the previous section, Bewick's swan and white-fronted goose may travel up to 10km from the SPA/Ramsar to suitable foraging habitats (e.g. wet grassland, pasture and arable fields). Where construction projects are undertaken within a potential disturbance zone from such habitats, there is the potential for impeding the foraging ability of the birds. Where development is to take place adjoining suitable foraging habitats, the following is recommended in addition to the points listed above:

- Non-breeding bird surveys of adjoining undeveloped land parcels should be undertaken to establish whether these are functionally linked to the SPA/Ramsar. Where this is deemed to be the case, the previously listed mitigation measures should be deployed

[112] It is to be noted that this approach to noise impact assessment is now preferred by Natural England for some development projects.
[113] It is noted that this deviates from the 69dB threshold advised in the Preferred Strategy HRA. This change is based on the assumption that no disturbance to birds is likely to occur at 55dB and a 3dB increase is the minimum change in noise that is likely to be perceptible to birds. In practice, for various construction projects, this has led to an agreement with Natural England that an absolute noise threshold of 60dB is adequate for indicating potential disturbance to birds.

(e.g. noise and visual screens, noise-dampening equipment and/or avoidance of the passage/wintering periods).

6.85 Noting that the RLDP currently does not allocate any sites within 300m of the Severn Estuary SPA/Ramsar, these recommendations would ensure that the SPA/Ramsar is protected against disturbance impacts from any type of development (including unpredictable windfall), both within the site boundary and where SPA/Ramsar birds rely on the usage of functionally linked habitat. Following the inclusion of these recommendations in the RLDP, there will be no adverse effects on the Severn Estuary SPA/Ramsar regarding visual and noise disturbance from construction.

In-Combination Assessment

6.86 The magnitude of visual and noise disturbance associated with the Vale of Glamorgan RLDP could be exacerbated by development allocated in other authorities adjoining the Severn Estuary SPA / Ramsar. For example, multiple construction projects across several authorities adjoining the Severn Estuary SPA / Ramsar would have the potential to render considerable stretches of designated intertidal habitats and functionally linked habitats temporarily unsuitable for SPA / Ramsar birds. However, the preceding sections set out policy recommendations that will adequately mitigate potential adverse effects of the Vale of Glamorgan RLDP regarding visual and noise disturbance. Similar protective policy mechanisms will be required for other strategic development plans with the potential to result in visual and noise disturbance to the qualifying species in the Severn Estuary SPA / Ramsar. Overall, provided that the above policy wording is included in the Deposit RLDP, it will not result in visual and noise disturbance in-combination with other plans and projects.

Atmospheric Pollution

Cardiff Beech Woods SAC

6.87 LSEs of the Vale of Glamorgan RLDP on the Cardiff Beech Woods SAC could not be excluded in the previous chapter. This conclusion was based on the fact that the Vale of Glamorgan is connected to the authority of Rhondda Cynon Taf via the A470, a potential major commuting artery used by new residents, as well as residents travelling from Rhondda Cynon Taf to new employment opportunities delivered through the RLDP.

6.88 While no bespoke air quality modelling was undertaken for the Vale of Glamorgan RLDP, such air quality impact assessment was completed for the emerging Cardiff RLDP. Two transects into beech woodland adjoining the A470 were modelled (part of the Castell Coch Woodlands and Road Section SSSI component part). NOx were not identified as a concern since the Critical Level for the general protection of vegetation (30μgm^{-3}) was not exceeded at any distances from the road for either transect. Since this threshold will not be exceeded regardless of traffic growth, no adverse effect on site integrity will arise in-combination.

6.89 Total NH_3 concentrations were 2.3 μgm^{-3} and, therefore, above the 1 μgm^{-3} Critical Level for woodland with a lichen interest at 10m from the road. The worst-case in-combination effect was modelled to be 0.15 μgm^{-3} (15% of the lower Critical Level or 5% of the upper Critical Level). Generally, the upper Critical Level of 3μgm^{-3} applies to beech woodland if no particular lichen interest is present. The Castell Coch Woodlands and Road Section SSSI is not mentioned as an important lichen SSSI in published research[114]. Moreover, the Core Management Plan for the SAC[115] makes no mention of lichens or lower plants in its vision or performance indicators for the SAC, and it mentions that the woodland is subject to low light levels, which would not generally be conducive to high lichen diversity. Therefore, the Cardiff RLDP HRA concluded that there would be no adverse effects, both alone and in-combination, on the SAC regarding elevated NH_3 levels.

6.90 Being a maximum of 1.32 kg N/ha/yr at the closest point to the roadside at transect E03, in-combination nitrogen deposition exceeds 1% of the lower Critical Load (10.32%). Therefore,

[114] https://naturalresources.wales/media/695442/nrw-evidence-report-369-a-review-of-non-vascular-plant-and-fungal-sssi-features-in-wales-lichens-accessible.pdf

[115] https://naturalresources.wales/media/672066/FINAL%20Cdf%20Beech%20Woods%20SAC%20Man%20Plan.pdf

growth in the relevant adjoining authorities (including the Vale of Glamorgan) will clearly contribute to additional nitrogen deposition onto sensitive beech woodland. However, the aforementioned guidance states that '*the extent to which additional increments from plans and projects would undermine a conservation objective to 'restore' will involve further consideration of whether there is credible evidence that the emissions represent a real risk that the ability of other national or local measures and initiatives to otherwise reduce background levels will be compromised in a meaningful manner.*' At transect E03, a net improvement in nitrogen deposition of 7.68 kg N/ha/yr is forecast at the closest point to the road by 2036 in the modelling scenario with no growth, equating to an average reduction of 0.64 kg N/ha/yr. This implies that the in-combination traffic growth will delay the forecast improvement by roughly two years, which is very unlikely to compromise the ability of other measures to improve nitrogen deposition rates.

6.91 It must also be noted that the Core Management Plan for the Cardiff Beech Woods SAC does not highlight air quality to represent a significant issue for the site. It states that there are '*no limits set. There is no evidence to date that this has had an adverse impact on the features but this may need to be addressed in more detail in the future.*' Considering that air quality will be improving as the transition towards the electrification of the vehicle fleet is progressed and no specific air quality impacts within the SAC have been identified, the Cardiff RLDP HRA concluded that no adverse effects on the Cardiff Beech Woods SAC regarding atmospheric pollution will arise in-combination. Given that this conclusion was reached for the authority of Cardiff (which will make a much higher contribution to vehicle flows past the SAC than the Vale of Glamorgan), a conclusion of no adverse effect on the integrity of the Cardiff Beech Woods SAC is also made for the Vale of Glamorgan RLDP.

Coastal Squeeze

Severn Estuary SAC/SPA/Ramsar

6.92 Climate change is causing rising sea levels, which in turn inundate designated intertidal and terrestrial habitats, including mudflats and saltmarsh (qualifying features of the Severn Estuary SAC and supporting habitats for SPA / Ramsar species). Where urban development is proposed immediately adjoining intertidal habitats, this prevents their landward migration and will result in their loss long-term. Any loss of qualifying and supporting habitat due to coastal squeeze would threaten the Conservation Objectives of relevant European sites and should be prevented.

6.93 Importantly, however, while RLDPs allocate development sites, the strategic approaches towards managing coastal flood and erosion risk along entire sections of coastlines are set out in Shoreline Management Plans (SMPs). Management approaches specified in SMPs include No Active Intervention (NAI; coastal processes are allowed to evolve naturally and, where present, existing defences are permitted to fail), Managed Realignment (MR; hard defences are set back inland to allow nature the space to retreat inland) and Hold the Line (HTL; hard defences along the coastline are constructed / maintained to prevent damage to critical infrastructure). Under their duty to provide for sustainable development, Local Authorities should not propose housing or employment development in areas that are subject to NAI or MR; in other words locations at high risk of current or future flooding / erosion. Therefore, it is generally expected that RLDPs will be in accordance with management approaches set out in the relevant overarching SMP. While SMPs are non-statutory documents, they are subject to HRA to ensure that their objectives are not in conflict with Conservation Objectives of European sites.

6.94 The Severn Estuary Coastal Group has developed the SMP2, which also covers the eastern coastline of the Vale of Glamorgan between Penarth Head and Lavernock Point along the SAC / SPA / Ramsar. The key policy drivers for this Theme Area are the international nature conservation sites and residential development in Penarth. For Policy Unit PEN1 (Lavernock Point to the shore south of Forest Road), the SMP proposes a preferred policy of NAI across all three epochs to 2105. While some development is present in this policy unit, this is situated on a soft cliff of Triassic mudstone showing evidence of very slow erosion rates. Therefore, it is assumed that the current management practice of allowing the cliff face to evolve naturally can continue into the future.

6.95 In Policy Unit PEN2 (the shore south of Forest Road to Penarth Head), the SMP adopts a policy of HTL across all three epochs. This is due to residential development in Penarth being under limited risk from erosion and flooding due to future sea level rise. The Esplanade and Pier are under threat from wave overtopping. However, the SMP also states that '*where there are currently no defences, HTL is not intended to enable new defences to be built. Other ways of helping businesses and residents cope with any overtopping due to sea level rise should also be investigated.*' By its nature, HTL will inevitably lead to the loss of intertidal habitats where these are impacted by coastal squeeze. Regarding the topic of nature conservation, the SMP specifies that '*works should take account of possible environmental impacts and the need for an EIA. HTL should allow natural processes to dominate in undefended areas, protecting the integrity of the Penarth Coast SSSI and allowing habitats to roll back so intertidal habitats and features will be maintained. Hard geology and existing developments will restrict the amount of roll back.*' Therefore, clearly HTL will not be implemented along the entire frontage of PEN2, but will be complemented by sections of MR.

6.96 The Vale of Glamorgan coastline within Policy Unit PEN2 is already highly developed, with housing directly adjoining the Esplanade. Therefore, it is unlikely that the Vale of Glamorgan RLDP will allocate many developments on greenfield sites adjoining the estuary. Furthermore, as discussed above, the overall management approach of HTL is under the remit of the strategic SMP for the Severn Estuary. Prior to its adoption, the SMP would have undergone HRA to assess whether it would result in adverse effects on the Severn Estuary SAC/SPA/Ramsar regarding coastal squeeze. Any coastal strategies for which adverse effects on intertidal habitats cannot be excluded, the Regional Habitat Compensation Programme (RHCP) is in place to deliver habitat compensation through MR schemes.

6.97 Overall, there will be no adverse effects of the Vale of Glamorgan RLDP on the Severn Estuary SAC/SPA/Ramsar regarding coastal squeeze. This is due to any HTL policy approaches being identified, assessed and compensated for at the SMP level.

In-Combination Assessment

6.98 The potential loss of designated habitat due to coastal squeeze is an impact pathway that inherently involves all authorities adjoining the European site in question. Therefore, intertidal habitat loss is likely to be more significant when considered at the strategic level. However, as discussed in the preceding sections, approaches to coastal management across the estuary are not within the remit of RLDPs, but are identified in overarching SMPs. As highlighted in relation to the Vale of Glamorgan RLDP, the appraisal of adverse effects and potential compensation requirements are undertaken at the strategic SMP level. This will ensure that where in-combination adverse effects regarding coastal squeeze are predicted to occur, adequate compensation will be delivered in all authorities involved.

7. Conclusions & Recommendations

7.1 The HRA of the Vale of Glamorgan RLDP examined impacts on the following Habitats Sites:

- Severn Estuary SAC/SPA/Ramsar;
- Dunraven Bay SAC;
- Kenfig SAC;
- Cardiff Beech Woods SAC;
- Cefn Cribwr Grasslands SAC; and,
- Blackmill Woodlands SAC.

7.2 The following impact pathways were considered:

- Recreational pressure
- Water quality
- Water quantity, level and flow
- Atmospheric pollution
- Loss of functionally linked habitat
- Noise and visual disturbance; and
- Coastal squeeze.

7.3 For most combinations of Habitats Sites and impact pathways it was possible to conclude that there would be no likely significant effect, or adverse effect on integrity, either alone or in combination with other projects and plans. The exceptions were the following:

- Recreational pressure regarding the Severn Estuary SPA/SAC/Ramsar;
- Loss of functionally-linked habitat regarding the Severn Estuary SPA/Ramsar; and
- Visual and noise disturbance during construction regarding the Severn Estuary SPA/Ramsar.

7.4 To mitigate these impact pathways and avoid adverse effects on the integrity of these Habitats Sites, the following recommendations are made:

Recreational Pressure – Severn Estuary SAC/SPA/Ramsar

7.5 It is likely that any housing development in the 12.6km core recreational catchment will increase the visitor pressure in the Severn Estuary SAC/SPA/Ramsar, with potential adverse effects on overwintering birds and qualifying habitats. In line with the broad Interim Impact Avoidance Strategy established for Stroud and as has been recommended for other Welsh authorities, it is advised that a range of avoidance and mitigation measures are considered for the authority:

- Delivery of Suitable Alternative Greenspaces (SANGs) or smaller scale recreational greenspaces, where possible in close proximity to emerging housing sites (although it is noted that it will be difficult to replicate the feel and attractiveness of the estuary);
- On-site Strategic Access Management and Monitoring (SAMM) measures around key themes of wardening, signage, information boards, education and awareness, zoning

and bylaws (e.g. controls on dogs), parking provision, path improvements, dog waste bins, benches/seating and off-site training facilities for dogs[116];

- Collaboration with key stakeholders (e.g. Natural Resources Wales, adjoining authorities and Parish councils) to achieve a coordinated, integrated, sustainable and long-term outcome; and

- Future monitoring of recreation levels to assess changing recreation patterns and abundances / distributions of overwintering birds to assess the effectiveness of mitigation measures.

7.6 Engagement with Natural Resources Wales and the Vale of Glamorgan Council ecologist should follow to identify those measures best suited for the stretch of the estuary adjoining the authority. From an initial appraisal of the estuary adjoining the Vale of Glamorgan, the following potential SAMM measures could be deployed along the Vale of Glamorgan estuarine shoreline:

- The initial footpath from Lavernock to Cosmeston runs at an elevation and is shielded off from the estuary by dense shrubs – opportunities for footpath improvements and dog waste bins;

- The Clifftop Walk along Cosmeston provides no direct access onto the foreshore and is unlikely to pose disturbance risk to SPA/Ramsar birds. Furthermore, it is noted that planning permission has been granted for an active travel route between Cosmeston and Sully, which will provide an alternative travel route for visitors and has the potential to route some visitors further away from the SAC/SPA/Ramsar – opportunities for information boards and waste receptacles; and

- The Esplanade within Penarth is situated amidst dense urban development with high recreational disturbance potential and offers ample opportunities for accessing the foreshore – opportunities for wardening, dog-on-lead zones, etc.

7.7 To protect the integrity of the Severn Estuary SAC/SPA/Ramsar it was recommended that policy wording (see main body of text) is included in the RLDP to ensure that adequate mitigation is delivered over the RLDP period. This has now been included in the Deposit Plan.

Loss of Functionally Linked Habitat – Severn Estuary SPA/Ramsar

7.8 The RLDP allocates several Key Sites and Major Employment Allocations that fall within the core foraging ranges of and comprise suitable foraging habitat for Bewick's swan and white-fronted goose, both qualifying species of the Severn Estuary SPA/Ramsar. To minimise the potential for the emerging RLDP to result in the loss of functionally linked habitat, it is recommended that the following text (or similar) is inserted to an appropriate policy of the RLDP in line with the same approach taken to functionally linked land in Monmouthshire Deposit Plan: '***Development proposals that would result in an increase in visitor pressure on features of the Severn Estuary SAC, SPA, Ramsar site, or loss of Functionally Linked Land will not be supported unless it can be demonstrated that no adverse impact on the integrity of the European Marine Site will occur.***' That policy was also accompanied by the supporting text that 'Any development proposal that could have a significant effect on the integrity of a SAC, SPA or Ramsar site will not be in accordance with the development plan. This also applies to Functionally Linked Land, which is defined as habitat outside the designated site boundary that is fundamental to the ability of the designations to reach their Conservation Objectives. The parameters for this being specific to each designated site'.

[116] Note that this is a list of measures typically requested by visitors interviewed in Habitat Sites and/or delivered in SAMM programmes elsewhere.

Visual and Noise Disturbance – Severn Estuary SPA/Ramsar

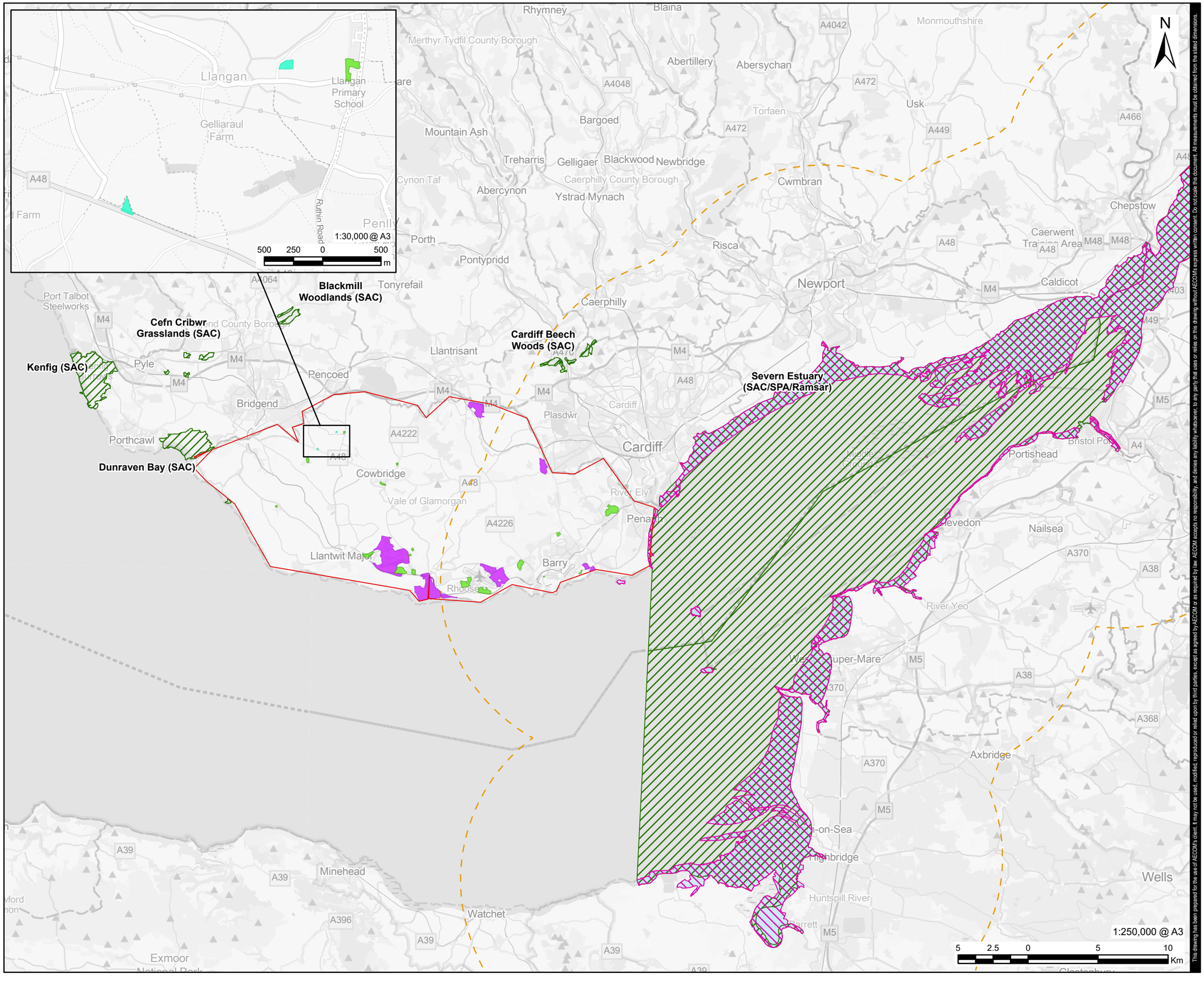
7.9 While no residential or employment sites are allocated within a 300m disturbance buffer from the Severn Estuary SPA/Ramsar, there is the potential that windfall development will come forward over the RLDP period within this distance. Various RLDP site allocations adjoin greenfield sites that may constitute functionally linked habitat for SPA/Ramsar species. Where adjoining habitat parcels constitute functionally linked habitat, construction works could lead to visual and noise disturbance, hindering the ability of SPA/Ramsar to forage adequately. The following recommendations have been included in the supporting text of Policy SP20:

- To minimise the potential for visual and noise disturbance, it is recommended that any construction works within 300m of the Severn Estuary SPA/Ramsar are undertaken in the summer months, when qualifying populations in the site will not be present.
- If construction works cannot be timed to avoid the non-breeding season (i.e. passage and winter periods), noise impact assessments will need to be undertaken to ensure that noise levels at sensitive receptors will remain non-disturbing. HRAs accompanying relevant planning applications would need to demonstrate this by either (a) using an absolute threshold of 69dB or (b) comparing construction noise levels to the pre-development baseline. Where construction-phase noise levels are shown to be disturbing, mitigation measures (e.g. noise screens, selection of less noisy construction techniques, damping / noise shielding of equipment, avoidance of lighting) are likely to be required.
- Construction works within 300m of any established high-tide roosts or key foraging areas within or outside the SPA/Ramsar should have appropriate screening in place to minimise visual disturbance.
- Non-breeding bird surveys of land parcels adjoining development sites should be undertaken to establish whether these are functionally linked to the SPA/Ramsar. Where this is deemed to be the case, the previously listed mitigation measures should be deployed (e.g. noise and visual screens, noise-dampening equipment and/or avoidance of the passage/wintering periods).

7.10 Noting that the RLDP does not allocate any sites within 300m of the Severn Estuary SPA/Ramsar, this policy text would ensure that the site is protected against disturbance impacts from any windfall development. Following the inclusion of this policy recommendation in the RLDP, there will be no adverse effects on the Severn Estuary SPA/Ramsar regarding visual and noise disturbance from construction.

Appendix A Maps

Figure 4: Sites allocated in the Vale of Glamorgan RLDP in relation to the HRA-relevant Habitats Sites.



Revision: 0 Drawn: JA Checked: BM Approved: DW Date: 2025-10-20

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PROJECT

Vale of Glamorgan RLDP HRA

CLIENT

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LEGEND

- Authority Boundary

Sites

- Residential Sites
- Gypsy & Traveller Sites
- Employment Sites

Designated Sites

- Special Protection Area
- Special Area of Conservation
- Ramsar
- Core Recreational Catchment - 12.6km

NOTES

1: Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri
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ISSUE PURPOSE

FOR INFORMATION

PROJECT NUMBER

60676814

FIGURE TITLE

Sites allocated in the Vale of Glamorgan RLDP in relation to the relevant Habitats Sites

FIGURE NUMBER

Figure 4

Appendix B Screening for Likely Significant Effects (LSEs)

Table 10: LSEs screening[117] of policies contained in the Vale of Glamorgan RLDP Deposit Plan.

Policy Number/Name	Policy Content	Likely Significant Effects Screening Outcome
Spatial Strategy		
Policy SP1: Sustainable Growth Strategy	To deliver the Sustainable Growth Strategy for the Vale of Glamorgan between 2021 and 2036, the Plan will make provision for the following: <u>Housing</u> The delivery of 7,890 dwellings by 2036, including a minimum of 3,070 affordable homes. The primary focus of housing growth within the Vale shall be within the Strategic Growth Area as identified on the Key Diagram. New housing developments will be concentrated in the following locations, which are served by existing public transport routes and provide the opportunity to enhance sustainable transport connectivity: • Barry • Penarth • Llantwit Major • Cowbridge • Dinas Powys • Rhoose • St Athan	Likely Significant Effects (LSEs) of Policy SP1 on Habitats Sites cannot be excluded. Policy SP1 sets out the Sustainable Growth Strategy for the Vale of Glamorgan in the period between 2021 and 2036, which includes the delivery of 7,890 dwellings and 67.8ha of employment land. It also specifies the settlements within which development will be concentrated. As such, the policy sets out quanta and locations of residential and employment development, key parameters in determining the magnitude of

[117] Where the Screening Outcome column is shaded green, the policy is concluded not to result in LSEs on any Habitats Sites. Where it is shaded orange, LSEs of the policy on Habitats Sites cannot be excluded and it is screened in for AA.

	• Llandough • Sully Outside of the Strategic Growth Area, the allocation of new sites will be limited to small-scale affordable housing led sites in appropriate primary and Minor Rural Settlements. <u>Employment</u> Employment sites to deliver the identified employment land requirement of 67.8ha and the delivery of up to 5,388 jobs. New employment development will be focussed on existing Major and Local Employment Sites and Employment Regeneration Opportunity Areas as identified on the Key Diagram. <u>Infrastructure</u> Additional infrastructure will be identified to support the scale of growth where required.	potential impact pathways linking to Habitats Sites. The following impact pathways may be associated with Policy SP1: • Recreational pressure • Atmospheric pollution • Loss of functionally linked habitat • Water quality • Hydrology • Coastal squeeze Overall, due to its impact potential, Policy SP1 is screened in for AA.
Policy SP2: Settlement Hierarchy	The broad distribution of development within the Strategic Growth Area will be shaped by the following hierarchy of settlements, reflecting the role and function of places, and directing growth to locations that will provide the greatest opportunities for delivering housing to meet affordable needs, community infrastructure and enhanced sustainable transport provision. **Strategic Growth Area Settlement Hierarchy:** **Key Settlement: Barry**.	LSEs of Policy SP2 on Habitats Sites cannot be excluded. Policy SP2 specifies the settlement hierarchy to be adopted for the Vale of Glamorgan. It identifies that the focus of development will be in Barry (Key Settlement), Cowbridge, Llantwit Major,

Barry will remain the focus of future development within the Vale of Glamorgan. As the largest town within the Vale, future growth will support its role as the main administrative town providing good transport connectivity, services, employment and retail and leisure for its residents and wider area.

Service Centre Settlements: Cowbridge, Llantwit Major, Penarth.

These are important settlements that offer a range of services and facilities. Serving the needs of their residents, they also act as important hubs for those living in nearby smaller settlements. Future growth will support this role where the level of development will meet local needs of the area.

Primary Settlements: Rhoose, St Athan, Sully, Llandough (Penarth), Dinas Powys.

Development within these settlements will reflect the complimentary role they have in relation to the Key and Service Centre Settlements, transport connectivity and areas of employment.

Areas Outside the Strategic Growth Area:

Primary Settlements: Wenvoe, Wick, Culverhouse Cross

Minor Rural Settlements: Aberthaw, Aberthin, Bonvilston, Colwinston, Corntown, Ewenny, Fferm Goch, Graig Penllyn, Llancarfan, Llandow, Llanmaes, Llysworney, Ogmore- by-Sea, Pendoylan, Penllyn, Peterston-Super-Ely, Sigingstone, St Brides Major, St Nicholas, Treoes, Ystradowen.

The character of the settlements, including their relationship to and setting within the surrounding countryside, will be protected and where possible enhanced. Development in the Primary Settlements that are outside of the Strategic Growth Area as well as the Minor Rural Settlements identified will be limited to the efficient and sustainable use of existing buildings, infill opportunities, small-scale affordable housing led schemes, and rural enterprise/ agricultural related developments.

For the purposes of this policy small scale affordable housing led developments are defined as providing a minimum of 50% affordable housing on sites of up to 25 dwellings in Minor Rural Settlements or up to 50 dwellings in Primary Settlements. The type, scale and mix of affordable housing will be expected to reflect the latest evidence, including specialist older person housing. Proposals which do not meet the minimum 50% affordable housing provision will not be supported.

Penarth (all Service Centre Settlements), Rhoose, St Athan, Sully, Llandough (Penarth) and Dinas Powys (all Primary Settlements).

While no growth quanta are provided, the distribution of growth plays a key role in determining impact pathways, such as by shaping broad recreation patterns, preferred commuter routes and strategic water distribution.

The following impact pathways may be associated with Policy SP2:

- Recreational pressure
- Atmospheric pollution
- Loss of functionally linked habitat
- Water quality
- Hydrology
- Coastal squeeze

	All settlements listed in the hierarchies, both within and outside the Strategic Growth Area, will be afforded a settlement boundary. All other areas, including smaller rural villages and hamlets, outside of these defined settlement boundaries are regarded as 'countryside' unless specifically identified for other uses in the plan.	Overall, due to its impact potential, Policy SP2 is screened in for AA.
Development in the Countryside		
Policy SP3: Development in the Countryside	Areas outside settlement boundaries that are not allocated or protected for a specific use will be defined as countryside. In countryside locations, development will only be permitted for the following uses: 1 Agriculture or Forestry related development; 2 Affordable Housing Exceptions Sites (Policy HG5); 3 Gypsy and Traveller Accommodation (Policy GT1); 4 Tourism, recreation and leisure that are suitable in countryside locations (Policy SP15); 5 Rural Diversification and small-scale employment uses suitable for rural locations (Policy EMP5); 6 Conversion of and renovation of existing rural buildings (Policy HG8); 7 The redevelopment or extension of existing dwellings (Policy HG9); 8 Low carbon and renewable energy generation (Policy CC5); 9 The winning and working of minerals (Policies MIN4); 10 The provision of waste management facilities (Policy WA1); or 11 Essential infrastructure and utility provision where a countryside location is necessary.	There will be no LSEs of Policy SP3 on Habitats Sites. This is a development management policy that protects areas designated as countryside from being developed, unless specific uses are being proposed. However, no quanta or locations of such uses are allocated. Overall, therefore, Policy SP3 is screened out from AA.
Settlement Boundaries		
Policy SSC1: Development within Settlement Boundaries	Settlement boundaries have been defined around those settlements identified within the LDP settlement hierarchy as detailed under Policy SP2. Proposals for new development within these defined settlement boundaries will be permitted where the following criteria are satisfied: 1 The proposal is of a scale that is appropriate to the size of the settlement and accords with its role and function;	There will be no LSEs of Policy SSC1 on Habitats Sites. This is a development management policy that identifies the criteria needed to be met by development

	2 It is compatible with the layout, density, and appearance of the existing settlement in terms of size, form and its immediate setting and the wider surroundings; 3 It is demonstrated that the proposal provides opportunities for sustainable modes of transport, including the provision of safe, convenient and accessible Active Travel provision; 4 It would not prejudice the delivery of an allocated development site; 5 It would make efficient use of land or existing buildings; 6 It would prioritise the use of previously developed or underutilised land where possible; 7 It would not result in the unacceptable loss of public open space, community or tourism buildings or facilities; 8 It would not result in the loss of natural or built features that individually or cumulatively contribute to the character of the settlement or its setting; 9 It would not unacceptably impact upon the amenity and character of the locality by way of noise, pollution, traffic congestion and parking, 10 The proposal benefits from existing infrastructure provision or, where necessary, makes provision for new infrastructure without any unacceptable effect on the natural or built environment.	proposals within defined settlement boundaries. However, no quanta or locations of such development is allocated. Overall, therefore, Policy SSC1 is screened out from AA.
Placemaking and Good Design		
Policy SP4: Placemaking	Successful Placemaking can add social, economic, environmental and cultural value to new development. Development will be required to follow Placemaking principles by: 1 Ensuring high quality sustainable design that reflects local distinctiveness, character, and cultural identity; 2 Prioritising the determinants of health and well-being during the design process; 3 Creating a diverse mix of uses and multi-functional spaces; 4 Contributing to a vibrant, safe and inclusive public realm that encourages Active Travel, supports public transport use and reduces car dependency; 5 Strategically integrating Green Infrastructure networks and open space into development, delivering social, environmental and ecological benefits; 6 Providing a range of housing types and tenure; 7 Locating development appropriately where homes, local services and facilities are accessible and well connected and integrated with existing communities; 8 Developing high densities where appropriate, making the most efficient use of land and supporting mixed uses; and	There will be no LSEs of Policy SP4 on Habitats Sites. This is a development management policy that requires new development proposals to complete Placemaking Statements. The requirements include the integration of Green Infrastructure networks and open space, which are likely to have positive environmental impacts (e.g. by encouraging local recreational use).

	9 Protecting or enhancing the Historic Environment and its setting. Placemaking Statements will be required for all major developments setting out how the proposal accords with Placemaking Principles. In the towns of Barry, Cowbridge, Llantwit Major and Penarth Placemaking Statements should also have regard to the adopted Placemaking Plans for the area.	The policy does not allocate any quanta or locations of housing or employment development. Overall, therefore, Policy SP4 is screened out from AA.
Policy PGD1: Creating Well Designed and Inclusive Places	All development must achieve a high quality of design that promotes healthy and inclusive sustainable places which foster a positive sense of place. Development must demonstrate that the following principles have been considered: 1 Creating safe, accessible, integrated, inclusive and active environments that make efficient use of land and promote opportunities for Active Travel, and promote sustainable transport choices; 2 Maximising opportunities to reduce the causes of ill health, improving health and reducing health inequalities by providing a healthy living environment supporting both mental and physical health; 3 Incorporating sustainable design and construction solutions to maximise energy efficiency and positively contributing towards climate change resilience and adaptation; 4 Making a positive contribution to the character of the area, responding to the local context and character through building forms and scale; materials and features, mix of uses, landscape, density, and connectivity of streets and spaces to create and/or enhance locally distinctive design and character; 5 Providing high quality multi-functional green open spaces which can provide a choice and range of activities, including play, that also deliver enhanced biodiversity and flood mitigation and are designed to be resilient to climate change and adaptable overtime; 6 Demonstrating that traffic movements to and from the development can be accommodated, resolved, or mitigated to an acceptable degree, and where car parking is provided this must be sensitively integrated into the development so that they do not dominate the layout of the development; 7 Safeguard public and residential amenity, particularly regarding privacy, overbearing, security, noise and disturbance; 8 Ensuring that public open space, private amenity space and cycle and car parking in accordance with the Council's standards; 9 Provide appropriately sited and designed facilities and spaces for the collection, composting and recycling of waste materials.	There will be no LSEs of Policy PGD1 on Habitats Sites. This is a development management policy that requires high quality of design and sustainable places. Its principles include the promotion of active travel and provision of multi-functional greenspaces, which are likely to have positive environmental impacts (e.g. by encouraging local recreational use or reducing atmospheric pollution). The policy does not allocate any quanta or locations of housing or employment development. Overall, therefore, Policy PGD1 is screened out from AA.

Residential Development Densities

Policy PGD2: Residential Development Densities	On sites of 0.5 Ha or above, residential development proposals within the Key, Service Centre and Primary Settlements will be permitted where the residential density is a minimum of 35 dwellings per net hectare. In Minor Rural Settlements, a minimum residential density of 30 dwellings per net hectare will be required. Higher net densities will be supported where the development is in a location served by regular public transport and Active Travel routes, or near to services and facilities. Lower density levels will only be permitted where it can be demonstrated that: 1 Development at the prescribed densities would have an unacceptable impact on the character of the surrounding area, 2 Reduced densities are required due to significant site constraints or to preserve a natural or historic feature that would contribute to existing or future local amenity; or 3 The proposal is for a mixed-use development where a residential use is the subordinate element of the proposal.	There will be no LSEs of Policy PGD2 on Habitats Sites. This is a development management policy that sets the density of residential developments on sites of 0.5ha and above at 35 dwellings per hectare. Generally, having minimum density requirements is positive for the environment as this may reduce the loss of greenfield sites (and potential habitat for vulnerable species). The policy does not allocate any quanta or locations of housing or employment development. Overall, therefore, Policy PGD2 is screened out from AA.

Creating Healthy and Inclusive Places and Spaces

Policy SP5: Creating Healthy and Inclusive Places and Spaces	All development should seek to create healthy and inclusive places that reduce health inequities and improve social cohesion. This will be achieved by: • Ensuring development proposals are designed to facilitate accessible healthy environments to address relevant determinants of health positively, particularly in response to local health needs; • Ensuring that all places and developments are as inclusive as possible, capable of adapting to a broad range of changing needs and delivering a high quality of life;	There will be no LSEs of Policy SP5 on Habitats Sites. This is a development management policy that seeks to

- Enabling opportunities for access to a healthy food environment;
- Supporting the provision of new and enhanced community and healthcare facilities;
- Protecting and enhancing existing public health and well-being.

To the achieve this, developers are required undertake a screening assessment of their proposal at the preapplication stage to identify the potential health impacts of their development as set out below:

Development Type	Major Developments - Healthy Placemaking Checklist	Significant Developments - Rapid HIA
Residential	Between 10 and 99 Dwellings or an Area of 0.5 hectare to 2 hectares	100 Dwellings or greater or greater than 2 hectares
Employment/Other Commercial/Leisure	Built Floor Space of 1,000m2 to 4,000 m2	Built Floor Space Greater than 4,000 m2

Proposals will be supported where it can be demonstrated that the design of the scheme has been informed by the conclusions of the assessment.

create healthy and inclusive spaces. However, this aim has no bearing on the protection of Habitats Sites.

The policy does not allocate any quanta or locations of housing or employment development.

Overall, therefore, Policy SP5 is screened out from AA.

Housing Growth and Supply

Policy SP6: Housing Requirement

To meet the identified housing requirement of 7,890 dwellings, provision will be made for the delivery of 8,660 homes in the Plan Period 2021 to 2036. This will be delivered by:

- 3,837 dwellings from the existing land supply
- 3,520 dwellings on allocated sites
- 1,303 dwellings from large and small windfall developments

Likely Significant Effects (LSEs) of Policy SP6 on Habitats Sites cannot be excluded.

Policy SP6 identifies that 7,890 net new dwellings will be delivered in the Plan period between 2021 and 2036.

An increase in the local population may lead to additional pressures on Habitats Sites, such as through an increased

		demand for recreational space, consumption of potable water and driving of private motor vehicles. The following impact pathways may be associated with Policy SP6: • Recreational pressure • Atmospheric pollution • Loss of functionally linked habitat • Water quality • Hydrology • Coastal squeeze Overall, due to its impact potential, Policy SP6 is screened in for AA.
Housing Delivery		
Policy HG1: Housing Allocations	To deliver the plan's strategic growth and contribute to meeting the identified housing requirement set out in SP6, land is allocated for housing at the following locations: **A. KEY SITES (POLICY HG1 KS1-5)**	Likely Significant Effects (LSEs) of Policy HG1 on Habitats Sites cannot be excluded. Policy HG1 allocates specific sites within the Vale of

Site Reference	Settlement	Site Name	Number of units
KS1	Barry	Land at North West Barry	376
KS2	Dinas Powys	North of Dinas Powys, off Cardiff Road	250
KS3	Rhoose	Land at Readers Way	520
KS4	St Athan	Land at Church Farm	532
KS5	St Athan	Land to the West of St Athan	600
Dwelling Contribution			**2,278**

B. HOUSING ALLOCATIONS

Site Reference	Settlement	Site Name	Number of units
HG1 (1)	Barry	Land to the west of Pencoedtre Lane	135
HG1 (2)	Barry	Land at the Mole	65
HG1 (3)	Barry	Land at Hayes Lane	70
HG1 (4)	Barry	Land at Neptune Road	40
HG1 (5)	Llantwit Major	Land between the Northern Access Road and Eglwys Brewis Road (Site C - Central Parcel)	235
HG1 (6)	Cowbridge	Land adjoining St Athan Road	105
HG1 (7)	St Athan	Former Stadium Site, adjacent to Burley Place	80
HG1 (8)	St Athan	Clive Road, St Athan	51
HG1 (9)	Rhoose	Land north of the Railway Line (East)	339

Glamorgan for housing development, including Key Sites, Housing Allocations, Major Land Bank Sites and Rural Affordable Housing Led Sites.

An increase in the local population may lead to additional pressures on Habitats Sites, such as through an increased demand for recreational space, consumption of potable water and driving of private motor vehicles. Furthermore, the geographic element of the policy will determine whether allocations fall within the core recreational catchment of Habitats Sites, specific Water Resource Zones (WRZs) of water supply companies and other aspects.

The following impact pathways may be associated with Policy HG1:

- Recreational pressure
- Atmospheric pollution
- Loss of functionally linked habitat

Dwelling Contribution	**1,120**

C. MAJOR LAND BANK SITES

Site Reference	Settlement	Site Name	Number of units
HG1 (10)	Penarth	Land at Upper Cosmeston Farm	576
HG1 (11)	Llantwit Major	Land between the Northern Access Road and Eglwys Brewis Road (Site A - Western Parcel)	140
HG1 (12)	Llantwit Major	Land between the Northern Access Road and Eglwys Brewis Road (Site B - Eastern Parcel)	100
HG1 (13)	Llandough	Land south of Llandough Hill / Penarth Road	133
HG1 (14)	Sully	Land West of Swanbridge Road (Phase 2)	175
Dwelling Contribution			**1124**

D. RURAL AFFORDABLE HOUSING LED SITES (POLICY HG4)

Site Reference	Settlement	Site Name	Number of units
HG4 (1)	Colwinston	Land to the East of Colwinston,	25
HG4 (2)	Aberthin	Land west of Maendy Road	25
HG4 (3)	Wick	Land at Heol Fain	50
HG4 (4)	Fferm Goch	Land north of West Winds Business Park	22
Dwelling Contribution			**122**

- Water quality
- Hydrology
- Coastal squeeze

Overall, due to its impact potential, Policy HG1 is screened in for AA.

Key Housing Sites

Policy HG1 KS1: Land at North West Barry	Land at North West Barry, as shown on the Proposals Map, is allocated as a key housing site. The 18.7 Ha site will deliver up to 376 homes over the plan period. The development of the site must adhere to the Placemaking Principles set out in Policy SP4 Placemaking and the criteria in Policy PGD1 Creating Well Designed Places. In addition, the site must comply with the following requirements: <u>Affordable Housing</u> • The provision of a minimum of 113 affordable housing units (30%) with a unit mix reflecting the requirements of the latest Local Housing Market Assessment and the Council's waiting list data. In order to deliver a greater social mix, the affordable units should be dispersed across the site in clusters of no more than 10 units, with their delivery being phased across the development trajectory. <u>Sustainable Transport and Highways</u> • The delivery of an Active Travel route across the frontage of the site along the A4226 Port Road West as part of the Weycock Cross to Cardiff Airport Active Travel route, as identified in Policy TR1. • Creation of a new signalised junction on to the A4226 Port Road West, which will need to accommodate controlled pedestrian/cycle crossing facilities. • A contribution towards off-site improvements to the capacity and flow of Weycock Cross roundabout. • A contribution towards off-site sustainable transport measures in the area • Connection to the public right of way to Porthkerry Country Park via Cwm Ciddy Lane. <u>Heritage</u> • The development should consider and respond positively to the setting of the four grade II listed buildings at Cwm-Ciddy Farm, which are in close proximity to the site boundary. <u>Community Infrastructure</u> • An off-site financial contribution towards the delivery of additional school places in accordance with capacity requirements within the catchment area. • An off-site financial contribution towards the provision or enhancement of community facilities in the area.	Likely Significant Effects (LSEs) of Policy HG1 KS1 on Habitats Sites cannot be excluded. Policy HG1 SK1 allocates a 18.7ha large site for up to 376 dwellings over the RLDP period. Furthermore, the policy sets various other requirements with which the development will need to comply. This includes the provision of a minimum of 2.3ha of open space and a financial contribution towards the management of Porthkerry Country Park, which is positive for Habitats Sites that are sensitive to recreational pressure (e.g. the Severn Estuary SAC/SPA/Ramsar). Further important requirements are the provision of an Active Travel route and the implementation of sustainable drainage systems (SuDS). The following impact pathways may be associated with Policy HG1 KS1:

	Green Infrastructure, Recreation Spaces and Biodiversity • The provision of a key area of open space (minimum 2.3 ha) to the south of the site adjoining Porthkerry Country Park which will serve as a buffer to the adjoining SINC at Mill Wood and offer opportunities for significant biodiversity enhancements. The ownership of this area should be transferred to the Vale of Glamorgan Council, together with an appropriate financial contribution, for management as part of Porthkerry Country Park. • In addition, the site must include a number of other well-designed areas of useable open space, including informal and equipped play spaces, with appropriate green infrastructure connections between them. Where the requirements cannot be met fully on site, an off-site contribution will be required. • Hedgerows and other green infrastructure assets on the site boundary and within the site should be retained and included as part of green infrastructure corridors through the site wherever possible. Where this cannot be achieved, for example at the entrance to the site, appropriate compensatory planting will be required. • The enhancement of existing planting will be required along the boundary with Nant Talwg Way, St James Crescent and Pontypridd Road to reduce the impact of the development. Flood Risk and Sustainable Drainage • The site must incorporate appropriate high quality sustainable drainage systems (SuDS) which integrate the surface water drainage function with open space and provide opportunities to deliver biodiversity. • No built development will be permitted within the central east-west corridor of the site, which is within a surface water and small watercourses flood zone. This area should be retained as a wetland park, which will incorporate appropriate sustainable drainage features to serve the site.	• Recreational pressure • Atmospheric pollution • Loss of functionally linked habitat • Water quality • Hydrology • Coastal squeeze Overall, due to its impact potential, Policy HG1 KS1 is screened in for AA.
Policy HG1 KS2: Land to the North of Dinas Powys	Land North of Dinas Powys, as shown on the Proposals Map, is allocated as a key housing site. The 13.3 Ha site will deliver up to 250 homes over the plan period. The development of the site must adhere to the Placemaking Principles set out in Policy SP4 Placemaking and the criteria in Policy PGD1 Creating Well Designed Places. In addition, the site must comply with the following requirements: Affordable Housing	Likely Significant Effects (LSEs) of Policy HG1 KS2 on Habitats Sites cannot be excluded. Policy HG1 SK1 allocates a 13.3ha large site for up to 250 dwellings over the RLDP period. Furthermore, the policy sets various other requirements with

- The provision of a minimum of 100 affordable housing units (40%) with a unit mix reflecting the requirements of the latest Local Housing Market Assessment and the Council's waiting list data. In order to deliver a greater social mix, the affordable units should be dispersed across the site in clusters of no more than 10 units, with their delivery being phased across the development trajectory.

Sustainable Transport and Highways

- A contribution towards off-site improvements to the capacity and flow of key junctions in the area.
- The inclusion of walking and cycling links between the development and Seel Park and George's Row.
- Creation of a new signalised junction on to the A4055 Cardiff Road to serve as the primary access with a secondary access closer for emergencies as well as pedestrians and cycling.
- A contribution towards off-site sustainable transport measures in the area.

Community Infrastructure

- An off-site financial contribution towards the delivery of additional school places in accordance with capacity requirements within the catchment area.
- An off-site financial contribution towards the provision or enhancement of community facilities in the area.

Green Infrastructure, Recreation Spaces and Biodiversity

- The provision of a key area of open space at the entrance to the site fronting Cardiff Road and a linear green park across the northern edge of the site boundary.
- In addition, the site must include a number of other well-designed areas of useable open space, including informal and equipped play spaces, with appropriate green infrastructure connections between them. Where the requirements cannot be met fully on site, an off-site contribution will be required.
- Hedgerows and other green infrastructure assets on the site boundary and within the site should be retained and included as part of green infrastructure corridors through the site wherever

which the development will need to comply.

This includes the provision of open space, which is positive for Habitats Sites that are sensitive to recreational pressure (e.g. the Severn Estuary SAC/SPA/Ramsar). Further important requirements are the provision of walking/cycling links and the implementation of SuDS.

The following impact pathways may be associated with Policy HG1 KS2:

- Recreational pressure
- Atmospheric pollution
- Loss of functionally linked habitat
- Water quality
- Hydrology
- Coastal squeeze

Overall, due to its impact potential, Policy HG1 KS2 is screened in for AA.

	possible. Where this cannot be achieved, for example at the entrance to the site, appropriate compensatory planting will be required. • The enhancement of existing planting will be required along the boundary with Highfield Close <u>Flood Risk and Sustainable Drainage</u> • The site must incorporate appropriate high quality sustainable drainage systems (SuDS) which integrate the surface water drainage function with open space and provide opportunities to deliver biodiversity. • No built development will be permitted within 8m of the watercourses that cross the site.	
Policy HG1 KS3: Land at Readers Way Rhoose	Land at Readers Way, as shown on the Proposals Map, is allocated as a key housing site. The 29.2 Ha site will deliver up to 520 homes over the plan period. The development of the site must adhere to the Placemaking Principles set out in Policy SP4 Placemaking and the criteria in Policy PGD1 Creating Well Designed Places. In addition, the site must comply with the following requirements: <u>Affordable Housing</u> • The provision of a minimum of 182 affordable housing units (30%) with a unit mix reflecting the requirements of the latest Local Housing Market Assessment and the Council's waiting list data. In order to deliver a greater social mix, the affordable units should be dispersed across the site in clusters of no more than 10 units, with their delivery being phased across the development trajectory. <u>Sustainable Transport and Highways</u> • A contribution towards off-site improvements to the capacity and flow of junctions on the strategic highway network as informed by the Strategic Transport Assessment and site-specific Transport Assessment. • A contribution towards off-site sustainable transport measures in the area, including improving Active Travel links to Rhoose station and along Fontygary Road and Fonmon Road. <u>Community Infrastructure</u>	Likely Significant Effects (LSEs) of Policy HG1 KS3 on Habitats Sites cannot be excluded. Policy HG1 SK3 allocates a 29.2ha large site for up to 500 dwellings over the RLDP period. Furthermore, the policy sets various other requirements with which the development will need to comply. This includes the provision of an area of open space (of which at least 1.89ha is for outdoor sports provision), which is positive for Habitats Sites that are sensitive to recreational pressure (e.g. the Severn Estuary SAC/SPA/Ramsar). Further important requirements are the provision of off-site sustainable

	• An off-site financial contribution towards the delivery of additional school places in accordance with capacity requirements within the catchment area. • The provision of a community building on site or an off-site financial contribution towards the provision and enhancement of community facilities in the area. • Delivery of a commercial unit (A1 or A3) on site to increase the mixed use offer on the site. <u>Green Infrastructure, Recreation Spaces and Biodiversity</u> • The provision of a key area of open space to the east of the site which will serve as a buffer to the adjoining Cardiff airport site. This open space must include a minimum of 1.89 Ha of outdoor sports provision, community allotments and amenity greenspace, together with areas for biodiversity enhancements. • In addition, the site must include a number of other well-designed areas of useable open space, including informal and equipped play spaces, with appropriate green infrastructure connections between them. • Hedgerows and other green infrastructure assets on the site boundary and within the site should be retained and included as part of green infrastructure corridors through the site wherever possible. Where this cannot be achieved, appropriate compensatory planting will be required. • The provision of a pond that holds water and connected green infrastructure close to Readers Way Pond is required to provide an appropriate habitat for great crested newts. <u>Flood Risk and Sustainable Drainage</u> • The site must incorporate appropriate high quality sustainable drainage systems (SuDS) which integrate the surface water drainage function with open space and provide opportunities to deliver biodiversity.	transport measures and the implementation of SuDS. The following impact pathways may be associated with Policy HG1 KS3: • Recreational pressure • Atmospheric pollution • Loss of functionally linked habitat • Water quality • Hydrology • Coastal squeeze Overall, due to its impact potential, Policy HG1 KS3 is screened in for AA.
Policy HG1 KS4: Land at Church Farm, St Athan	Land at Church Farm, as shown on the Proposals Map, is allocated as a key housing-led site. The 24.1 Ha site will deliver 532 homes over the plan period and a class A1 retail foodstore of up to 20,000 sq ft (1,858 sq m) with associated car parking. The development of the site must adhere to the Placemaking Principles set out in Policy SP4 Placemaking and the criteria in Policy PGD1 Creating Well Designed Places. In addition, the site must comply with the following requirements:	Likely Significant Effects (LSEs) of Policy HG1 KS4 on Habitats Sites cannot be excluded. Policy HG1 SK4 allocates a 24.1ha large site for up to 532 dwellings over the RLDP period. Furthermore, the policy sets

Affordable Housing

- The provision of a minimum of 81 affordable housing units on phase 1 and 105 affordable units on phase 2 (35%) with a unit mix reflecting the requirements of the latest Local Housing Market Assessment and the Council's waiting list data. In order to deliver a greater social mix, the affordable units should be dispersed across the site in clusters of no more than 10 units, with their delivery being phased across the development trajectory.

Sustainable Transport and Highways

- A contribution towards off-site improvements to the capacity and flow of junctions on the strategic highway network as informed by the Strategic Transport Assessment and site-specific Transport Assessment.
- The provision of an access point off Gileston Road to serve Phase 1 of the development and the foodstore. Gileston Road will require widening with the provision of an Active Travel route along the boundary of the site fronting Gileston Road and the B4265.
- The junction of Gileston Road and the B4265 must be upgraded to a signalised junction with controlled pedestrian/cycle crossing facilities.
- Phase 2 will require the provision of a suitably designed priority junction on to the B4265, which must connect via a spine link road through to Phase 1 of the development.
- A new access to St Athan Primary through the site to replace the existing sub-standard access to the school from Rock Road.
- The bus stop at the Gileston Road/B4265 junction must be upgraded.

Heritage

- The development and associated off site highway improvements must respect the setting of the Grade II war memorial located to the south of the site.

Community Infrastructure

- The transfer of land to the south of St Athan Primary to the Vale of Glamorgan Council as part of Phase 1 to allow for the redevelopment and expansion of St Athan Primary.
- In addition, an off-site contribution towards the delivery of additional school places in accordance with capacity requirements within the catchment area.
- A contribution towards the provision and enhancement of community facilities in the area.

various other requirements with which the development will need to comply.

This includes the provision of several open spaces, which is positive for Habitats Sites that are sensitive to recreational pressure (e.g. the Severn Estuary SAC/SPA/Ramsar). Further important requirements are the provision of an Active ravel route and the implementation of SuDS.

The following impact pathways may be associated with Policy HG1 KS4:

- Recreational pressure
- Atmospheric pollution
- Loss of functionally linked habitat
- Water quality
- Hydrology
- Coastal squeeze

Overall, due to its impact potential, Policy HG1 KS4 is screened in for AA.

	• A contribution towards training and development for the commercial element of the development on Phase 1. <u>Green Infrastructure, Recreation Spaces and Biodiversity</u> • In accordance with the requirements of Policy CI1, the site must include a number of well-designed areas of useable open space, including informal and equipped play spaces, with appropriate green infrastructure connections between them. A playing pitch will be required as part of the outdoor sports provision requirement on Phase 2 of the development. It is expected that the open space will be delivered proportionately across the two phases of development. Where the requirements cannot be met fully on site, an off-site contribution will be required. • Hedgerows and other green infrastructure assets on the site boundary and within the site should be retained and included as part of green infrastructure corridors through the site wherever possible. Where this cannot be achieved, for example at the entrance to the site, appropriate compensatory planting will be required. <u>Flood Risk and Sustainable Drainage</u> • The site must incorporate appropriate high quality sustainable drainage systems (SuDS) which integrate the surface water drainage function with open space and provide opportunities to deliver biodiversity.	
Policy HG1 KS5: Land to the West of St Athan	Land west of St Athan, as shown on the Proposals Map, is allocated as a key mixed use site. The 29.6 Ha site comprises two parcels of land that collectively will deliver 600 homes over the plan period, alongside new community and commercial facilities and land safeguarded for the provision of a new station and bus/train interchange at St Athan. The development of the site must adhere to the Placemaking Principles set out in Policy SP4 Placemaking and the criteria in Policy PGD1 Creating Well Designed Places. In addition, the site must comply with the following requirements: <u>Affordable Housing</u> • The provision of a minimum of 210 affordable housing units (35%) with a unit mix reflecting the requirements of the latest Local Housing Market Assessment and the Council's waiting list data. In order to deliver a greater social mix, the affordable units should be dispersed across the site in clusters of no more than 10 units, with their delivery being phased across the development trajectory. <u>Sustainable Transport and Highways</u>	Likely Significant Effects (LSEs) of Policy HG1 KS5 on Habitats Sites cannot be excluded. Policy HG1 KS5 allocates a 29.6ha large site for up to 600 dwellings over the RLDP period. Furthermore, the policy sets various other requirements with which the development will need to comply. This includes the extension of St Athan Recreation Ground and

- The provision of an Active Travel route along the B4265 between the site entrance and the Gileston Road junction to the east.
- A contribution towards an Active Travel route between St Athan and Llantwit Major
- The delivery of a signalised junction on to the B4265 with Active Travel crossing points providing access into both parcels within the site allocation.
- Safeguarding of land within the smaller parcel to allow for the delivery of a new rail station at St Athan including appropriate car parking to support the use of the site as a bus/rail interchange.
- A contribution towards off-site improvements to the capacity and flow of junctions on the strategic highway network as informed by the Strategic Transport Assessment and site-specific Transport Assessment.
- Safeguarding of land within the site boundary of the larger site to allow for the provision of a pedestrian and cycle bridge to serve a new education facility on land to the south as identified in Policy CI3 (2) Land south of the railway, St Athan.
- The road layout and width should be of a sufficient width and design to allow for the provision of a loop road to facilitate a bus connection.
- The provision of pedestrian/cycle links to Llantwit Road and pedestrian footway improvements along Llantwit Road.

Community Infrastructure

- An off-site contribution towards the delivery of additional school places in accordance with capacity requirements within the catchment area.
- The provision of an on-site community building to serve the development**.**

Green Infrastructure, Recreation Spaces and Biodiversity

- The extension of St Athan Recreation Ground including the provision of an additional sports pitch, areas of equipped play and community allotments.
- In addition, the site must include a number of other well-designed areas of useable open space, including informal and equipped play spaces, with appropriate green infrastructure connections between them**.**
- Hedgerows and other green infrastructure assets on the site boundary and within the site should be retained and included as part of green infrastructure corridors through the site wherever possible. Where this cannot be achieved, appropriate compensatory planting will be required.

the provision of several open spaces, which is positive for Habitats Sites that are sensitive to recreational pressure (e.g. the Severn Estuary SAC/SPA/Ramsar). Further important requirements are the provision of an Active ravel route and the implementation of SuDS.

The following impact pathways may be associated with Policy HG1 KS5:

- Recreational pressure
- Atmospheric pollution
- Loss of functionally linked habitat
- Water quality
- Hydrology
- Coastal squeeze

Overall, due to its impact potential, Policy HG1 KS5 is screened in for AA.

	Flood Risk and Sustainable Drainage • The site must incorporate appropriate high quality sustainable drainage systems (SuDS) which integrate the surface water drainage function with open space and provide opportunities to deliver biodiversity. • Built development should avoid the small area of Zone 3 surface water and small watercourses flooding on the eastern periphery of the site.	
Policy HG3: Housing Led Redevelopment Opportunity	The following site is identified as a long-term redevelopment opportunity: Site Reference: HG3 (1) — Settlement: Llantwit Major — Site Name: Former Eagleswell Primary School	There will be no LSEs of Policy HG3 on Habitats Sites. This policy identifies the Former Eagleswell Primary School as a long-term redevelopment opportunity. However, it does not provide any certainty that such development will take place, nor does it indicate any quantum of dwellings. Overall, therefore, Policy HG3 is screened out from AA.
Policy SP7: Affordable Housing Provision	The residential requirement identified in Policy SP6 is expected to contribute to the established community housing needs of the Vale of Glamorgan by delivering a minimum of 3,070 affordable residential units over the plan period. In meeting this target, a mix of affordable housing will be required, informed by the Local Housing Market Assessment LHMA, waiting list data and the Older Persons Housing Strategy. This should include a range of tenures, types and sizes of homes, as well as an appropriate balance of general needs and specialist accommodation.	There will be no LSEs of Policy SP7 on Habitats Sites. Policy SP7 pertains to the delivery of affordable housing in the Vale of Glamorgan, specifying 3,070 affordable

		residential units over the RLDP period. However, the fact that a proportion of the total housing is to be delivered as affordable has no bearing on Habitats Sites. The overall quantum of residential development is adequately assessed under Policy SP6. Overall, therefore, Policy SP7 is screened out from AA.
Affordable Housing Requirements		
Policy SP8: Affordable Housing Requirements	Residential developments (including mixed use schemes) will be required to contribute to addressing affordable housing need and should meet the levels of affordable housing set out below: **Settlements** / **Affordable Housing Requirement %** / **Policy Threshold** Barry / 30% / 5 dwellings net gain Rhoose, St Athan, Llantwit Major / 35% / 5 dwellings net gain Penarth, Dinas Powys, Llandough, Sully, Cowbridge / 40% / 1 dwelling net gain new build. 2 dwelling net gain for conversions of existing buildings	There will be no LSEs of Policy SP8 on Habitats Sites. This development management policy stipulates how the affordable housing delivery will be spread across the Vale of Glamorgan. However, the distribution of affordable housing across the authority has no bearing on Habitats Sites. Overall, therefore, Policy SP8 is screened out from AA.

Primary and Minor Rural Settlements outside the strategic growth area	40%	1 dwelling net gain new build. 2 dwelling net gain for conversions of existing buildings
Affordable housing led allocations	50%	As per allocation

The provision of affordable housing will be negotiated on a site-by-site basis considering the evidenced viability of the development.

On sites of 5 dwellings and above, the Council shall require the provision of affordable housing to be provided on site, unless exceptional circumstances are demonstrated, with the requirement being rounded up to the nearest whole number, with the residual amount being provided as an equivalent financial contribution.

In circumstance where an off-site financial contribution is made, the monies received will be used to deliver alternative affordable housing in the Vale of Glamorgan.

Where developers claim that the target is unviable, a detailed viability assessment must be submitted and independently reviewed.

The exact mix of affordable housing required will be considered on a case-by-case basis having regard to the Council's latest needs evidence at the time of the application.

Rural Affordable Housing Led Sites

Policy HG4: Rural Affordable Housing Led Sites

The following sites are allocated as affordable housing led sites where there will be a requirement for the provision of a minimum 50% affordable housing to meet the affordable housing needs of the local community. In addition, the Council will require developers to provide a mix of market housing that will contribute to specific housing market needs of the community.

Site Reference	Settlement	Site Name	Total Number of units
HG4 (1)	Colwinston	Land to the East of Colwinston	25
HG4 (2)	Aberthin	Land west of Maendy Road	25
HG4 (3)	Wick	Land at Heol Fain	50
HG4 (4)	Fferm Goch	Land north of West Winds Business Park	22
			122

Applicants will need to demonstrate how both the market and affordable housing provides for the local housing needs of community in terms of tenure, type and size of dwellings so that a range of housing is delivered to meet the needs of different groups in the local community.

There will be no LSEs of Policy HG4 on Habitats Sites.

This development management policy sets affordable housing targets for rural sites.

However, the fact that a proportion of the total housing within these sites is to be delivered as affordable has no bearing on Habitats Sites. The overall quantum of residential development is adequately assessed under Policy SP6.

Overall, therefore, Policy HG4 is screened out from AA.

Affordable Housing Exceptions

Policy HG5: Affordable Housing Exception Sites

Proposals for 100% small scale affordable housing developments will be permitted outside settlement boundaries where:

1 The proposal has a distinct physical or visual relationship with a defined settlement outside of the Strategic Growth Area as set out in Policy SP2 on Settlement Hierarchy.
2 The proposal meets an identified local need which cannot be satisfied within identified settlement boundaries;

There will be no LSEs of Policy HG5 on Habitats Sites.

This is a development management policy that pertains the delivery of affordable housing exception sites outside

	3 The proposal site would represent a logical extension of the settlement and would not require arbitrary subdivision of a larger site; 4 The development is of a scale that is compatible with the layout, density, fabric and appearance of the existing settlement; 5 The proposed dwelling(s) will be of a size, tenure and design which is commensurate with the identified affordable housing need, taking account of the affordable housing already planned in the housing market area; 6 There is no loss of land with significant recreational, amenity, agricultural or natural heritage value; and 7 Secure mechanisms are in place to ensure the property shall remain affordable in perpetuity and made available in accordance with the Council's local lettings policy.	settlement boundaries. However, the policy content has no bearing on the protection of Habitats Sites. The policy does not allocate any quanta or locations of housing or employment development. Overall, therefore, Policy HG5 is screened out from AA.
Specialist Housing		
Policy HG6: Provision of Specialist Accommodation	The Council will support the development of specialist accommodation to meet the diverse housing needs of the Vale of Glamorgan's population. Proposals for specialist housing will be supported where: 1 The development responds to an identified local need, as evidenced by the latest Local Housing Market Assessment (LHMA), the Older Persons Housing Strategy, or other relevant needs assessments; 2 The accommodation is appropriately designed to meet the specific needs of the intended residents, including older people, people with disabilities, those with mental health needs, and other vulnerable groups; 3 The development is located in an accessible and sustainable location, with good access to public transport, community facilities, health services, and local amenities; 4 The development ensures integration with the wider community and promotes inclusive, mixed communities; and 5 It includes appropriate levels of care and support, where required, either on-site or through established local services.	There will be no LSEs of Policy HG6 on Habitats Sites. This is a development management policy that pertains the delivery of specialist accommodation. However, the policy content has no bearing on the protection of Habitats Sites. The policy does not allocate any quanta or locations of housing or employment development.

		Overall, therefore, Policy HG6 is screened out from AA.
Houses in Multiple Occupation		
Policy HG7: Houses in Multiple Occupation (HMOs)	Proposals for the change of use from Use Class C3 (dwelling house) to C4 (Houses in Multiple Occupation (HMO)) or Sui Generis (a large HMO with more than six people), or the intensification of the use from C4 to Sui Generis, or the development of a new build HMO will only be permitted where: 1 HMO properties would not represent 10% or more of residential properties within a 50-metre radius of the application property, or the application property tips the concentration to 10% or more; 2 It would not result in any residential property (C3 use) being 'sandwiched' between two HMOs; 3 On small streets, proposals will not be supported where it would create a disproportionate over concentration of HMOs; 4 The scale and intensity of use would be compatible with the existing building and adjoining and nearby uses. HMO proposals that exceed the thresholds above will only be permitted where there are exceptional circumstances or other material considerations that demonstrably outweigh any concerns over HMO concentrations.	There will be no LSEs of Policy HG7 on Habitats Sites. This is a development management policy that sets the conditions for the provision of Houses in Multiple Occupation. However, the policy content has no bearing on the protection of Habitats Sites. The policy does not allocate any quanta or locations of housing or employment development. Overall, therefore, Policy HG7 is screened out from AA.
Conversion and Renovation of Rural Buildings		
Policy HG8: Conversion and Renovation of Rural Buildings	Proposals for the conversion or renovation of existing rural buildings for rural enterprise, tourism, community or residential use will be acceptable where: 1 Conversion of an existing rural building would not give rise to the need for a replacement building; and 2 Reuse can be achieved without substantial reconstruction, extension or alteration that unacceptably affects the appearance and rural character of the building or its setting Proposals for the residential conversion or renovation of existing rural buildings will only be permitted where:	There will be no LSEs of Policy HG8 on Habitats Sites. This is a development management policy that sets the requirements needed to be met

	3 The building has been appropriately marketed for other alternative uses such as farm diversification, business, community, tourism, or recreational uses and it has been demonstrated that such alternative uses are not viable; 4 The building is accessible by regular public transport, and safe Active Travel routes; and 5 The location of the building is sustainable in terms of access to local services and community facilities. To ensure that that the character and appearance of the building is preserved in the long term, the Council may seek to withdraw permitted development rights to restrict future extensions or alterations to the property.	for the conversion and renovation of rural buildings. However, the policy content has no bearing on the protection of Habitats Sites. The policy does not allocate any quanta or locations of housing or employment development. Overall, therefore, Policy HG8 is screened out from AA.
Replacement Dwellings, Residential Extensions and Annexes in the Countryside		
Policy HG9: Replacement Dwellings, Residential Extensions and Annexes in the Countryside	Proposals for the replacement of an existing dwelling in the countryside will be permitted where: 1 The proposal would comply with the requirements of Policy CC2 - Presumption Against Demolition; 2 The dwelling has an established lawful residential use; 3 It would not result in the loss of a dwelling which contributes significantly to the rural character of the area, unless it can first be demonstrated that the building is structurally unsound, and repairs are economically unviable; 4 The proposal would, by reason of its scale, siting, design, materials, landscaping and external appearance, be compatible with the surrounding built and natural environment and have no materially greater impact on the landscape; and 5 The proposed dwelling is within the existing curtilage of the original dwellinghouse and does not necessitate an unacceptable extension to the existing residential curtilage. Extensions to dwellings in the countryside will be permitted if the proposed extension: 6 Is not disproportionate in size to the original dwelling; 7 Would not unacceptably affect the character of the existing dwelling or its contribution to rural character; and 8 Would have no materially greater impact on the landscape.	There will be no LSEs of Policy HG9 on Habitats Sites. This is a development management policy that addresses the replacement and extension of dwellings in the countryside. However, the policy content has no bearing on the protection of Habitats Sites. The policy does not allocate any quanta or locations of housing or employment development.

	Proposals for residential annexes will be permitted where the annexe: 9 Is reliant in part on the main dwelling for facilities; 10 Would be capable of reverting to part of the main dwelling once the need for the annexe has ceased; 11 Is acceptable in size and scale and clearly ancillary and visually subordinate to the main dwelling; 12 Is located within the existing curtilage of the main dwelling and no separate garden area, vehicle access, or segregated car parking area is proposed; and 13 Is within the same ownership as the main property with future occupancy tied to the beneficial ownership of the main dwelling by means of a condition, S106 agreement or Unilateral Undertaking.	Overall, therefore, Policy HG9 is screened out from AA.
Gypsy and Traveller Accommodation (GT)		
Policy SP9: Gypsy and Traveller Site Provision	To meet the identified need for Gypsy and Traveller Accommodation and to allow for the potential future expansion of Gypsy and Traveller households the following Local Authority site is allocated for the provision of 7 pitches: SP9.1 Land at Llangan	Likely Significant Effects (LSEs) of Policy SP9 on Habitats Sites cannot be excluded. Policy SP9 identifies that seven traveller pitches on Land at Llangan will be delivered in the Plan period between 2021 and 2036. The allocation of gypsy and traveller pitches contributes to an increase in the local population, which may lead to additional pressures on Habitats Sites, such as through an increased demand for recreational space, consumption of potable water and driving of private motor vehicles.

		The following impact pathways may be associated with Policy SP9: • Recreational pressure • Atmospheric pollution • Loss of functionally linked habitat • Water quality • Hydrology • Coastal squeeze Overall, due to its impact potential, Policy SP9 is screened in for AA.
Policy GT1: Gypsy and Traveller Accommodation	Proposals for the provision of new or extensions to existing Gypsy and Traveller Sites will be supported where they comply with the following criteria: 1 The site is reasonably accessible to essential services and facilities such as healthcare, education, employment, and public transport. 2 Safe and appropriate vehicular access can be provided from the highway network, and the site layout affords adequate provision for parking, turning, servicing and emergency vehicles. 3 The site is designed in accordance with the relevant Welsh Government Guidance and Circulars. 4 The scale of the of the site is proportionate to the evidenced needs of the applicant and to the local surroundings and settings. 5 The development would not have adverse impacts on either the amenity of local settled communities or residents of the site.	There will be no LSEs of Policy GT1 on Habitats Sites. This is a development management policy that permits the provision of new or extensions to existing Gypsy and Traveller Sites, provided that various conditions are met.

	6 Adequate on-site services for water supply, drainage, sewage, power and waste disposal are available on-site or can be suitably provided without causing unacceptable environmental impacts. 7 The development will not have an unacceptable impact on the character and appearance of the landscape and is sensitively designed to mitigate any impact on its surroundings. Planning conditions will be used to control the nature and level of non-residential uses on the site.	However, the policy does not allocate any quanta or locations of such development. Overall, therefore, Policy GT1 is screened out from AA.
Transport		
Policy SP10: Sustainable Transport	To help address the RLDP Vision and Objectives, the Plan encourages a modal shift towards sustainable forms of transport and increasing Active Travel opportunities. New development must support an enhanced transport network that increases the proportion of journeys being undertaken by sustainable travel modes. This will be achieved through: 1 Siting new developments in sustainable and accessible locations where a range of services and facilities are within walking and cycling distance. 2 Ensuring that new development is integrated with existing Active Travel Routes that provide a safe, inclusive, pleasant travelling experience, contributes to their expansion and improves connectivity within and between towns, villages and surrounding rural settlements. 3 Ensuring that new developments are designed to encourage walking, cycling and public transport use as alternatives to private car use, as well as encouraging options such as mobility hubs and shared car use. 4 Adopting appropriate levels of car and bicycle parking provision, reflecting the plans objectives for reducing car borne journeys in accordance with the Council's adopted parking standards 5 Improving accessibility for all and connectivity to sustainable transport facilities. 6 Providing new or enhanced transport services and facilities where appropriate. 7 Supporting and facilitating the delivery of the South Wales Metro and Regional Transport Plan 8 Safeguarding former railway lines for potential reinstatement of services or alternative Active Travel routes. 9 Providing the necessary infrastructure for Ultra Low Emission Vehicles in appropriate locations.	There will be no LSEs of Policy SP10 on Habitats Sites. This Strategic Policy relates to the broad transport objectives of the RLDP, which strongly encourages a modal shift towards more sustainable forms of transport (e.g. Active Travel modes). Putting these objectives into effect is likely to have a positive impact on Habitats Sites that are sensitive to atmospheric pollution, such as through decreasing vehicular flows within 200m of sensitive receptors. The policy does not propose specific schemes, the construction of which could be associated with negative impacts to ecological receptors.

	As appropriate, new development proposals will be required to provide Transport Statements, Transport Assessments and Travel Plans to ensure the delivery of travel choice and sustainable opportunities for travel. New developments that are forecast to have an adverse impact on the transport network will be expected to contribute towards capacity and mitigation measures. Proposals that require new transport infrastructure will be required to make a proportionate financial contribution.	Overall, therefore, Policy SP10 is screened out from AA.
Policy TR1: Transport Proposals	To protect proposed major transport schemes from development that would prevent their implementation, land is safeguarded for the following strategic transport proposals: **Active Travel Routes** 1 Barry to Dinas Powys. 2 Sully to Cosmeston. 3 Weycock Cross to Cardiff Airport. **Public Transport Schemes** 4 St Athan New Rail Station and Interchange. 5 Cogan Station Interchange enhancements. Development on safeguarded land will only be permitted if it would not prejudice the provision and expansion of facilities. **Highways Improvements** To mitigate the impact of development on the highway network, the following strategic highway improvement have been identified 6 Weycock Cross roundabout, Barry. 7 Gileston Road junction, St Athan. All highway improvements must also deliver demonstrable enhancements to walking and cycling as part of any scheme. Other highways mitigation work in the form of corridor or junctions may also be required on a site-specific basis.	There will be no LSEs of Policy TR1 on Habitats Sites. Policy TR1 safeguards land in particular geographic locations for the future implementation of major transport schemes. While the respective schemes may be progressed in the future, the mere safeguarding of land is not associated with any risk to Habitats Sites. Furthermore, no detail is available as to how these schemes may be constructed, such that HRA assessment is not possible. Any major travel scheme coming forward in the future will need to undergo project-level HRA to ensure that the integrity of relevant Habitats Sites is protected. Overall, therefore, Policy TR1 is screened out from AA.

Retail, Commercial and Service Centres (RCS)

Policy SP11: Retail, Commercial and Service Centre Hierarchy	The hierarchy of Retail, Commercial and Service Centres within the Vale of Glamorgan is as follows: **Town Centres -** Barry (Holton Road), Penarth, Cowbridge **District Centres** - Barry High Street, Llantwit Major **Local Centres** Barry: Main Street, Cadoxton; Vere Street, Cadoxton; Park Crescent; Barry Road, nr. Cadoxton; Upper Holton Road Dinas Powys: Cardiff Road; Dinas Powys Village Centre Penarth: Cornerswell Road Rhoose: Fontygary Road St Athan: The Square **Neighbourhood Centres -** Barry: Bron-y-Mor; Cwm Talwg; Gibbonsdown Centre; Park Road, Boverton Dinas Powys: Camms Corner; Castle Court/The Parade Llantwit Major: Crawshay Drive Penarth: Pill Street; Tennyson Road The centres identified above are the preferred locations for a range of uses, including retail, leisure, office, visitor accommodation and appropriate residential and community facilities. Development proposals must be in keeping with the defined role of each centre. New development within the Retail, Commercial and Service Centres should accord with the defined role of each centre within the hierarchy and support the vitality and viability and increase footfall within the centres.	There will be no LSEs of Policy SP11 on Habitats Sites. This is a development management policy that identifies the retail, commercial and service centre hierarchy across the Vale of Glamorgan. This policy content has no direct relevance to Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy SP11 is screened out from AA.
Policy SP12: Retail Floorspace Provision	To ensure the continued vitality, viability and attractiveness of the Vale of Glamorgan's retail, commercial and service centres, the plan will allow for the provision of up to 5,862 sq m (net) of convenience floorspace and up to 679 sq m (net) of comparison floorspace. The following allocations will contribute to delivering the convenience floorspace provision: 1 Land at Church Farm, St Athan - up to 1,858 sq m 2 Land at Bridge House Farm, Llanmaes, Llantwit Major – 1,251 sq m	Likely Significant Effects (LSEs) of Policy SP12 on Habitats Sites cannot be excluded. Policy SP12 allocates up to 5,862m^2 of convenience and 679m^2 of comparison floorspace.

Any additional convenience and comparison retail floorspace beyond that provided by the identified sites should be directed towards the town and district centres outlined in Policy SP11. The inclusion of retail floorspace as part of a mix of uses on allocated sites will also be supported.

It also specifies two allocations in which the convenience floorspace will be provided.

While this represents only a small portion of the overall employment growth to be delivered in the Vale of Glamorgan over the RLDP period, this provision of retail floorspace will contribute to employment-related impact pathways by shaping preferred commuter routes and strategic water distribution.

The following impact pathways may be associated with Policy SP12:

- Atmospheric pollution
- Loss of functionally linked habitat
- Water quality
- Hydrology
- Coastal squeeze

Overall, due to its impact potential, Policy SP12 is screened in for AA.

Policy RCS1: Resilient Retail, Commercial and Service Centres	Development proposals, including those identified through Placemaking Plans, that enhance the vitality, vibrancy, and attractiveness of Retail, Commercial, and Service Centres will be supported. Proposals involving the change of use at ground floor level uses from A1 retail use will permitted where the proposal would: 1 Support the vitality and vibrancy of the town centre by generating footfall and economic activity; 2 Be compatible with surrounding uses and the commercial character of the centre; 3 Not result in adverse amenity impacts; 4 Provide an active frontage; and 5 Avoid an over-concentration of non-retail centre uses that would undermine the retail function of the centre. Proposals for A3 Hot Food Takeaways must also comply with Policy RCS3. Residential and other complementary town centre uses above ground floor level will be supported, provided they do not result in unacceptable impacts on the operation of ground floor uses or the amenity of existing and/or proposed occupiers.	There will be no LSEs of Policy RCS1 on Habitats Sites. This is a development management policy that supports the resilience of retail, commercial and service centres, such as by permitting change of use at ground floor level. This policy content has no direct relevance to Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy RCS1 is screened out from AA.
Policy RCS2: Edge of Centre and Out of Town Retailing	Existing edge of centre and out of town retail areas have been identified at the following locations: Edge of Centre: 1 Barry Waterfront, Barry; 2 Dockside, Barry; 3 Palmerston, Barry; 4 Pencoedtre, Barry; 5 Highlight Park, Barry; 6 Terra Nova Way, Penarth; Out of Town:	There will be no LSEs of Policy RCS2 on Habitats Sites. This is a development management policy that identifies existing edge of centre and out of town retail areas. It also sets the conditions under which new sites in these locations can be delivered. This

	7 Culverhouse Retail Park, Culverhouse Cross 8 Brooklands Terrace Retail Park, Culverhouse Cross 9 Valegate Retail Park Culverhouse Cross 10 Penarth Road Retail Park Proposals for new A1, A2 or A3 uses on new sites or existing retail areas in edge of centre and out of town locations, including changes of use, extensions, the merger or subdivision of existing units or amendments to existing planning conditions relating to the sale of goods will only be permitted where: 1 It can be demonstrated that there is an additional need for the proposal which cannot be provided within an existing retail, commercial and service centre; and 2 The proposal would not either individually or cumulatively with other recent or proposed consented developments have an unacceptable impact on the trade, turnover, vitality and viability of the retail, commercial and service centres. 3 The proposal would serve local needs in a neighbourhood or rural village.	policy content has no direct relevance to Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy RCS2 is screened out from AA.
Hot Food Takeaways		
Policy RCS3: Hot Food Takeaways	To promote healthier communities and protect the viability and attractiveness of retail, commercial and service centres and local neighbourhoods, proposals for new A3 Hot Food Takeaways will only be permitted where: 1 The proposal is within a defined retail, commercial and service centre, edge of centre or out of centre retail park and does not cause or exacerbate an over-concentration of A3 hot food takeaway uses in that centre. An over-concentration is defined as exceeding the specific proportion of units that will be permitted as hot food takeaways in each defined retail centre as follows: • Town and District Centres – 6% • All other retail centre types with over 20 total units– 10% • All other retail centre types with between 10 - 20 total units – 20% • All other retail centre types with under 10 total units – 30% 2 The proposal does not result in the unacceptable clustering of hot food takeaways, defined as no more than two adjacent takeaway units and at least 3 non A3 takeaway units separating clusters.	There will be no LSEs of Policy RCS3 on Habitats Sites. This is a development management policy that identifies the criteria under which the provision of hot food takeaways will be permitted. This policy content has no direct relevance to Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development.

	3 The proposal does not harm the amenity, character, viability or attractiveness of the surrounding area and neighbourhood. Proposals for new A3 Hot Food Takeaways outside of the above defined retail areas will not be acceptable.	Overall, therefore, Policy RCS3 is screened out from AA.
Community Infrastructure		
Policy SP13: Community Infrastructure and Planning Obligations	Where appropriate and having regard to development viability, the Council will secure new and improved community infrastructure, facilities, and services appropriate to the scale, type, and location of proposed developments using planning obligations. Community infrastructure may include the provision, improvement and long-term maintenance of: • Affordable and specialist housing. • Educational provision, including Welsh language facilities • Transport infrastructure and facilities for pedestrians, cyclists, public transport, and vehicular traffic. • Public open space. • Community Growing Spaces such as allotments • Green infrastructure. • Public art. • Leisure, sport, and recreational facilities. • Biodiversity Enhancement. • Community facilities. • Healthcare facilities. • Service and utilities infrastructure, including digital infrastructure. • Environmental protection and enhancement such as flood prevention, town centre regeneration, pollution management or historic renovation. • Recycling and waste management facilities; and • Employment opportunities and complementary facilities including training and working hubs. The delivery of new or improved infrastructure must be undertaken in a timely and coordinated manner to meet the needs of existing and planned communities prior to, or from the commencement of, the relevant phases of development.	There will be no LSEs of Policy SP13 on Habitats Sites. This is a development management policy that supports the delivery of new and improved community infrastructure, such as public open space and green infrastructure. The provision of open spaces for recreation is likely to benefit Habitats Sites that are sensitive to recreational pressure, such as by absorbing recreational demand locally. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy SP13 is screened out from AA.

Open Space and Recreation

Policy CI1: Open Space Provision	All new residential development with a net gain of 10 or more dwellings will be required to provide well-designed accessible useable open space provision in accordance with the following benchmark open space minimum standards per 1000 population: • 0.55 Ha of play space (12.4m2 per dwelling) • 2.2 Ha of additional open space including community growing spaces, outdoor sports and informal open space provision (49.8m2 per dwelling) For major commercial developments (1ha or more or a floorspace of 1,000m2), provision should be made of 6m2 per full time equivalent employee. Areas of open space will normally be required to be provided on-site as part of new development proposals. Where it is not practical to make provision on-site, appropriate off-site provision or financial contributions for improvements to existing facilities will be required in lieu of on-site play, outdoor sports provision or amenity greenspace. An Open Space Strategy will be required to be submitted for all housing and commercial developments that meet the thresholds.	There will be no LSEs of Policy CI1 on Habitats Sites. This is a development management policy that sets stringent standards of open space provision for residential developments of 10 or more dwellings. It also identifies that an Open Space Strategy will need to be provided by relevant planning applications. The provision of open spaces for recreation is likely to benefit Habitats Sites that are sensitive to recreational pressure, such as by absorbing recreational demand locally. Stipulating specific standards for open space provision is common practice and guarantees that legally binding quanta are delivered. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CI1 is screened out from AA.

Policy CI2: Protection of Existing Open Spaces	Proposals for development on areas of open space within settlements will only be permitted where: 1 The amount of open space remaining in the neighbourhood would still be adequate to serve local needs; and 2 The site has no significant value as a recreational resource, an area of visual amenity a green infrastructure asset.	There will be no LSEs of Policy CI2 on Habitats Sites. This is a development management policy that protects existing open spaces from being lost to new developments. This is positive for Habitats Sites because this policy approach safeguards an adequate inventory of openly accessible greenspaces close to home. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CI2 is screened out from AA.
Community Facilities		
Policy CI3: New Community Facilities	Land is allocated for the development of new community facilities at: 1 Land at Clare Gardens, Cowbridge (Education) 2 St Athan Primary School, St Athan (Education) 3 St Richard Gwyn Catholic School, Barry (Education) 4 Lower Cosmeston Farm, Penarth (Education) 5 Upper Cosmeston Farm, Penarth (Education, Community Space) In addition, land is safeguarded for potential community use at the following site:	There will be no LSEs of Policy CI3 on Habitats Sites. This is a development management policy that allocates land for the development of new community facilities.

	6 Land south of the railway, St Athan	While specific locations for the development of community facilities are identified, Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CI3 is screened out from AA.
Policy CI4: Protecting and Enhancing Existing Community Facilities	Proposals for new community facilities or proposals which seek to retain, enhance or maintain existing community facilities will be supported. This includes the provision of multi-use community facilities, including the co- location of healthcare, school, library, leisure facilities. Proposals that would result in the loss of community facilities (including sites last used for such activities) will only be permitted if it is demonstrated that: 1 The facility is surplus to the needs of the community; or 2 An alternative facility of at least equal quality and scale to meet community needs will be provided within the local area; or 3 It is no longer economically viable, feasible or practicable to retain the building or site for alternative community uses; and 4 All reasonable efforts have been made to retain the facility, including evidence to confirm that the property or site has been actively and positively marketed for a minimum 12-month period with reasonable commercial terms, and that there is no realistic interest in its retention for the current use or an alternative community use. Proposals that seek to retain, improve, or re-use community facilities and services, including appropriate supporting development which may make such provision economically viable, will be supported.	There will be no LSEs of Policy CI4 on Habitats Sites. This is a development management policy that protects and enhances existing community facilities. However, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CI4 is screened out from AA.

Policy CI5: Cemetery and Crematorium Provision	Land is safeguarded for the extension of Porthkerry Cemetery, Barry, as shown on the Proposals Map. Proposals for the provision of additional burial land or crematoriums will be supported where: 1 There is a proven need for additional facilities within the town or community council area. 2 The site is located close to public transport routes and provides sufficient on-site car parking to meet peak demand. 3 It is demonstrated that the proposal would not adversely affect ground water sources or flood risk and that any potential sources of contamination can be mitigated. 4 The proposal does not have an unacceptable adverse impact on the Best and Most Versatile agricultural land (Grades 1, 2 and 3a), or on areas of importance for biodiversity, landscape, archaeology and geology; and 5 The proposal would not have an adverse effect on the amenities of neighbouring occupiers by reason of noise, pollution, privacy and visual obtrusiveness, and would not impact on highway safety. Proposals for a new crematorium will be expected to meet the requirements of Section 5 the Cremation Act 1902 with regards to the siting of the crematorium.	There will be no LSEs of Policy CI5 on Habitats Sites. This is a development management policy that safeguards land for the Porthkerry Cemetery, Barry. Proposals for further burial land and crematoriums will be supported, provided that certain conditions are met. However, the mere safeguarding of land for development is not associated with negative impacts to Habitats Sites. No additional proposals are allocated. Overall, therefore, Policy CI5 is screened out from AA.
Economic Growth and Employment		
Policy SP14: Employment Growth	To support job growth and economic prosperity across the Vale of Glamorgan over the plan period and to meet the projected employment land needs of 67.8 hectares of employment land, and the delivery of up to 5,338 jobs, provision of 182 net hectares of employment land for B1 (Office and Light Industry), B2 (General Industries) and B8 (Distribution and Storage) employment uses is provided at the following major and local employment locations: Major Employment Allocations*: 1. Land east of Cardiff Airport, Rhoose (16.3 ha net) 2. Land south of Port Road (Model Farm), Rhoose (44.75 ha net) 3. Bro Tathan Aerospace and Business Park (55.22 ha net)	Likely Significant Effects (LSEs) of Policy SP14 on Habitats Sites cannot be excluded. Policy SP14 allocates up to 182ha of employment land to enable the delivery of 5,338 jobs over the RLDP period. This includes the allocation of Major Employment Allocations, Local

	4. Land to the South of Junction 34 of the M4, Hensol (29.59 ha net) Local Employment Allocations: 5. Atlantic Trading Estate, Barry (1.59 ha net) 6. Windmill Park, Hayes Road, Barry (3.6 ha net) 7. Vale Business Park, Llandow (12.4 ha net) 8. Land to the South of Junction 34 M4 Hensol (Area D 6.64 ha net) 9. Hayes Wood, Barry (1.9ha net) Employment Regeneration Opportunity Areas: Proposals for redevelopment and enhancement of existing land and premises for B1, B2 and B8 and Low and Zero Carbon related employment and infrastructure proposals will be supported at: 10. Former Aberthaw Power Station 11. Land at the Port of Barry *Complimentary ancillary non-B uses maybe permissible where these would provide supporting services for existing and future businesses and employees.	Employment Allocations and Employment Regeneration Opportunity Areas. The provision of employment development will contribute to impact pathways by shaping factors such as preferred commuter routes and strategic water distribution. The following impact pathways may be associated with Policy SP14: • Atmospheric pollution • Loss of functionally linked habitat • Water quality • Hydrology • Coastal squeeze Overall, due to its impact potential, Policy SP14 is screened in for AA.
Policy EMP1: MOD St Athan	New development within or adjoining MOD St Athan that is demonstrated to be required for operational defence and security purposes, and helps enhance or sustain their operational capability, will be supported in principle. Proposals for non-military or non-defence related development within or in the areas around the MOD site will not be supported where it would adversely affect military operations or capability, unless it can be demonstrated that there is no longer a defence or military need for the site.	There will be no LSEs of Policy EMP1 on Habitats Sites. This is a development management policy that relates to the provision of employment

		development within or adjoining MoD St Athan. However, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy EMP1 is screened out from AA.
Policy EMP2: Protection of Existing Employment Sites and Premises	The following hierarchy of existing employment sites are safeguarded for B1, B2 and B8 employment uses, and will be protected from development which would compromise their role and function. **Major Employment Sites** 1 Operational Port, Barry Docks, Barry 2 The Chemical Complex, Barry 3 Cardiff Airport Business Park, Rhoose 4 Bro Tathan Aerospace Business Park, St Athan 5 Aberthaw Cement Works 6 Renishaw, Junction 34, M4 **Secondary Employment Sites** 7 Atlantic Trading Estate, Barry 8 Ty Verlon Industrial Estate, Barry 9 Llandough Trading Estate, Llandough (Penarth) 10 West Point Industrial Estate, Llandough (Penarth) 11 Vale Business Park, Llandow **Key Local Employment Sites** 12 Palmerston Trading Estate, Barry 13 Sully Moors Road Industrial Estate, Barry	There will be no LSEs of Policy EMP2 on Habitats Sites. This is a development management policy that protects the role of existing employment sites and premises from development. However, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy EMP2 is screened out from AA.

	14 Cardiff Road Business Park, Barry 15 St Hilary Court, Culverhouse Cross 16 Heritage Business Park, Llantwit Major 17 Llandow Trading Estate, Llandow 18 Dyffryn Business Park, Llandow 19 West Winds Industrial Estate, Llangan 20 Llandow South, Llandow 21 Hayes Lane, Barry **Neighbourhood Employment Sites** 22 Vale Enterprise Centre, Barry	
Policy EMP3: Non-Employment Proposals on Existing Employment Areas and Premises	Development proposals on existing employment sites and premises identified in Policy EMP2 will be subject to the following restrictions: **On Major Employment Sites:** Non B1, B2 and B8 uses will be restricted to ancillary services or facilities associated with an existing or proposed employment use that would serve employees on the wider employment site where: 1 It can be clearly demonstrated that the proposed use is ancillary to the main operations of an existing or proposed business; or 2 The use would be complimentary to neighbouring uses, the role and functioning of the employment site, and is of a scale that would support the existing businesses/ location; 3 The proposal would not have an unacceptable impact on amenity or the environment; and 4 The scale or type of ancillary use will not affect the vitality or viability of existing town centres. **On Secondary, Key and Neighbourhood Employment Sites and Other Sites and Premises in Employment Use:** Proposals for non B1, B2 and B8 employment uses will only be supported in circumstances where all of the following criteria can be satisfied: 5 The proposal is for an ancillary or sui generis use and satisfies criteria A1- A4 above, or 6 It is evidenced that there is no reasonable or realistic demand for the retention of the existing land or premises for B1, B2 and B8 employment uses; or 7 There will be a significant community benefit which outweighs the loss of the employment site/premises, for example through improved amenity to neighbouring uses or environmental enhancements, and	There will be no LSEs of Policy EMP3 on Habitats Sites. This is a development management policy that specifies the restrictions for development proposals on existing employment areas and premises. However, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy EMP3 is screened out from AA.

	8 The proposal would not singular or cumulatively lead to a material change in the nature of the employment site, or prejudice the operations of existing or neighbouring uses, and would not have an unacceptable impact on amenity or the environment.	
Policy EMP4: New Employment Proposals Within Settlements	Proposals for new employment uses outside of allocated or existing employment areas identified in Policy EMP2 will only be permitted where: 1 The proposal is within an existing settlement and type of employment use is complementary to its location and neighbouring uses; 2 The proposed development cannot be accommodated on an allocated or existing employment site; 3 There are no significant adverse impacts on the surrounding area, highway network and residential amenity. Proposals for office related development within an existing retail, commercial or service centre identified in Policy SP11 will be supported where the development accords with Policy RCS1.	There will be no LSEs of Policy EMP4 on Habitats Sites. This is a development management policy that pertains the delivery of new employment proposals within settlements. However, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy EMP4 is screened out from AA.
Rural Employment and Diversification		
Policy EMP5: New Rural Diversification and Employment Uses in the Countryside	Proposals for new rural diversification, including tourism facilities, and B1, B2 and B8 employment uses within the countryside outside of defined settlement boundaries or employment areas identified in Policy EMP2 may be appropriate where the proposal is for: • The re-use or adaptation of an existing rural building in association with a rural enterprise or farm diversification scheme; • Small scale new building employment premises that are well related to a rural settlement, or lie within or immediately adjacent to an existing farm building complex; • Employment uses where a countryside location is essential for the operational requirements that cannot be met on an existing employment area;	There will be no LSEs of Policy EMP5 on Habitats Sites. This is a development management policy that supports certain rural diversification and employment uses in the countryside, provided that certain conditions are met. However, the

	• Sustainable low impact tourism and leisure proposals. Proposals for the above uses will only be permitted where: 1 There is a proven need for the development in a rural location; 2 The proposal is at an appropriate scale for the setting; 3 The proposal would not harm the amenity and character of the surrounding area or landscape (including visual impacts, noise, odour, design, and appearance) or prejudice highway safety either on its own or cumulatively with other developments; and 4 The design of any new building for employment purposes must be appropriate to its intended function.	policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy EMP5 is screened out from AA.
Tourism		
Policy SP15: Sustainable Tourism	Proposals which promote the Vale of Glamorgan as a destination for Sustainable Tourism will be favoured. Development proposals should contribute to the positive image of the Vale as an attractive and sustainable tourist destination by: 1 Promoting opportunities for visitors to engage in forms of tourism that have a low impact on the environment; 2 Protecting and enhancing existing tourism attractions and leisure facilities; 3 Enhancing the visitor economy, attracting local investment, providing local employment opportunities and contributing to rural diversification; 4 Recognising and protecting the Vale's distinct local identity, built and natural environment as assets to tourism; 5 Providing a variety of tourism opportunities, particularly through all year-round facilities and a range of appropriately located visitor accommodation; and 6 Encouraging tourism visits to be made by active and sustainable transport modes.	There will be no LSEs of Policy SP15 on Habitats Sites. This is a development management policy that provides general support to sustainable tourism development across the Vale of Glamorgan. While an increase in tourism can exacerbate certain impacts (e.g. recreational pressure), the policy makes no formal allocations of tourism development. Furthermore, the policy does not allocate any quanta or locations of residential and employment development.

		Overall, therefore, Policy SP15 is screened out from AA.
Climate Change and Transition Towards Net Zero		
Policy SP16: Climate Change Mitigation and Adaptation	All development proposals should address the causes of climate change by: 1 Contributing to decarbonisation and the efficient use of land in their siting, design, construction, mix of uses and, by following placemaking principles; 2 Promoting the principles of a circular economy by prioritising the reuse of existing buildings and the construction of adaptable and durable buildings; 3 Maximising resource efficiency and sustainable construction techniques, including sourcing materials locally; 4 Employing sustainable building design principles, and in the case of new residential development achieving operational net-zero emissions; 5 Maximising the opportunities for carbon sequestration from green infrastructure; 6 Maximising the opportunities for renewable energy development, specifically in local search areas; 7 Promoting the optimisation of energy supply and distribution options, including the provision of district heat networks; 8 Promoting urban shading and cooling through the provision of green infrastructure; 9 Maximising water efficiency and minimise adverse impacts upon quality of water resource; and 10 Directing development away from areas identified as being at risk of flooding and/or coastal erosion and ensure that new development suitably controls surface water run-off through the application of sustainable drainage systems and nature-based solutions.	There will be no LSEs of Policy SP16 on Habitats Sites. This is a development management policy that requires new developments to address the causes of climate change. The policy includes various provisions that are positive for the environment (including Habitats Sites), such as maximising water efficiency, reducing impacts on water quality and directing development proposals away from sources of flooding/erosion risk. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy SP16 is screened out from AA.
Net Zero Carbon Developments		

Policy CC1: Residential Operational Net Zero Carbon Development	Proposals for one or more new dwellings will be required to achieve net-zero carbon operational emissions by: 1 Following the principles of the Energy Hierarchy for Planning, prioritising a reduction in energy demand and improved energy efficiency. 2 Achieving the following standards in individual dwellings as calculated using an identified energy performance model: From RLDP adoption to 31st March 2030 i. Space heating demand less than or equal to 40kWh/m^2/year; ii. Energy use intensity less than or equal to 75kWh/m^2/year; and From 1st April 2030 onwards i. Space heating demand less than or equal to 15kWh/m2/year; ii. Energy use intensity less than or equal to 40kWh/m2/year; and 3 Providing on-site renewable electricity generation with an output equivalent to at least the annual energy consumption of the development, as calculated using an energy performance model. Where the use of onsite renewable energy generation to match total energy consumption is demonstrated to not be technically feasible the following hierarchy should be followed: • Renewable energy generation should be maximised as much as possible; and/or • Connection made to an existing or proposed low carbon district energy network (in compliance with Policy CC5); or • Where this is not possible the residual energy (the amount by which total energy demand exceeds the renewable energy generation) is to be offset by a contribution to the Council's Project Zero fund as far as economic viability allows. Compliance will be evidenced within an Energy Report.	There will be no LSEs of Policy CC1 on Habitats Sites. This is a development management policy that requires new residential developments to achieve net-zero carbon operational emissions. However, while positive for the environment more generally, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CC1 is screened out from AA.
Policy CC2: Presumption Against Demolition	Proposals for the demolition and replacement of a standalone building will only be acceptable where it is demonstrated that:	There will be no LSEs of Policy CC2 on Habitats Sites.

	1 The building proposed for demolition is structurally unsound to the extent that it is not practical or viable to be repaired, refurbished, re-used, or re-purposed; or 2 There are significant public benefits which could not be delivered through repairing, refurbishing, re-using, or re-purposing; or 3 Repairing, refurbishing, re-using, or re-purposing the building would likely result in equal or higher newly generated embodied carbon than if the building is demolished and a new building is constructed; or 4 Repairing, refurbishing, re-using, or re-purposing the building would create a building with such poor thermal efficiency that on a whole life cycle basis would mean a lower net carbon solution would arise from demolition and re-build. Compliance with Criteria 1 and 2 should be justified within a Demolition Statement. Compliance with Criteria 3 and 4 should be justified within the site's Energy Report. Where demolition is justified replacement development should recover and reuse waste material from the demolition on sites wherever possible**.**	This is a development management policy that stipulates a presumption against demolition of standalone buildings. However, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CC2 is screened out from AA.
Renewable and Low Carbon Energy Development		
Policy CC3: Renewable Energy Local Search Areas	Local search areas for solar and wind energy are identified on the Proposals Map. In these areas, proposals for renewable energy generation that fall below the threshold for Developments of National Significance will be permitted subject to compliance with the criterion set out in Policy CC5: Renewable, Low and Zero Carbon Energy Generation.	There will be no LSEs of Policy CC3 on Habitats Sites. This is a development management policy that permits renewable energy developments in specified local search areas. However, no such proposals are actually allocated. Furthermore, the policy does not allocate any quanta or locations of residential and employment development.

		Overall, therefore, Policy CC3 is screened out from AA.
Policy CC4: Renewable, Low and Zero Carbon Energy Generation	Proposals for the generation of non-domestic renewable, low and zero carbon energy, and their associated infrastructure, including energy storage systems, will be permitted where it can be demonstrated that: 1 A sequential approach to site selection has been followed to demonstrate that any reasonable, less harmful, alternatives have been considered; 2 There are no unacceptable cumulative impacts in combination with existing or consented development; 3 Proposals make provision for the appropriate restoration and after care of the land for its beneficial future re-use; and 4 There are no unacceptable impacts on the interests of: • Best and most versatile agricultural land; • Aviation safeguarding; • Electrical, radio or other communication systems; • Landscape importance; • Natural and cultural heritage; • Nature conservation; • Glamorgan Heritage Coast; • Residential amenity; and • Soil conservation. Favourable consideration will be given to proposals that provide opportunities for renewable and low carbon energy and / or heat generation to be utilised within the local community.	There will be no LSEs of Policy CC4 on Habitats Sites. This is a development management policy that permits non-domestic renewable, low and zero carbon energy developments and associated infrastructure, provided that various criteria are met (including no acceptable impacts to nature conservation). However, no such proposals are actually allocated. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CC4 is screened out from AA.
Policy CC5: Promoting Heat Networks	The Council is committed to establishing heat networks and development proposals that promote them will be favoured, permitting compliance with wider Plan policy. Where required, heat networks must be considered in accordance with the following criterion. <u>Supply of Heat</u> 1 New development that is likely to produce waste heat must consider the feasibility of becoming a heat source for a heat network.	There will be no LSEs of Policy CC5 on Habitats Sites. This is a development management policy that promotes heat networks across

	Demand for Heat 2 Where heat networks exist, development proposals for any new building must fully consider connection to it. A decision to not connect must be fully justified, communicating the technical feasibility or viability issues that prohibit connection. 3 Where heat networks do not exist, development proposals for over 100 dwellings or 10,000sqm must consider the technical feasibility and financial viability of creating a network. Futureproofing Priority Area 4 Within Barry, sites with a major heat load (for example, schools, colleges, healthcare centres) must futureproof themselves so as not to prejudice any future connection. Where required by this Policy, heat networks must be considered within Energy Statements.	the Vale of Glamorgan. However, the policy content has no bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy CC5 is screened out from AA.
Policy CC6: Coastal Defences and Shoreline Management	Proposals for new coastal defences, or the maintenance or enhancement of existing coastal defences will be supported where they: 1 Maintain or improve the structural integrity and performance of existing defences against coastal erosion and flooding; 2 Are consistent with the objectives of the relevant Shoreline Management Plan (SMP) and local flood risk management strategies; 3 Avoid significant adverse effects on designated habitats, species, and landscape character; 4 Use environmentally sensitive techniques and materials where feasible; and 5 Incorporate nature-based solutions where appropriate.	There will be no LSEs of Policy CC6 on Habitats Sites. This is a development management policy that supports proposals for new coastal defences, as well as the maintenance or enhancement of existing ones. However, no such proposals are allocated by the policy (which in any case would be subject to project-level HRA). Furthermore, the policy does not allocate any quanta or locations of residential and employment development.

		Overall, therefore, Policy CC6 is screened out from AA.
Sustainable Waste Management		
Policy SP17: Sustainable Waste Management	The sustainable management of waste will be facilitated by: 1 Promoting and supporting additional sustainable waste management facilities, measures, and strategies in accordance with the waste hierarchy and the principles of nearest appropriate installation and self-sufficiency. 2 Supporting the circular economy by encouraging the minimisation of the production of waste and the use of reused and recycled materials in the design, construction, and demolition stages of development. 3 Ensuring that provision is made for the sustainable management, sorting, storage and collection of waste in all new developments. The following locations are considered suitable for the development of in-building waste management solutions: • Atlantic Trading Estate. • The Operational Port of Barry Docks. • Llandow Trading Estate. • On suitable existing and allocated B2 and B8 industrial sites. The provision of open-air sustainable waste management facilities on appropriate Class B2 or B8 industrial sites, operational or non-operational mineral working sites, derelict land or buildings or within or adjoining existing farm complexes will also be acceptable where they do not conflict with existing or proposed neighbouring uses.	There will be no LSEs of Policy SP17 on Habitats Sites. This is a development management policy that facilitates the sustainable management of waste across the Vale of Glamorgan, such as by supporting the circular economy and delivering in-building waste management solutions. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy SP17 is screened out from AA.
Policy WA1: Assessment of Waste Management Proposals	Development proposals for waste management facilities will be permitted where: 1 The proposal is supported by an appropriate waste planning assessment; 2 The proposal has regard to the waste hierarchy and proximity principle; 3 It is demonstrated that the development would not result in unacceptable harm to health, the environment or to the amenity of neighbouring land uses; and	There will be no LSEs of Policy WA1 on Habitats Sites. This is a development management policy that sets out

	4 Where the principal road network has adequate capacity, or improvements to ensure adequate capacity can be readily and economically provided, to accommodate the transport movements associated with the proposal. Proposals for waste management facilities that accord with the locations set out in Policy SP16 will be favoured.	the assessment of waste management proposals. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy WA1 is screened out from AA.
Mineral Resources		
Policy SP18: Sustainable Provision of Minerals	The local and regional need for the provision of a continuous supply of minerals will be achieved through: 1 Maintaining a minimum of 10 years land bank of crushed rock throughout the plan period. 2 Favouring proposals which promote the sustainable use of minerals and encourage the use of secondary and alternative resources. 3 The safeguarding of known resources of sandstone, limestone, sand and gravel (where these occur outside settlements), from permanent development that would unnecessarily sterilise them or hinder their future extraction; and 4 Safeguarding railheads to allow for the potential transportation of minerals by sustainable means and wharf facilities for the landing of marine dredged sand and gravel where appropriate.	There will be no LSEs of Policy SP18 on Habitats Sites. This is a development management policy that stipulates how the local and regional need for the continuous supply of minerals will be achieved, such as the safeguarding of known resources and maintaining a minimum of ten years land bank of crushed rock. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations

		of residential and employment development. Overall, therefore, Policy SP18 is screened out from AA.
Policy MIN1: Development in Minerals Safeguarding Areas	Known mineral resources of sandstone, sand and gravel and limestone are safeguarded on the Proposals Map. New development will only be permitted in an area of known mineral resource where it has first been demonstrated that: 1 Any mineral reserves can be economically extracted prior to the commencement of the development; or 2 Extraction would have an unacceptable impact on environmental or amenity considerations; or 3 The development would have no significant impact on the possible working of the resource by reason of its nature or size; or 4 The resource in question is of poor quality / quantity.	There will be no LSEs of Policy MIN1 on Habitats Sites. This is a development management policy that protects known resources of sandstone, sand, gravel and limestone from being developed unless certain conditions are met. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy MIN1 is screened out from AA.
Policy MIN2: Quarry Buffer Zones	Buffer zones have been identified around mineral working sites. Within the identified buffer zones proposals for new development will only be permitted where it is demonstrated that: 1 The proposal would not constrain the operations of the mineral site; or 2 The proposal is located within an existing built-up area which already encroaches into the buffer zone.	There will be no LSEs of Policy MIN2 on Habitats Sites. This is a development management policy that sets

		development exclusion buffer zones around mineral working sites. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy MIN2 is screened out from AA.
Policy MIN3: Dormant Mineral Sites	The Council will prevent further mineral extraction at Dormant mineral sites by serving prohibition orders at the following mineral sites where it is satisfied that the resumption of winning and working of minerals or the depositing of mineral waste to any substantial extent is unlikely: 1 Beaupre (Long Grove) Quarry, St Hilary; 2 Cnap Twt Quarry, Castle upon Alun. 3 Cosmeston Quarry, Penarth; 4 Cross Common Quarry, Dinas Powys; 5 Downswood Quarry, Penarth; 6 Ely Brickworks (site shared with Cardiff); 7 Lavernock Quarry; 8 St. Andrews Quarry, St Andrews Major; 9 Southerndown Road Quarry. As the dormant reserves at Argoed Isha, Llansannor have been assessed as having potential to be reworked in the future, the Council will not seek to serve a prohibition order at this site.	There will be no LSEs of Policy MIN3 on Habitats Sites. This is a development management policy that prevents further mineral extraction at dormant mineral sites. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy MIN3 is screened out from AA.

Policy MIN4: Sustainable Mineral Working	Proposals which prioritise the use of recycled material and secondary aggregates before new sources of primary materials are developed will be favoured where this does not have an unacceptable effect on amenity or the environment. Proposals for the extraction of new primary minerals will only be permitted where there is a proven national, regional or local need for the mineral and where: 1 Any adverse impacts on the natural environment are avoided or mitigated to an acceptable level, and proposals include, where appropriate, measures to enhance the natural environment. 2 The development would not cause adverse impacts on built and cultural heritage are mitigated to an acceptable level and enhanced wherever possible. 3 Impacts on the amenity of residents and local communities are not unacceptable regarding noise, health, air quality, vibration, visual impact, access provision and traffic generation. 4 Impacts on geology, hydrology and hydrogeology, including land stability and water supplies, are acceptable. 5 There is clear evidence that there will be no unacceptable loss of agricultural land of ALC grade 1, 2, and 3a. 6 Minerals are transported by the most sustainable means and the potential for minerals to be transported by means other than by road has been adequately assessed. 7 There is provision for the land to be progressively and finally restored to a high standard and to a beneficial and sustainable after-use including long term post-closure management; and 8 Where opportunities for the re-use and recycling of mineral waste have been considered and where there are no practicable substitute materials that can be provided at less environmental costs.	There will be no LSEs of Policy MIN4 on Habitats Sites. This is a development management policy that prioritises the use of recycled material and secondary aggregates over new primary minerals. However, while this is generally positive for the natural environment, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy MIN4 is screened out from AA.
Distinctive and Natural Places		
Policy SP19: Green Infrastructure	Development proposals will incorporate measures that protect and enhance high quality multi-functional green infrastructure provision. To achieve this, development proposals must: 1 Incorporate existing green infrastructure into design, taking advantage of opportunities that are presented by existing and potential assets, through following the principles of placemaking; 2 Protect and enhance connectivity between existing green infrastructure assets. 3 Achieve biodiversity net benefit by employing nature-based solutions, including the Building with Nature Standards, where possible; 4 Protect landscapes designated for their geological, natural, visual, historic or cultural significance;	There will be no LSEs of Policy SP19 on Habitats Sites. This is a development management policy that requires development proposals to protect and enhance high quality multi-functional green infrastructure provision. For

	5 Provide open spaces, including play spaces, amenity greenspace and natural and semi natural greenspace; 6 Facilitate environments that promote mental and physical health and well-being; 7 Provide urban cooling and shading; 8 Integrate green infrastructure provision with sustainable drainage systems; and 9 Support the provision of community growing spaces including allotments and community orchards.	example, this includes enhancing connectivity between existing green infrastructure assets, protecting landscapes that are designated for their natural significance and providing open spaces/amenity greenspaces/natural greenspaces. Ensuring that new developments deliver high quality green infrastructure is one of the primary means to reduce the recreational burden in Habitats Sites. This primarily works by absorbing recreational demand locally and reducing the number of residents travelling further afield. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy SP19 is screened out from AA.
Nature Conservation and Biodiversity		
Policy SP20: Biodiversity and Ecosystem Resilience	Biodiversity in the Vale of Glamorgan will be protected, maintained and enhanced. Development must provide a net benefit for biodiversity and improve the resilience and connectivity of ecosystems. To achieve this, all developments must:	There will be no LSEs of Policy SP20 on Habitats Sites.

	1 Demonstrate that there has been an overall net benefit for biodiversity proportionate to the nature and scale of the development. 2 Ensure that UK/European protected species and habitats are protected in accordance with statutory requirements. 3 Protect the integrity of statutory and non-statutory designated sites ensuring that they are properly protected and managed. 4 Be directed away from areas of high ecological value. 5 Incorporate green infrastructure at the early stages of design, that protects and enhances existing site features and improves the connectivity of the ecological network. 6 Incorporate nature-based solutions within development to support biodiversity and build ecosystem resilience within the site and the wider area. Development on or adversely affecting other non-designated sites or wildlife corridors with biodiversity value will only be permitted where it can be demonstrated that the need for the development outweighs any harm caused by the development and that net biodiversity benefit measures can be provided.	This is a development management policy that protects, maintains and enhances biodiversity and ecosystem resilience across the Vale of Glamorgan. It is the main policy mechanism that protects UK/European protected species and habitats (i.e. Habitats Sites) in accordance with statutory requirements. Importantly, the policy protects the integrity of statutory designated sites, which aligns with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended). Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy SP20 is screened out from AA.
Special Landscape Areas		
Policy DNP1: Special Landscape Areas	The following areas are designated as Special Landscape Areas: 1 Castle Upon Alun; 2 Upper & Lower Thaw Valley; 3 Ely Valley & ridge slopes; 4 Nant Llancarfan; 5 Dyffryn Basin & ridge slopes;	There will be no LSEs of Policy DNP1 on Habitats Sites. This is a development management policy that protects Special Landscape Areas from

	6 Cwrt-yr-Ala Basin. Within the Special Landscape Areas identified above, development proposals will be permitted where it is demonstrated they would cause no unacceptable harm to the important landscape character of the area.	development. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy DNP1 is screened out from AA.
Green Wedges		
Policy DNP2: Green Wedges	Green wedges have been identified to prevent the coalescence of settlements and to retain the openness of land at the following locations: 1 Between Dinas Powys, Penarth and Llandough; 2 North West of Sully; 3 North of Wenvoe; 4 Between Barry and Rhoose; 5 South Penarth to Sully; and 6 Between Llantwit Major and Llanmaes. Within these areas development which prejudices the open nature of the land will not be permitted.	There will be no LSEs of Policy DNP2 on Habitats Sites. This is a development management policy that defines Green Wedges to prevent the coalescence of settlements and retain the openness of land. This policy content is positive for Habitats Sites as these Green Wedges may represent important opportunities for recreation outside of sensitive Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development.

		Overall, therefore, Policy DNP2 is screened out from AA.
Glamorgan Heritage Coast		
Policy DNP3: Glamorgan Heritage Coast	The special environmental qualities of the Glamorgan Heritage Coast will be conserved and enhanced. New development will be restricted to: 1. Development that is necessary for coastal defence as identified within the Lavernock Point to St Ann's Head Shoreline Management Plan 2; 2. Development that is essential for agriculture, nature conservation, informal recreation, low impact tourism or coastal access. 3. Development within settlement boundaries; or 4. Other appropriate and sustainable development that accords with National Policy. Development that unacceptably affects the special environmental qualities of the Glamorgan Heritage Coast will not be permitted.	There will be no LSEs of Policy DNP3 on Habitats Sites. This is a development management policy that conserves and enhances the special environmental qualities of the Glamorgan Heritage Coast, only allowing development provided that certain criteria are met. This policy content is positive for Habitats Sites as the Glamorgan Heritage Coast may represent important opportunities for recreation outside of sensitive Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy DNP3 is screened out from AA.
Historic Environment		

Policy DNP4: Historic Environment	Development proposals must protect the qualities of the built and historic environment of the Vale of Glamorgan, specifically: 1 Within conservation areas, development proposals must preserve or enhance the character or appearance of the area; 2 For listed and locally listed buildings, development proposals must preserve or enhance the building, its setting and any features of significance it possesses. 3 Within designated landscapes, historic parks and gardens, and battlefields, development proposals must respect the special historic character and quality of these areas, their settings or historic views or vistas. 4 For sites of archaeological interest, development proposals must preserve or enhance archaeological remains and where appropriate their settings.	There will be no LSEs of Policy DNP4 on Habitats Sites. This is a development management policy that protects the built and historic environment of the Vale of Glamorgan from development. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy DNP4 is screened out from AA.
Policy DNP5: Environmental Protection	Development will not be permitted that will result in an unacceptable impact on people, residential amenity, property and/or the natural environment from: 1 Pollution of land, surface water, ground water and the air; 2 Land contamination; 3 Hazardous substances; 4 Noise, vibration, odour nuisance and light pollution; 5 Flood risk and consequences; 6 Coastal erosion or land stability; 7 The loss of the best and most versatile agricultural land; or 8 Any other identified risk to public health and safety.	There will be no LSEs of Policy DNP5 on Habitats Sites. This is a development management policy that protects the environment from land, surface water, groundwater and air pollution. It also provides protection from noise, vibration and light pollution. This policy content is positive for Habitats Sites that depend on good water quality, are sensitive to air quality changes and/or whose qualifying

	Where impacts are identified the Council will require applicants to demonstrate that appropriate measures can be taken to minimise the impact identified to an acceptable level. Planning conditions may be imposed, or legal obligation entered into, to secure any necessary mitigation and monitoring processes. In respect of flood risk, new developments will be expected to avoid unnecessary flood risk and meet the requirements of Technical Advice Note 15: Development, Flooding and Coastal Erosion.	species are sensitive to disturbance. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy DNP5 is screened out from AA.
Policy DNP6: Quiet Areas	In order to protect areas of tranquillity within urban areas, the following 'Quiet Areas' have been identified on the constraints map: 1 Belle Vue Park, Penarth 2 Penarth Head Lane, Penarth 3 Victoria Playing Fields, Penarth 4 Golden Gates, Penarth 5 Alexandra Park, Penarth All proposals for new noise-generating development (e.g., commercial uses, transport infrastructure, or large-scale residential schemes) that are likely to affect a designated quiet area must be accompanied by a comprehensive Noise Impact Assessment.	There will be no LSEs of Policy DNP6 on Habitats Sites. This is a development management policy that delineates Quiet Areas, in which development proposals would need to be accompanied by a Noise Impact Assessment. However, this policy content has no direct bearing on Habitats Sites. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy DNP6 is screened out from AA.

Policy DNP7: Dark Skies	New development that includes proposals for external lighting (including security lighting, amenity lighting, illuminated advertisements and lighting associated with highways, car parks, sports facilities and commercial and industrial operations) will only be permitted where it has been demonstrated that the lighting proposed: 1 Is necessary for the proposed development and is proportionate for the purpose for which it is required; 2 Has been designed and sited to prevent light pollution into the surrounding environment; 3 Has no adverse impacts on biodiversity and ecological connectivity or visual and landscape character; 4 Has no adverse impacts on residential amenity and neighbouring land uses; 5 Is energy efficient and uses appropriate technologies to ensure that lighting is only active when it is required; 8 Avoids any cumulative or in-combination lighting impacts with other developments whether existing or proposed; and 9 Is below 2,700 Kelvins (warm light) except where it can be demonstrated that there is an operational need for a higher rating. Major developments where extensive external lighting is proposed may be required to submit a lighting plan that follows Welsh Government Guidance as set out in Good Practice Guidance: Planning for the Conservation and Enhancement of Dark Skies in Wales (2025). Small scale developments are unlikely to require a lighting plan but should still follow the basic good practice lighting principles of the guidance.	There will be no LSEs of Policy DNP7 on Habitats Sites. This is a development management policy that stipulates that developments proposing new external lighting will only be permitted provided that a range of criteria are met (including no adverse impact on biodiversity and ecological connectivity). While positive for light-sensitive species (e.g. bats and birds), it is noted that there are no Habitats Sites within or near the Vale of Glamorgan that are designated for such species. Furthermore, the policy does not allocate any quanta or locations of residential and employment development. Overall, therefore, Policy DNP7 is screened out from AA.