

WALES NDF - Implications for the Natura 2000 network of Priority Areas of Solar and Wind Energy development across Wales – HRA Report

JUNE 2019

CONTACTS



JON DAVIES
Head of Ecology

m +07738 888331

e jon.davies@arcadis.com

Arcadis.
Arcadis Cymru House
St Mellons Business
Park,
St Mellons,
Cardiff CF3 0EY
United Kingdom

CONTENTS

1	INTRODUCTION	1
	Wildlife sensitivity mapping	2
2	ASSESSMENT OF PRIORITY AREAS AND NATURA 2000/ RAMSAR SITES	3
3	CONCLUSIONS	15

APPENDIX A

Energy Potential Wales - Priority Areas for Refinement Grouped by Region

APPENDIX B

Figure 1 - Overview of Natura 2000/ Ramsar sites within Wales

Figure 2 (Pages 1 to 8) - Detailed view of Natura 2000/ Ramsar sites with site buffers

1 Introduction

As part of its work to prepare a National Development Framework (NDF) for Wales, the Welsh Government identified a number of 'Priority Areas' for Solar and Wind Energy development across Wales. The initial prioritisation and selection process for these areas identified key opportunities (e.g. good wind availability) as well as likely constraints to such development (e.g. National Parks, Areas of Outstanding Natural Beauty (AONB), Natura 2000 sites, Ramsar sites, heritage features, overhead power lines, centres of population, etc.), and used this to determine the boundaries for these initial Priority Areas. The areas of 'greatest opportunity', 'varying opportunity' and 'least opportunity' were initially identified, which was then used to inform the identification of the Priority Areas for solar and wind energy development (see Appendix A).

Whilst this initial selection did take into account the presence of Natura 2000 and Ramsar sites, more detailed consideration of the implications for these key sites of solar and/or wind energy development in the proposed Priority Areas (especially the parts classified as being of 'greatest opportunity', shaded green on the figure in Appendix A) was clearly required. An initial assessment was therefore carried out with a view to informing further refinement of the boundaries of the Priority Areas, or at least to describing how the implications with regards to Natura 2000/ Ramsar sites would need further consideration within the NDF and subsequent development planning.

The initial assessment was submitted to Welsh Government in March 2019, and was used to refine the proposals and, more specifically, to amend the boundaries of the Priority Areas.

Composite figures were produced for the initial assessment illustrating the juxtaposition of the initial Priority Areas relative to the Natura 2000 network across Wales; these have now been updated to reflect the amended boundaries of the Priority Areas (see Appendix B, Figures 1 and 2).

Figure 1 illustrates the distribution of Natura 2000/ Ramsar sites across Wales, and clearly demonstrates how the more substantial sites (especially the larger Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)) have been avoided through the iterative refinement process. Comparison between Figure 1 in Appendix B and the original map (Appendix A) illustrates how the boundaries have been further refined since the initial assessment in order to avoid impacts on Natura 2000/ Ramsar sites. It also shows that there is now a clear distinction between areas allocated for solar only and those allocated for both wind and solar, which has further aided the subsequent assessment.

This iteration in design is a perfect illustration of how the HRA process should work, by using an understanding of the implications of potential development for Natura 2000/ Ramsar sites to refine proposals in such a way that likely impacts are avoided.

However, a large number of the Natura 2000/ Ramsar sites in Wales (SACs, in particular) are much smaller and more widespread than the large SPAs and were thus much harder to avoid during the refinement process. Figure 2 has thus been produced to illustrate in closer detail (over Pages 1 to 8) the relationship between individual Natura 2000/ Ramsar sites and the new Priority Areas for Solar and Wind Energy development. In the initial (March 2019) assessment, the original 8 maps were particularly important for illustrating the juxtaposition between Natura 2000/ Ramsar sites and those areas identified as being of 'greatest opportunity' for renewables infrastructure (indicated by dark green shading in the figure in Appendix A). This was used to assess, in detail, the potential implications for nearby Natura 2000/ Ramsar sites of the initially-proposed Priority Areas and, most importantly, to refine the boundaries of these areas, which became the new Priority Areas for Solar and Wind Energy.

Clearly, where a Natura 2000/ Ramsar site was located *within* one of the original Priority Areas (and especially if it lay within, or close to, an area identified as being of 'greatest opportunity' for wind or solar) the potential impacts on the qualifying habitats and species required particular consideration. However, even where there was some distance between a Natura 2000/ Ramsar site and the nearest Priority Area, the potential still existed for mobile species associated with the designated site to be adversely affected, especially by wind farm developments; this was particularly considered to be the case for SPAs (which are designated for their bird interest) and those SACs for which bats are a qualifying feature, as both bats and birds are highly mobile and are also known to be susceptible to turbine-related injury or mortality.

For this reason, the initial assessment made a number of recommendations regarding the boundaries of some of the initial Priority Areas, and specifically the appropriateness of some of the areas identified as being of 'greatest opportunity'. These initial recommendations are provided in Table 1 (column 3), along with a description of the subsequent changes made to the Priority Areas (column 4), and a final assessment of the implications for the relevant Natura 2000/ Ramsar sites of the new Priority Areas (column 5).

This HRA Report is thus an assessment of the revised map of Priority Areas for Solar and Wind Energy and the process by which it was derived.

Wildlife sensitivity mapping

Arcadis are currently working with the EU on updating their 'Wind energy developments and Natura 2000' guidance (2011), specifically looking into the use of Wildlife Sensitivity Mapping (WSM) in relation to the strategic planning of onshore wind farm developments. Our work involved development of a toolkit with options for the criteria and the methodology necessary for the preparation of wildlife sensitivity maps. This guidance is likely to prove very useful in relation to the NDF.

Some of the first WSM projects were developed by the RSPB for Scotland (and later England), with the initial map based on the SPAs in the Natura 2000 network, plus buffered locations of 16 species listed in Annex 1 of the EU Birds Directive. The WSM for Scotland was developed in conjunction with Scottish Natural Heritage (SNH) and was used to inform the early stages of strategic planning.

In 2014, BirdLife International, in collaboration with a number of its national partners, launched the Soaring Bird Sensitivity Mapping Tool (Allinson, 2017). This provides information on 89 species of soaring bird known to be sensitive to collision with wind turbines and contains thousands of geo-referenced records of these birds (based largely on BirdLife's Important Bird and Biodiversity Areas (IBA) database). These records are used to generate a numeric measure of the site's sensitivity, making it much easier for developers and planners to judge the avian sensitivity of a proposed site and compare it objectively with other locations.

WSMs have largely been focused on birds, but the application of sensitivity mapping applies equally to habitats and other species, alone or combined. For example, in Belgium they have produced a Flemish atlas of areas of bird risk associated with wind farms, which has recently been updated to also incorporate specific recommendations for bats. Similarly, SNH commissioned a study in 2016 looking at the distribution of bats (all 10 species) across southern Scotland - as determined using a network of SM2 static detectors - and analysed the information in relation to wind farm locations, specifically with a view to identifying the most sensitive areas and particularly focussing on the higher risk species (*Nyctalus* spp. and *Pipistrellus nathusii*).

The aim of these atlases is to identify where and why certain areas pose risks to the Natura 2000 network (including birds, bats and habitats) specifically with a view to using this information in strategic planning.

The updated EU Guidance document is due to be published later in 2019, so it would be advisable for the final version of the NDF for Wales to at least refer to this document, if possible, and ideally to take the guidance into account in any subsequent refinement of the Priority Areas. It should be noted, however, that no WSM tools are yet available for Wales, so this approach has not been possible for this assessment.

2 Assessment of Priority Areas and Natura 2000/ Ramsar sites

This assessment of the implications of the Priority Areas for Solar and Wind Energy development is based upon a consideration of the qualifying habitats and species for each Natura 2000/ Ramsar site and the distance beyond each site's boundaries over which likely significant effects could still, potentially, be experienced.

Buffer zones around Natura 2000/ Ramsar sites have therefore been applied (as illustrated on the maps in Figure 2), with the following justifications:

- Because SACs and Ramsar sites are generally habitat-based, impacts (beyond the obvious direct land-take) are primarily to do with hydrological effects on wetland habitat and potential effects of air quality changes such as nitrogen deposition. Although the latter can occur over greater distances, especially where the habitat is particularly sensitive to nutrient enrichment, significant effects (e.g. such that individuals plants are adversely affected physiologically or that plant communities are altered by increased competitiveness of the more robust species present) are extremely unlikely over greater distances, owing to the dispersal of emissions in the air. **The buffer zone for Ramsar sites and for SACs where bats (and birds) are not a qualifying feature has therefore been set at 5km.**
- Whilst certain species of bats can fly distances greater than 10km to access foraging areas, the vast majority of the feeding habitat necessary to resource a roost (i.e. the 'roost sustenance zone') is much closer than this (the RSZ for horseshoe bats is generally considered to be a radius of 4km from the roost). Whilst bats can also fly large distances from summer roosts to hibernation sites, the risks associated with exposure to any form of development (e.g. wind farms) are much lower given that these journeys are only undertaken once annually (rather than routinely, as during the active months of roughly April to October). **The buffer zone for SACs where bats are a qualifying feature has therefore been set at 10km.**
- The buffer distance set for birds is greater than for bats mainly because certain birds associated with SPAs and Ramsar sites (e.g. raptors, wildfowl & waders, etc.) tend to readily fly greater distances as part of their foraging behaviour. Thus, birds associated with a designated site are certainly not confined to the boundaries of that location and will often fly some distance from it to feed, roost or breed. This is the basis of the concept of 'functionally-linked land' and the fact that HRAs of SPAs need to take into account the fact that birds from the designated population will often spend time outside the designated area. Whilst this is very unlikely to be an issue for solar farms (although the presence of such features could displace birds from areas they would previously have used), there certainly is a risk of mortality associated with wind farms, even if they are some distance from the border of a Natura 2000/ Ramsar site supporting birds. **The buffer zone for SPAs (and for Ramsar sites where the qualifying features include bird species) has therefore been set at 20km.**
- A specific buffer zone has also been set for those SPAs where chough is a qualifying feature. Following consultation with NRW, it was agreed that the particular status of this species in Wales (the Welsh SPA network supports approximately 30% of the whole of the UK's population), and the fact that juvenile birds are known to disperse over particularly large distances, meant that a greater buffer was required. Evidence suggests that 98% of males disperse up to 35km from the natal site, whilst approximately 82% of females disperse up to 40km. **The buffer zone for SPAs where the qualifying features include chough has therefore been set at 40km.** These seven SPAs are as follows:
 - Castlemartin Coast (breeding and wintering),
 - Craig yr Aderyn / Bird's Rock (breeding and wintering),
 - Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (breeding and wintering),
 - Glannau Ynys Gybi/ Holy Island Coast (breeding and wintering),
 - Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal (breeding and wintering),
 - Ramsey and St David's Peninsula Coast (breeding and wintering),
 - Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro (breeding).
- Finally, whilst a buffer of 5km has been set for SAC habitats, wherever a riverine SAC is downstream of a proposed wind or solar farm development, impacts associated with significant mobilisation of

sediment could extend further than this. This is less due to the fact that sediment is likely to travel further than this, and more because individual fish species associated with these sites can readily occur some distance upstream from the boundary of the designated river (e.g. in undesignated tributaries).

It should be noted that these buffer distances have generally not been developed on the basis of a comprehensive analysis of the literature (other than for chough) but are instead relatively standard distances adopted by the ecological consultancy industry. We have adopted these distances on the basis of our own professional judgement and adopting the precautionary principle. They are especially precautionary with regard to solar development, since although the potential does still exist for birds from nearby SPAs to be displaced from feeding grounds by the installation of solar arrays, the impact is likely to be less than that associated with wind farms (and the potential for collision with turbines).

These buffer zones are very important with regard to future consideration of wind and solar farm development both within and beyond the new Priority Areas for Solar and Wind Energy. Essentially, these buffers should aid the HRA Screening process for subsequent renewable development proposals. Any proposed wind or solar development that is *outside* the buffer zone for any Natura 2000/ Ramsar sites can be screened out of HRA, as it can be assumed that significant impacts are extremely unlikely. By contrast, any proposed wind or solar farm *within* a buffer will need to be screened. This does not mean that an Appropriate Assessment will automatically be required, but it does mean that an HRA Screening Report will need to be prepared, setting out a detailed consideration of the impact pathways between the proposed development and any Natura 2000/ Ramsar qualifying habitats and/or species, and thus the potential for Likely Significant Effects (LSE). Following the recent *People v Wind* case, it is important to note that no mitigation measures can be considered at this stage of the HRA process.

The closer a proposed renewable energy development site is to a Natura 2000/ Ramsar site, the less likely it will be to pass the HRA test and thus be consented. However, this does not mean that there is automatically a 'sterile' area around every Natura 2000/ Ramsar site, especially when considering solar farms. As a general of thumb for SPAs, though, any proposed wind farm that is within 10km of site supporting peregrine or hen harrier is likely to struggle to pass the HRA test, as it will be difficult to 'demonstrate beyond reasonable scientific doubt' that birds associated with the SPA will not be vulnerable to turbine collision. This is because the known foraging distances for hen harrier and peregrine from the literature are 10km and 18km, respectively. Similarly, any proposal within 5km of an SPA supporting merlin, red kite or Greenland White-fronted goose (whose foraging distances are 5km, 6km and 5-8km, respectively) is also likely to find it difficult to prove no significant effect. The general SPA buffer of 20km is therefore sufficient (and for many species highly precautionary) to cover all qualifying bird species other than chough.

Finally, a number of water birds are migratory, and therefore fly much greater distances between their breeding and over-wintering grounds. Whilst it is clearly not practical to account for these distances in establishing buffer zones (as illustrated in Figure 2), it is nevertheless important to note that traditional flyways for these species will need to be taken into consideration when carrying out project-level wind farm HRAs. This is because even if a proposal site is many kilometres from an SPA boundary, it could still be located directly on the migration flight path for an SPA species. That said, migration is often carried out at much higher altitude than the normal turbine height, so the risks are likely to be small, but this potential impact will at least need to be considered at screening.

So, with regards to the assessment table below, there are clearly a number of Natura 2000/ Ramsar sites within, or close to, each of the Priority Areas/ new Priority Areas for Solar and Wind Energy that are most likely to be at risk from wind and/or solar farm development. However, for the reasons explained above, it is also important to consider the potential implications of wind farms on certain Natura 2000/ Ramsar sites located some distance from the Priority Areas/ new Priority Areas for Solar and Wind Energy (up to 20 km), given the potential for mobile qualifying species (especially birds and bats) to be affected away from their designated site boundaries. The initial assessment in March 2019 (summarised in column 3 in the table below) therefore considered separately the implications for those Natura 2000/ Ramsar sites located 'Within the Priority Area' and those 'Outside the Priority Area'. This distinction is also addressed in the assessment

of the subsequent new Priority Areas for Solar and Wind Energy but has not been described separately for each Priority Area given that there are 15 of them.

Table 1 therefore represents the assessment both of the initial suite of Priority Areas and then of the subsequent new Priority Areas for Solar and Wind Energy, which arose out of the refinement process: Column 1 list the Priority Areas and their corresponding new Priority Areas for Solar and Wind Energy; Column 2 summarises the rationale for the initial identification of each Priority Area as a strategic target for renewable energy development (as provided by Arup), and also identifies other features of the landscape that contributed to subsequent refinement; Column 3 then provides the detailed assessment of the initial set of Priority Areas (as carried out in the initial March 2019 assessment); Column 4 then provides a brief description of the modifications made to the new Priority Areas for Solar and Wind Energy boundaries after the initial HRA assessment and, on the basis of a detailed analysis of the updated maps in Figure 2, describes the extent to which Natura 2000/ Ramsar sites within or close to these new Priority Areas for Solar and Wind Energy could be affected by wind and/or solar development; and finally, Column 5 provides a summary Habitats Regulations Assessment of the new Priority Areas for Solar and Wind Energy.

Table 1. Implications of the revised Priority Areas for Solar and Wind Energy development for European designated sites (Natura 2000/ Ramsar sites); see Figures 1 and 2 in Appendix B for the locations of both Priority Areas and Natura 2000/ Ramsar sites. [NB. The corresponding Priority Areas (from the initial March 2019 assessment) are also listed (in column 1); note that no Priority Area 001 was shown on the Arup figure (see Appendix A)]

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
<p>002 North Wales (Anglesey and Gwynedd) [see Appendix A]</p> <p>= new Priority Areas 1 and 2 [see Figure 1 and Figure 2 page 7, in Appendix B]</p>	<p>Good wind speeds across the island of Anglesey.</p> <p>Energy Island designation.</p> <p>Areas including all areas of greatest opportunity, where there is also grid and road access.</p> <p>North Wales connection project.</p> <p>Proximity to Caernarfon castle.</p> <p>Proximity to AONB and National Park.</p> <p>Radar / NATS constraints.</p>	<p>Within the Priority Area</p> <p>Parts of the Anglesey Fens SAC and Ramsar site are located within the Anglesey part of this PA, but these are generally away from the areas shaded dark green ('greatest opportunity' for renewables development). Nevertheless, consideration will need to be given to whether or not wetland birds associated with the Ramsar site could be affected. Llyn Dinam SAC is also within the PA, and adjacent to an area shaded dark green, but this is unlikely to be significantly affected by renewables development unless it is located actually within the boundary of the SAC (which is very unlikely to be consented).</p> <p>The PA to the south of Anglesey (Gwynedd) includes the small cluster of sites covered by the Eifionydd Fens SAC designation (see Figure 2, page 7); however, these sites are located outside of the dark green areas, and are therefore considered to be at low risk (especially given that neither birds nor bats are part of the designation).</p> <p>Outside the Priority Area</p> <p>There are a number of SPAs located around the Anglesey coastline, so the potential exists for any wind development within the dark green areas in the north of the PA to affect birds from these sites (although the deliberate positioning of the PA inland from the coast means that the risk is much lower). The dark green areas at the southern edge of the Anglesey part of this PA are therefore preferable in HRA terms. There are also a number of sand dune/saltmarsh SACs around the coastline, but the deliberate positioning of the PA inland from the coast means that these should be unaffected.</p> <p>The PA to the south of Anglesey (Gwynedd) generally avoids Natura 2000/ Ramsar sites, although the southern edge is adjacent to the North Cardigan Bay</p>	<p>It is clear from a simple comparison between the original Priority Area map (see Appendix A) and the refined version (see Figure 1, Appendix B) that the boundaries of the new Priority Areas in this part of North Wales (new Priority Areas 1 and 2) have been substantially reduced in order to avoid impacts on the Natura 2000/ Ramsar sites. Furthermore, the distinction (on the new Priority Areas map) between those areas allocated purely for solar development and those allocated for wind and solar has made it easier to assess the implications for Natura 2000/ Ramsar sites.</p> <p>new Priority Area 1</p> <p>The significant contraction in the boundaries of the new Priority Area away from the highly designated coastal parts of Anglesey means that potential impacts have been largely avoided. However, parts of Anglesey Fens SAC/Ramsar site remain within the new Priority Area, so consideration will need to be given to whether or not wetland birds associated with the Ramsar site could be affected. Furthermore, the new Priority Area is also still within the 20km buffer zone of a number of SPAs (including the Anglesey Terns, Puffin Island and Holy Island Coast SPAs), and is also within the 40km buffer of the chough at Holy Island Coast SPA, so consideration will need to be given to whether or not birds associated with these SPAs could be affected (though the greater the distance, the lower the risk of impacts).</p> <p>new Priority Area 2</p> <p>The significant contraction in the boundaries of this new Priority Area also means that potential impacts have been largely avoided. Furthermore, this area is now only allocated for potential solar development, further reducing the risk of impacts. However, the southern edge of the new Priority Area is within the buffer of the North Cardigan Bay SPA, so any solar farm HRA will need to ensure that the proposed location is not a particularly important foraging or</p>	<p>On the basis of the recommendations made in the initial assessment of PA002, the Priority Areas in this part of Wales were significantly amended and re-named new Priority Area 1 and new Priority Area 2.</p> <p>Whilst this refinement of the Priority Area boundaries has substantially reduced the risk of significant effects on Natura 2000/ Ramsar sites, there could still be wind and/or solar development proposed within the buffer zones around these designated sites. In these circumstances, it will be necessary for HRA Screening Assessments to be carried out in order to consider in detail the potential indirect effects on Natura 2000/ Ramsar sites.</p> <p>However, given the new Priority Area boundaries, it is considered highly unlikely that there would be any significant effects on Natura 2000/ Ramsar sites of any wind or solar development within new Priority Area 1 or 2.</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
		<p>SPA, so any wind farms here would need careful consideration. Similarly, Glynllifon SAC is also adjacent to the PA, but is considered to be at low risk only (owing to its qualifying features). However, Meirionnydd Oakwoods and Bat Sites SAC, even though it is further away (to the east of the PA boundary), will need some consideration, as the lesser horseshoe bats associated with this site could potentially be affected by wind farm development at the eastern edge of this PA (albeit the risk is low, as horseshoe bats do not usually fly at the height of most turbines). Holy Island Coast SPA, which lies within/adjacent to the Priority Area, and whose features include breeding and wintering chough, could potentially be affected.</p>	<p>roosting area for birds associated with the SPA. That said, impacts would be expected to be minimal at worst.</p> <p>Clearly any proposed wind or solar development outside of these new Priority Areas will be harder to justify, especially if located closer to the coastal SPAs and other Natura 2000/ Ramsar sites, although that does not mean the such development proposals cannot be consented; rigorous HRA would, however, be required.</p>	
<p>003 North Wales (NE) [see Appendix A] = new Priority Areas 3, 4 and 15 [see Figure 1 and Figure 2 page 8, in Appendix B]</p>	<p>Areas including all areas of greatest opportunity, where there is also grid and road access.</p> <p>Avoiding the built-up areas around Wrexham.</p> <p>Areas contiguous with AONB and National Park will need further landscape and visual assessment.</p> <p>Proximity to built-up area around Wrexham will need further consideration, especially wrt Wind energy.</p>	<p>Within the Priority Area The Elwy Valley Woods SAC is located within the larger of the two areas covered by this PA within the north-east of Wales (see Figure 2 page 8); however, the SAC is outside of any areas shaded dark green, so renewables development here is unlikely (also, neither birds nor bats are part of the designation). The other (smaller) part of the PA to the east contains Johnstown Newt Sites SAC within its boundary, but again the SAC is largely outside of any areas shaded dark green and should also not be significantly affected by being within this PA.</p> <p>Outside the Priority Area The northern edge of the larger of the two PAs within the north-east of Wales is adjacent to Liverpool Bay SPA, whilst the south-western edge abuts the Migneint-Arenig-Dduallt SAC/SPA and the south-eastern edge is next to the Berwyn and South Clwyd Mountains SAC/SPA. Given that there are some areas of 'greatest opportunity' for renewables next to these sites, it will be important to ensure that any wind farms that might be proposed here properly consider the implications for birds associated with these SPAs. Alternatively, the classification of these areas as being of 'greatest opportunity' could be reviewed.</p>	<p>It is clear from a simple comparison between the original Priority Area map (see Appendix A) and the refined version (see Figure 1, Appendix B) that the boundaries of the new new Priority Areas in this part of North Wales (new Priority Areas 3, 4 and 15) have been substantially reduced in order to avoid impacts on the Natura 2000/ Ramsar sites. Furthermore, the distinction (on the new Priority Areas map) between those areas allocated purely for solar development and those allocated for wind and solar has made it easier to assess the implications for Natura 2000/ Ramsar sites.</p> <p>new Priority Area 3 The significant contraction in the boundaries of the new Priority Area away from the highly designated coastal parts of North Wales, and from the Elwy Valley Woods SAC, means that potential impacts have been largely avoided. However, the new Priority Area is still within the 20km buffer zone of a number of SPAs (including the Liverpool Bay and Puffin Island SPAs), so consideration will need to be given to whether or not birds associated with these SPAs could be affected (though the greater the distance, the lower the risk of impacts).</p> <p>new Priority Area 4 The significant contraction in the boundaries of this new Priority Area also means that potential impacts have been largely avoided, including completely avoiding Johnstown</p>	<p>On the basis of the recommendations made in the initial assessment of PA003, the Priority Areas in this part of Wales were significantly amended and re-named new Priority Areas 3, 4 and 15.</p> <p>Whilst this refinement of the new Priority Area boundaries has substantially reduced the risk of significant effects on Natura 2000/ Ramsar sites, there could still be wind and/or solar development proposed within the buffer zones around these designated sites. In these circumstances, it will be necessary for HRA Screening Assessments to be carried out in order to consider in detail the potential indirect effects on Natura 2000/ Ramsar sites.</p> <p>However, given the new Priority Area boundaries, it is considered highly unlikely that</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
		<p>The other (smaller) area to the east lies adjacent to the Berwyn and South Clwyd Mountains SAC, Alyn Valley Woods SAC and Deeside and Buckley Newt sites SAC; however, it is not considered that the qualifying features of these sites would be significantly affected by renewables development within the adjacent PA. More significant is the fact that the northern edge of this part of the PA (which includes a significant amount of dark greed shading) is located within the buffer zones of both the Dee Estuary SPA/SAC/Ramsar site and the Berwyn and South Clwyd Mountains SPA, so consideration would need to be given to birds from these sites when applying for renewables development here. Again, consideration should be given to reviewing the classification of these areas as being of 'greatest opportunity'.</p>	<p>Newt Sites SAC, which was previously within its boundary. Furthermore, this area is now only allocated for potential solar development, further reducing the risk of impacts. However, the northern edge of the new Priority Area is still within the buffer of the Mersey Estuary and Dee Estuary SPAs, so any solar farm HRA will need to ensure that the proposed location is not a particularly important foraging or roosting area for birds associated with the SPA. That said, impacts would be expected to be minimal at worst.</p> <p>new Priority Area 15 The significant contraction in the boundaries of the new Priority Area away from the Migneint-Arenig-Dduallt SAC/SPA and the Berwyn and South Clwyd Mountains SAC/SPA, and the fact that the part of the new Priority Area closest to the former is allocated to solar energy only, means that potential impacts have been largely avoided. However, the new Priority Area is still within the 20km buffer zone of both of these SPAs, so consideration will need to be given to whether or not birds associated with them could be affected (though the greater the distance, the lower the risk of impacts).</p> <p>Clearly any proposed wind or solar development outside of these new Priority Areas will be harder to justify, especially if located closer to the SPAs and other Natura 2000/ Ramsar sites, although that does not mean the such development proposals cannot be consented; rigorous HRA would, however, be required.</p>	<p>there would be any significant effects on Natura 2000/ Ramsar sites of any wind or solar development within new Priority Area 3, 4 or 15.</p>
<p>004 Mid & West Wales (Ceredigion) [see Appendix A]</p> <p>= new Priority Areas 9 and 10 [see Figure 1 and Figure 2 page 3, in Appendix B]</p>	<p>Areas including all areas of greatest opportunity, where there is also grid and road access.</p> <p>Area of variable opportunity that contain grid and access routes included at this stage.</p>	<p>Within the Priority Area The northernmost of the two areas that make up this PA (see Figure 2 page 3) includes Rhos Talglas SAC within its boundaries, whilst the southern part incorporates Rhos Llawr-cwrt SAC as well as part of the River Teifi SAC. Whilst these sites could potentially be affected by wind or solar farms, they are generally outside of areas of 'greatest opportunity' for renewables development, and should therefore be avoided. Given that these are wetland habitat-based designations, the main impacts, if any, would be hydrological (assuming no habitat loss). Having these sites within the PA is</p>	<p>It is clear from a simple comparison between the original Priority Area map (see Appendix A) and the refined version (see Figure 1, Appendix B) that the boundaries of the new Priority Areas in this part of West Wales (new Priority Areas 9 and 10) have been substantially reduced in order to avoid impacts on the Natura 2000/ Ramsar sites.</p> <p>new Priority Area 9 Whilst the reduction in the boundaries of this new Priority Area has been less significant than for other new Priority Areas, the contraction away from the Northern Cardigan Bay SPA means that potential impacts have been largely avoided. However, Rhos Talglas SAC remains within the</p>	<p>On the basis of the recommendations made in the initial assessment of PA004, the Priority Areas in this part of Wales were significantly amended and re-named new Priority Area 9 and new Priority Area 10.</p> <p>Whilst this refinement of the new Priority Area boundaries has substantially reduced the risk of</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
	<p>Proximity to Landmap visual sensory outstanding and high to the East.</p> <p>Proximity to National Park to the South West.</p> <p>Grid and access constraints may make deliverability a challenge.</p>	<p>therefore unlikely to be a serious issue, although further assessment would certainly be required if wind or solar farms are proposed nearby.</p> <p>Outside the Priority Area The northernmost of these two areas is within the buffer zones of the Northern Cardigan Bay SPA, the Elenydd SAC/ SPA and the Mynydd Mallaen SAC/SPA; therefore, any wind farm development within those parts of the PA closest to these SPAs would need careful consideration. Similarly, this part of the PA is also within the buffer zone around the Cors Caron SAC/Ramsar site, owing to the presence of birds within the Ramsar citation. Any wind farm development within this part of the PA would therefore also need to consider the implications for birds from this site. In contrast, the southern area included within this PA has no Natura 2000/ Ramsar sites adjacent to it, although the very northern tip of the area is within the buffer zone of the Northern Cardigan Bay SPA, so again wind farm development here would need to take that into consideration.</p>	<p>new Priority Area, so consideration will need to be given to whether or not this site could be affected (though it is very unlikely that any wind or solar development would be consented within or close to this SAC). Furthermore, the new Priority Area is also still within the 20km buffer zone of a number of sites (including the Cors Caron Ramsar site and the Northern Cardigan Bay SPA), and is also within the 40km buffer of the chough at Bird's Rock SPA, so consideration will need to be given to whether or not birds associated with these sites could be affected (though the greater the distance, the lower the risk of impacts).</p> <p>new Priority Area 10 Whilst the reduction in the boundaries of this new Priority Area has, as with new Priority Area 9, been less noticeable than for other new Priority Areas, potential impacts have nevertheless been largely avoided. However, the new Priority Area does still incorporate Rhos Llawr-cwrt SAC as well as part of the River Teifi SAC, so consideration will need to be given to whether or not these sites could be affected (though it is very unlikely that any wind or solar development would be consented within or close to these SACs). That said, impacts would be expected to be minimal at worst. Clearly any proposed wind or solar development outside of these new Priority Areas will be harder to justify, especially if located closer to the coastal SPAs and other Natura 2000/ Ramsar sites, although that does not mean the such development proposals cannot be consented; rigorous HRA would, however, be required.</p>	<p>significant effects on Natura 2000/ Ramsar sites, there could still be wind and/or solar development proposed within the buffer zones around these designated sites. In these circumstances, it will be necessary for HRA Screening Assessments to be carried out in order to consider in detail the potential indirect effects on Natura 2000/ Ramsar sites.</p> <p>However, given the new Priority Area boundaries, it is considered highly unlikely that there would be any significant effects on Natura 2000/ Ramsar sites of any wind or solar development within new Priority Area 9 or 10.</p>
<p>005 Mid & West Wales (Powys) [see Appendix A] = new Priority Areas 5, 6, 7 and 8 [see Figure 1 and Figure 2 page</p>	<p>Areas including all areas of greatest opportunity, where there is also grid and road access. Area of variable opportunity with particularly high wind speed also included.</p>	<p>Within the Priority Area This PA is spread out over a large area of mid-Wales and includes four discrete areas (see Figure 2 page 4). Only three Natura 2000/ Ramsar sites are within the boundaries of this PA: Mynydd Epynt SAC, Rhos Goch SAC and the very northern part of the Elenydd SPA.</p> <p>Whilst these sites are largely avoided by the dark green areas of 'greatest opportunity' for renewables development, there remains a risk of significant impact, especially for the birds associated with the SPA should</p>	<p>It is clear from a simple comparison between the original Priority Area map (see Appendix A) and the refined version (see Figure 1, Appendix B) that the boundaries of the new Priority Areas in Mid Wales/Powys (new Priority Areas 5, 6, 7 and 8) have been substantially reduced in order to avoid impacts on the Natura 2000/ Ramsar sites. The exception is new Priority Area 5, which has actually been extended north-westwards, albeit into an area without Natura 2000/ Ramsar sites (though it is now within the buffer zone of one SPA where previously it was not).</p> <p>new Priority Area 5</p>	<p>On the basis of the recommendations made in the initial assessment of PA005, the Priority Areas in this part of Wales were amended and re-named new Priority Areas 5, 6, 7 and 8.</p> <p>Whilst this refinement of the new Priority Area boundaries has reduced the risk of significant</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
4, in Appendix B]	<p>Consideration of constraints in England.</p> <p>Proximity to Landmap visual sensory outstanding and high to the South.</p> <p>Grid and access constraints may make deliverability a challenge.</p>	<p>wind farm development be consented in this area (or close to it).</p> <p>Outside the Priority Area The northernmost of the four parts of this PA is within the buffer zone of the Berwyn and South Clwyd Mountains SPA, so there is the potential for wind farm developments in this part of the PA to affect the qualifying bird species from this site. Similarly, the large central section of the PA is within the buffer zone of the Elenydd SPA, so again there is the potential for impacts upon this site. A total of five SACs (Coedydd Llawr-y-glyn, Montgomery Canal, Elan Valley Woodlands, Elenydd and the River Wye) are adjacent to this PA; however, it is considered unlikely that these sites would be significantly affected (especially given that neither birds nor bats are part of the designations).</p>	<p>Whilst the boundaries of this new Priority Area have actually expanded slightly, rather than contracted, this has not had major implications for the assessment, except that the new Priority Area is now not only within the 20km buffer zone of Berwyn and South Clwyd Mountains SPA, but is also now just within the buffer of the Migneint-Arenig-Dduallt SPA; so consideration will need to be given to whether or not birds associated with these SPAs could be affected (though the greater the distance, the lower the risk of impacts).</p> <p>new Priority Area 6 The contraction in the eastern boundary of this new Priority Area has not had major implications for the assessment, as it is the proximity of the western boundary to the Elenydd SPA that is the more important issue. Whilst the implications are no worse than they were in the previous iteration of the maps, the fact that the western edge of the new Priority Area is still within the buffer of this SPA means that consideration will still need to be given to whether or not birds associated with this SPA could be affected.</p> <p>new Priority Area 7 The significant contraction in the boundaries of the new Priority Area has actually had limited impact on the assessment, as this has not taken the new Priority Area away from any SPAs or Ramsar sites, so the potential impacts continue to be minimal. However, Rhos Goch SAC remains within the new Priority Area, so consideration will need to be given to whether or not this site could be affected (though it is very unlikely that any wind development would be consented within or close to this SAC, and distance effects are unlikely given that the qualifying features are all wetland habitats and not mobile species). Furthermore, the new Priority Area is also still within the buffer zone of the River Wye SAC; however, it is considered highly unlikely that this SAC would be significantly affected (especially given that neither birds nor bats are part of the designation).</p> <p>new Priority Area 8 The significant contraction in the boundaries of this new Priority Area has actually had limited impact on the</p>	<p>effects on Natura 2000/ Ramsar sites, there could still be wind development proposed within the buffer zones around these designated sites. In these circumstances, it will be necessary for HRA Screening Assessments to be carried out in order to consider in detail the potential indirect effects on Natura 2000/Ramsar sites.</p> <p>However, given the new Priority Area boundaries, it is considered highly unlikely that there would be any significant effects on Natura 2000/ Ramsar sites of any wind development within new Priority Areas 5, 6, 7 and 8.</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
			<p>assessment, although it has meant that the new Priority Area is now completely outside the buffer zone of the Elenydd SPA.</p> <p>However, Mynydd Epynt SAC remains within the new Priority Area, so consideration will need to be given to whether or not this site could be affected (though it is very unlikely that any wind development would be consented within or close to this SAC, and distance effects are unlikely given that the qualifying feature is slender green feather-moss, a species of upland flush habitats very unlikely to be affected beyond a very local buffer area). Furthermore, the new Priority Area is also still within the buffer zone of the River Wye SAC; however, it is considered highly unlikely that this SAC would be significantly affected (especially given that neither birds nor bats are part of the designation).</p> <p>Clearly any proposed wind or solar development outside of these new Priority Areas will be harder to justify, especially if located closer to Natura 2000/ Ramsar sites, although that does not mean the such development proposals cannot be consented; rigorous HRA would, however, be required.</p>	
<p>006 Mid & West Wales (Pembs) [see Appendix A]</p> <p>= new Priority Areas 11 and 12 [see Figure 1 and Figure 2 pages 1 and 3, in Appendix B]</p>	<p>Areas including all areas of greatest opportunity, where there is also grid and road access. Area of variable opportunity with particularly high wind speed also included.</p> <p>Proximity to National Park.</p> <p>Potential impact of greenlink of future grid availability</p>	<p>Within the Priority Area</p> <p>Only one Natura 2000/ Ramsar site, the Cleddau Rivers SAC, is located within the boundaries of this large PA within central Pembrokeshire (see Figure 2, pages 1 and 3). However, this site is very unlikely to be significantly affected by renewables development (it is avoided by most areas of dark green shading), unless the installation of turbines and/or solar panels led to major mobilisation of sediment into the river (which is very unlikely).</p> <p>Outside the Priority Area</p> <p>This PA poses a more significant risk to nearby SPAs (namely Skokholm and Skomer, Castlemartin Coast, Carmarthen Bay and Estuaries, and Burry Inlet) and to SAC sites directly adjacent to its border (North West Pembrokeshire Commons, Preseli, Gweunydd Blaencleddau, River Teifi, and Yerboston Tops). However, again the risks are relatively small, as the</p>	<p>It is clear from a simple comparison between the original Priority Area map (see Appendix A) and the refined version (see Figure 1, Appendix B) that the boundaries of the new Priority Areas in this part of Southwest Wales (new Priority Areas 11 and 12) have been substantially reduced in order to avoid impacts on the Natura 2000/ Ramsar sites. Furthermore, the distinction (on the new new Priority Areas map) between those areas allocated purely for solar development (in this case new Priority Area 12) and those allocated for wind and solar (new Priority Area 11) has made it easier to assess the implications for Natura 2000/ Ramsar sites.</p> <p>new Priority Area 11</p> <p>The contraction in the boundaries of this new Priority Area means that potential impacts have been further avoided, though not significantly so (as impacts were already expected to be low). However, the western part of the new Priority Area remains within the 20km buffer zone of the</p>	<p>On the basis of the recommendations made in the initial assessment of PA006, the Priority Areas in this part of Wales were significantly amended, and re-named new Priority Area 11 and new Priority Area 12.</p> <p>Whilst this refinement of the new Priority Area boundaries has substantially reduced the risk of significant effects on Natura 2000/ Ramsar sites, there could still be wind and/or solar development proposed within the buffer zones around these designated sites. In these</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
	<p>should be considered.</p> <p>Radar.</p>	<p>majority of the PA has deliberately been drawn inland from the coast, specifically because this is where the majority of important Natura 2000/ Ramsar sites are located. Nevertheless, some consideration of the implications for SPA birds of any wind farms in this area will be required.</p>	<p>Carmarthen Bay and Estuaries SPA, and is also within the 40km buffer of the cough at a number of SPAs (including Skokholm & Skomer and Castlemartin Coast), so consideration will need to be given to whether or not birds associated with these SPAs could be affected (though the greater the distance, the lower the risk of impacts).</p> <p>new Priority Area 12 The significant contraction in the boundaries of this new Priority Area also means that potential impacts have been largely avoided. Furthermore, this area is now only allocated for potential solar development, further reducing the risk of impacts. Whilst the Cleddau Rivers SAC remains located within the boundaries of this new Priority Area, this site is very unlikely to be significantly affected by solar development, unless the installation of solar panels were to lead to major mobilisation of sediment into the river (which is considered unlikely) thus potentially affecting its river-based qualifying features such as otters, lampreys and floating water-crowfoot.</p> <p>Clearly any proposed wind or solar development outside of these new Priority Areas will be harder to justify, especially if located closer to Natura 2000/ Ramsar sites, although that does not mean the such development proposals cannot be consented; rigorous HRA would, however, be required.</p>	<p>circumstances, it will be necessary for HRA Screening Assessments to be carried out in order to consider in detail the potential indirect effects on Natura 2000/ Ramsar sites.</p> <p>However, given the new Priority Area boundaries, it is considered highly unlikely that there would be any significant effects on Natura 2000/ Ramsar sites of any wind or solar development within new Priority Area 11 or 12.</p>
<p>007 Mid & West Wales (Swansea) [see Appendix A] = new Priority Area 13 [see Figure 1 and Figure 2 page 1, in Appendix B]</p>	<p>Areas including all areas of greatest opportunity, where there is also grid and road access. Area of variable opportunity with high wind speed, and existing renewable generation also included.</p>	<p>Within the Priority Area This PA (which is assumed to be the area northwest of Swansea; see Figure 2, page 1) includes just one Natura 2000 site (Caeau Mynydd Mawr SAC) within its boundaries. Although wind farms and solar farms would be unlikely to have a major effect, as habitat loss would be limited, it is noted that this SAC is within an area of 'greatest opportunity', so care will be needed to avoid direct impacts upon this site (or indeed avoid the site altogether).</p> <p>Outside the Priority Area Burry Inlet SPA/Ramsar site is directly to the south of this PA, so any proposals for wind farms within the southern portion of this PA would need careful</p>	<p>It is clear from a simple comparison between the original Priority Area map (see Appendix A) and the refined version (see Figure 1, Appendix B) that the boundaries of the new new Priority Area in this part of South Wales (new Priority Area 13) have been substantially reduced in order to avoid impacts on the Natura 2000/ Ramsar sites. Furthermore, the distinction (on the new Priority Areas map) between those areas allocated purely for solar development (as is the case with new Priority Area 13) and those allocated for wind and solar has made it easier to assess the implications for Natura 2000/ Ramsar sites.</p> <p>new Priority Area 13 The significant contraction in the boundaries of this new Priority Area means that potential impacts have been</p>	<p>On the basis of the recommendations made in the initial assessment of PA007, the Priority Area in this part of Wales was significantly amended (and confined to solar development only) and re-named new Priority Area 13.</p> <p>Whilst this refinement of the new Priority Area boundaries has substantially reduced the risk of significant effects on Natura 2000/ Ramsar sites, there could</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
	<p>Proximity to Landmap visual sensory outstanding and high areas.</p> <p>Proximity to built-up area around Llanelli.</p>	<p>consideration (the very southern part, for instance, is entirely shaded dark green) since the potential exists for birds associated with this site to be adversely affected. Cernydd Carmel SAC is sandwiched between the two main blocks of this PA (see Figure 2, page 1), but is sufficiently far from the PA boundaries to be unaffected (especially given that neither birds nor bats are part of the designation).</p>	<p>largely avoided. Furthermore, this area is now only allocated for potential solar development, further reducing the risk of impacts. Whilst the Caeau Mynydd Mawr SAC remains located within the boundaries of this new Priority Area, it is very unlikely that any solar development would be consented within or close to this SAC, and distance effects are very unlikely given that the qualifying feature is marsh fritillary butterfly, a species of marshy grassland habitats very unlikely to be affected beyond a very local buffer area. This site is thus very unlikely to be significantly affected by solar development; in fact, solar development often provides the opportunity to create more species-rich grassland, which could provide additional food sources. However, the southern part of the new Priority Area remains within the 20km buffer zone of the Burry Inlet SPA/Ramsar site, so consideration will need to be given to whether or not birds associated with this site could be affected (though solar farms will have lower impacts than wind farms, and the greater the distance, the lower the risk of impacts).</p> <p>Clearly any proposed wind or solar development outside of this new Priority Area will be harder to justify, especially if located closer to the coastal SPAs and other Natura 2000/ Ramsar sites, although that does not mean the such development proposals cannot be consented; rigorous HRA would, however, be required.</p>	<p>still be solar development proposed within the buffer zones around these designated sites. In these circumstances, it will be necessary for HRA Screening Assessments to be carried out in order to consider in detail the potential indirect effects on Natura 2000/ Ramsar sites.</p> <p>However, given the new Priority Area boundaries, it is considered highly unlikely that there would be any significant effects on Natura 2000/ Ramsar sites of any solar development within new Priority Area 13.</p>
<p>008 South East Wales [see Appendix A] = new Priority Area 14 [see Figure 1 and Figure 2 page 2, in Appendix B]</p>	<p>Large area, recognising varying topography, high wind speeds, good access and proximity to grid and population (and therefore energy demand). Excludes major built up areas, with the exception of Port Talbot</p>	<p>Within the Priority Area This PA (which is assumed to be the large area east of Swansea, extending as far as the western edge of Cardiff and Newport) includes five SAC sites within its boundaries: Blaen Cynon; Aberbargoed Grasslands, Cefn Cribwr Grasslands, Blackmill Woodlands and Cardiff Beech Woods. All five of them seem to be avoided by the areas of dark green shading, but in some cases these areas of 'greatest opportunity' are very nearby, so it should still be noted that any wind or solar farms in these locations will be constrained by the presence of these SACs.</p> <p>Outside the Priority Area</p>	<p>It is clear from a simple comparison between the original Priority Area map (see Appendix A) and the refined version (see Figure 1, Appendix B) that the boundaries of the new Priority Area in this part of Southeast Wales (new Priority Area 14) have been substantially reduced, partly in order to avoid impacts on the Natura 2000/ Ramsar sites. Furthermore, the distinction (on the new Priority Areas map) between those areas allocated purely for solar development (red) and those allocated for wind and solar (orange) has made it easier to assess the implications for Natura 2000/ Ramsar sites.</p> <p>new Priority Area 14 The significant contraction in the boundaries of this new Priority Area (especially to avoid Blaen Cynon,</p>	<p>On the basis of the recommendations made in the initial assessment of PA008, the Priority Area in this part of Wales was significantly amended and re-named new Priority Area 14.</p> <p>Whilst this refinement of the new Priority Area boundaries has substantially reduced the risk of significant effects on Natura 2000/ Ramsar sites, there could still be wind and/or solar</p>

Initial Priority Area (PA) and associated new PAs	Rationale for PA, & key elements for consideration in refinement	Recommendations for amending the original Priority Areas as set out in the initial (March 2019) assessment	Subsequent design refinement, and implications of the new Priority Areas for Solar and Wind Energy with regard to Natura 2000/ Ramsar sites	Summary implications of the new Priority Areas for Natura 2000/ Ramsar sites
	<p>works, given future uncertainty.</p> <p>Area of heritage coast likely to be more suitable for solar than wind.</p> <p>Radar.</p> <p>Proximity to settlements.</p> <p>Proximity to National Park in the North.</p>	<p>The Severn Estuary SPA/SAC/Ramsar site is located to the south of this PA, so any proposals for wind farms within the south-eastern portion of the PA would be within the buffer zone of this site and would therefore need careful consideration. Similarly, the western portion of the PA is within the buffer zone of the Burry Inlet SPA, so any wind farm development here would also need to be treated with caution given the risk to qualifying bird species.</p> <p>A number of other Natura 2000 sites are also close to the boundaries of this PA, namely: Dunraven Bay SAC, Kenfig SAC, Crymlyn Bog SAC/Ramsar site, Coedydd Need a Mellte SAC, the Usk Bat Sites SAC, and Coedydd Cwm Clydach SAC. Of these, the one most likely to be affected would be the Usk Bat Sites SAC. Since the PA is within the 10km buffer zone of this SAC, the potential exists for bats from it to be affected by any wind farm within the north-eastern corner of the PA (although again lesser horseshoe bats tend not to fly at turbine height, so the risk is not high).</p>	<p>Aberbargoed Grasslands and Cardiff Beech Woods SACs) means that potential impacts have been largely avoided. Whilst Cefn Cribwr Grasslands and Blackmill Woodlands SACs both remain located within the boundaries of a 'solar only' part of this new Priority Area, it is very unlikely that any solar development would be consented within or close to this SAC, so these sites are very unlikely to be significantly affected by solar development. Cefn Cribwr Grasslands SAC is designated for its marsh fritillary butterflies and is thus very unlikely to be adversely affected (as with Caeau Mynydd Mawr SAC, see Priority Area 13, above), whilst Blackmill Woodlands SAC is designated for its oak woodland habitat, which again would not be affected by distance effects. Nevertheless, it should still be noted that any solar farms will be constrained by the presence of these SACs.</p> <p>Even though the boundaries of the new Priority Area have contracted, the western part is still within the buffer zone of the Burry Inlet SPA and Ramsar and the eastern part within the buffer zone of the Severn Estuary, so consideration will need to be given to whether or not birds associated with these sites could be affected (though the greater the distance, the lower the risk of impacts).</p> <p>Clearly any proposed wind or solar development outside of this new Priority Area will be harder to justify, especially if located closer to the SPAs and other Natura 2000/ Ramsar sites, although that does not mean the such development proposals cannot be consented; rigorous HRA would, however, be required.</p>	<p>development proposed within the buffer zones around these designated sites. In these circumstances, it will be necessary for HRA Screening Assessments to be carried out in order to consider in detail the potential indirect effects on Natura 2000/ Ramsar sites.</p> <p>However, given the new Priority Area boundaries, it is considered highly unlikely that there would be any significant effects on Natura 2000/ Ramsar sites of any wind and/or solar development within new Priority Area 14.</p>

3 Conclusions

First of all, it should be noted that the initial exercise of identifying Priority Areas for Solar and Wind Energy across Wales already largely avoided the majority of Natura 2000/ Ramsar sites, and should therefore be welcomed. A significant proportion of the area designated in this way is located at or around the coast (see Figure 1), and the majority of the Priority Areas were deliberately drawn several kilometres inland from the coastline to avoid them. This initial prioritisation exercise also avoided National Parks (such as the Brecon Beacons, Snowdonia and Pembrokeshire Coast) and AONBs, many of which will also support species (in particular birds and bats) that are protected under the Habitats Regulations (even if the individuals are not directly associated with a particular Natura 2000/ Ramsar site). These areas were shaded grey in the original prioritisation exercise (see Appendix A).

The initial HRA assessment (in March 2019) identified that, following this first prioritisation exercise, a number of Natura 2000/ Ramsar sites were, nevertheless, still located within (or close to) some of the Priority Areas (as initially drafted). Recommendations were therefore made in the March 2019 assessment to further safeguard these sites; these were taken on board in the subsequent refinement of the Priority Areas for Solar and Wind Energy map (e.g. by moving the Priority Areas for Solar and Wind Energy boundaries and/or by ensuring that certain areas were restricted to just solar development). This updated Priority Areas for Solar and Wind Energy map has since been re-assessed against the Natura 2000 network, and this is the basis of Figures 1 and 2 (in Appendix B) and the assessment in Table 1.

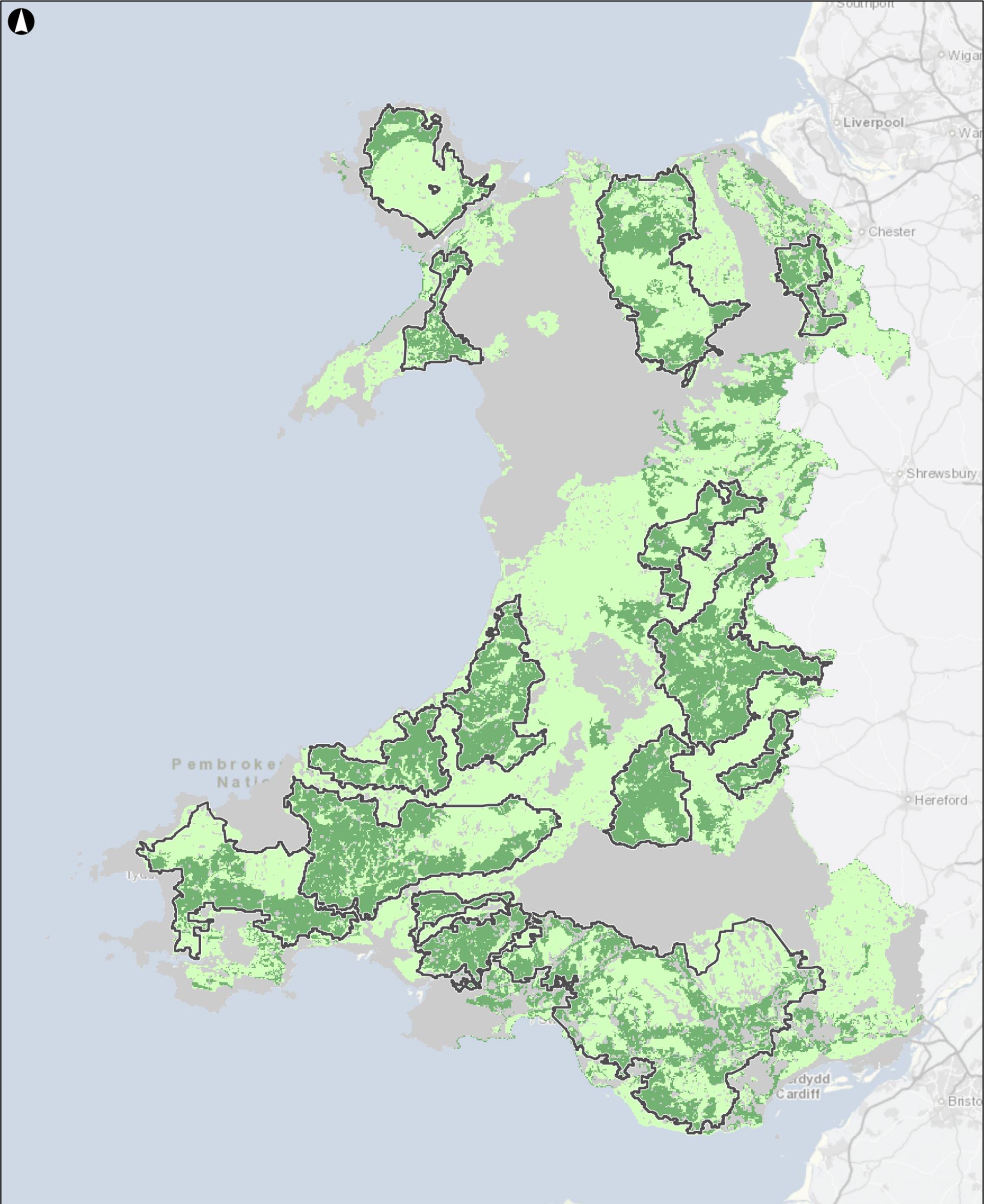
Following this refinement of the Priority Areas for Solar and Wind Energy, it can be concluded that the process for prioritising areas for wind and solar farm development has successfully reduced the risk to the Natura 2000 network of sites across Wales. However, this does not mean that all potential impacts have been avoided, and the buffer zones shown on Figure 2 clearly illustrate that a significant proportion of the area prioritised for renewables development does still lie sufficiently close to Natura 2000/ Ramsar sites that impacts could occur. These buffer zones will therefore be very important for informing the scope of subsequent local plan- and/or project-level HRA for future wind and solar farm proposals.

Assuming that the Priority Areas for Solar and Wind Energy map is first of all used to prioritise where future wind and solar development is focused, and that a further safety net will be provided by the lower-tier HRA process (for all proposal sites located within the buffer zone of one or more Natura 2000/ Ramsar sites), it is considered likely that this strategic approach to renewables development across Wales (as established by the NDF for Wales) will be compliant with the Habitats Regulations.

Finally, it is important to note that whilst the Priority Areas for Solar and Wind Energy are designed to focus renewables development in 'lower-risk' parts of Wales, that does not entirely preclude wind or solar development elsewhere. Clearly any such development outside of the Priority Areas for Solar and Wind Energy will be harder to justify, especially if located closer to Natura 2000/ Ramsar sites, but that does not mean the such proposals *cannot* be consented; rigorous HRA would, however, be required, and the likelihood of a positive result would lower.

APPENDIX A

Energy Potential Wales - Priority Areas for Refinement Grouped by Region



- Priority Area for Refinement
- Areas of greatest opportunity
- Areas of varying opportunity
- Areas of least opportunity

Contains OS data © Crown Copyright and database right 2018

P1	2019-01-08	FH	BL	AC
----	------------	----	----	----

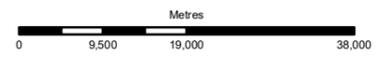
Issue	Date	By	Chkd	Appd

ARUP

63 St Thomas Street
 Bristol, BS1 6JZ
 T +44 117 976 5432 D +44 117 988 6951
 www.arup.com

Client
Welsh Government

Job Title
Energy Potential Wales



**Priority Areas for Refinement
Grouped by Region**

Scale at A3 **1:800,000**

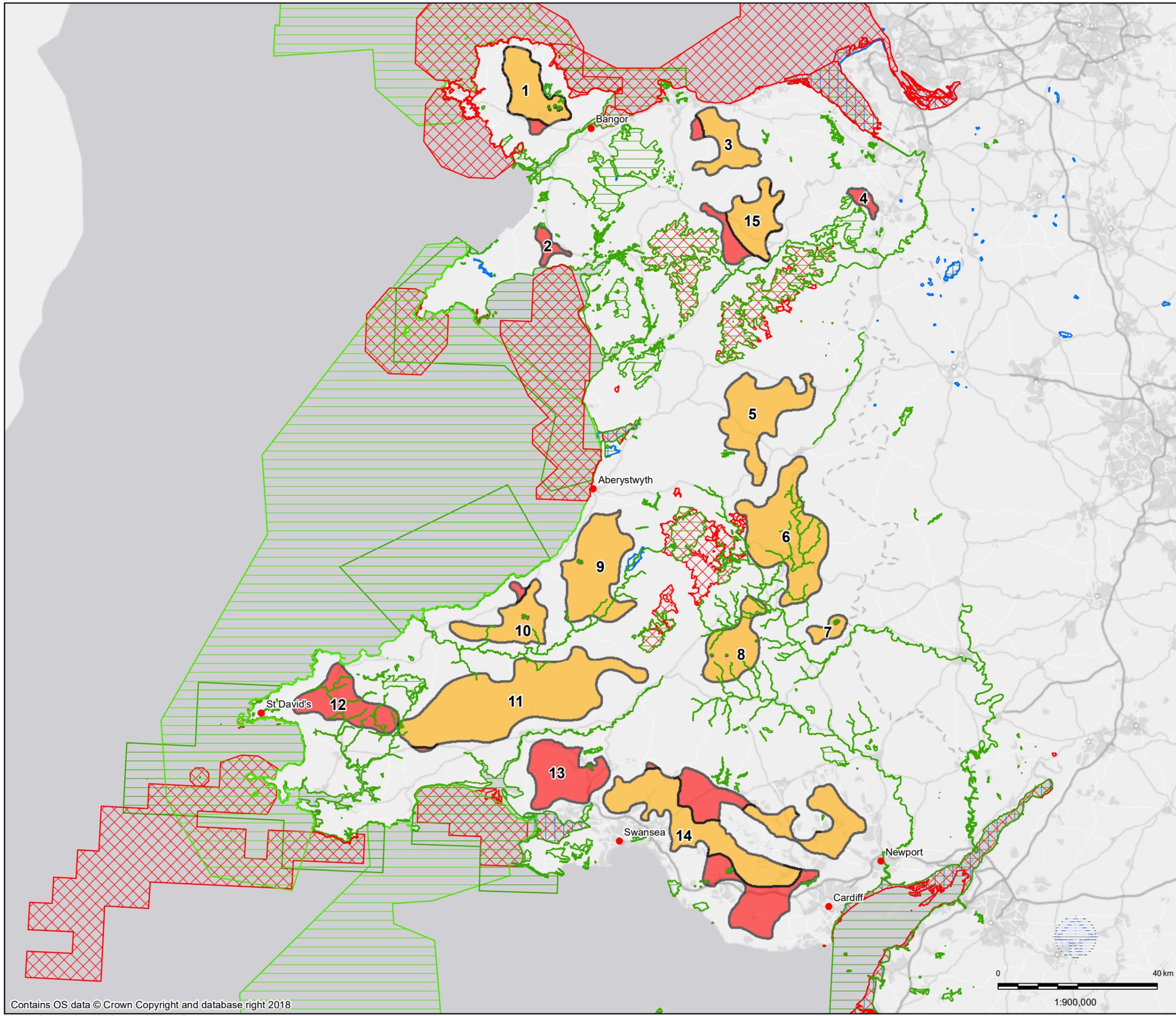
Job No **263184-00** Drawing Status **Preliminary**

Drawing No **001** Issue **P1**

APPENDIX B

Figure 1 - Overview of Natura 2000/ Ramsar sites within Wales

Figure 2 (Pages 1 to 8) - Detailed view of Natura 2000/ Ramsar sites with site buffers



NOTES:

Legend:

- Ramsar site
- Special Area of Conservation
- Candidate Special Area of Conservation
- Special Protection Area
- Priority Areas for Solar and Wind Energy
- Priority Areas for Solar Energy only

01	06/06/19	First issue	RM	JD	DH
Rev	Date	Description	Drawn	Check	Approv

Client WELSH GOVERNMENT

PROJECT: WALES NATIONAL DEVELOPMENT FRAMEWORK – ENVIRONMENTAL ASSESSMENTS

Site WALES

Client
 Welsh Government
 Cathays Park
 Cardiff
 CF10 3NQ
 0300 0604400

ARCADIS Design & Consultancy for natural and built assets

Registered office:
 Arcadis House
 34 York Way,
 London
 N1 9AB

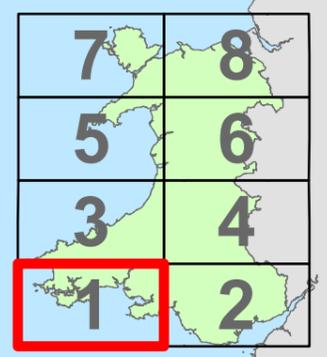
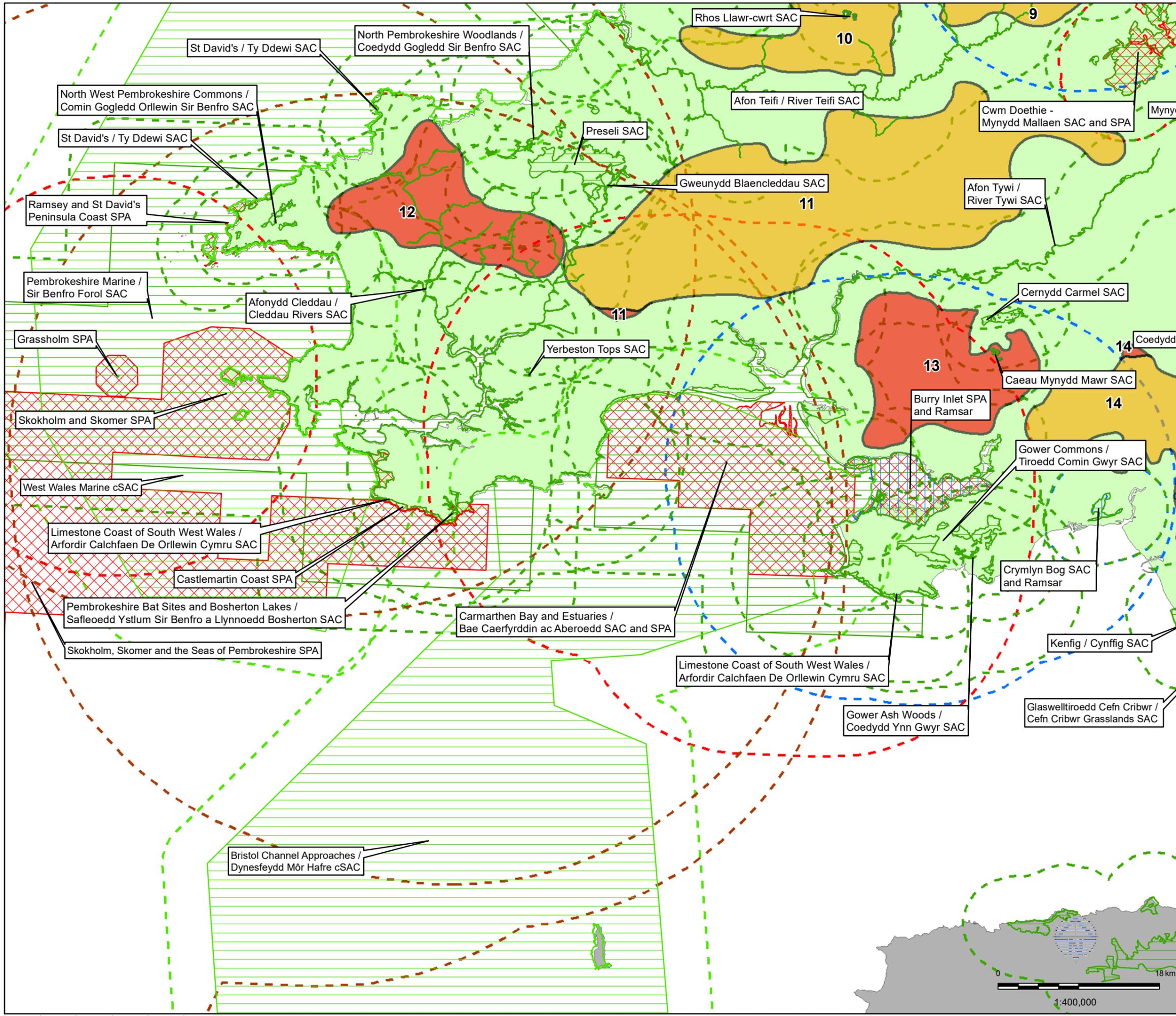
Coordinating office:
 5TH Floor,
 401 Faraday Street,
 Warrington
 WA3 6GA

www.arcadis.com

TITLE:

Figure 1:
 Overview of Priority Areas for Solar and Wind Energy and Natura 2000 / Ramsar sites within Wales

Drawn	R.MILLMAN	Date	21JUN19	Signed
Checked	J.DAVIES	Date	21JUN19	Signed
Approved	D.HOURD	Date	21JUN19	Signed
Scale:	1:900,000	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10012279	
Suitability Description: Issued for information				
Drawing Number:	10012279-ARC -XX-XX-DR-YE-0001			Revision: P01



Legend:

	Ramsar site Buffer		Special Area of Conservation Buffer
	Special Area of Conservation		Candidate Special Area of Conservation Buffer
	Candidate Special Area of Conservation		Special Protection Area Buffer
	Special Protection Area		Special Protection Area Supporting Chough
	Priority Areas for Solar and Wind Energy		
	Priority Areas for Solar Energy only		

Rev	Date	Description	Drawn	Check	Approv
01	06/06/19	First Draft	RM	JD	DH

Client WELSH GOVERNMENT

PROJECT: WALES NATIONAL DEVELOPMENT FRAMEWORK – ENVIRONMENTAL ASSESSMENTS

Site WALES

Client Welsh Government
Cathays Park
Cardiff
CF10 3NQ
0300 0604400

ARCADIS Design & Consultancy for natural and built assets

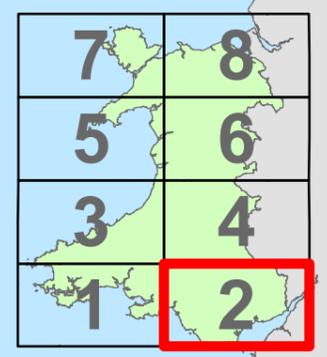
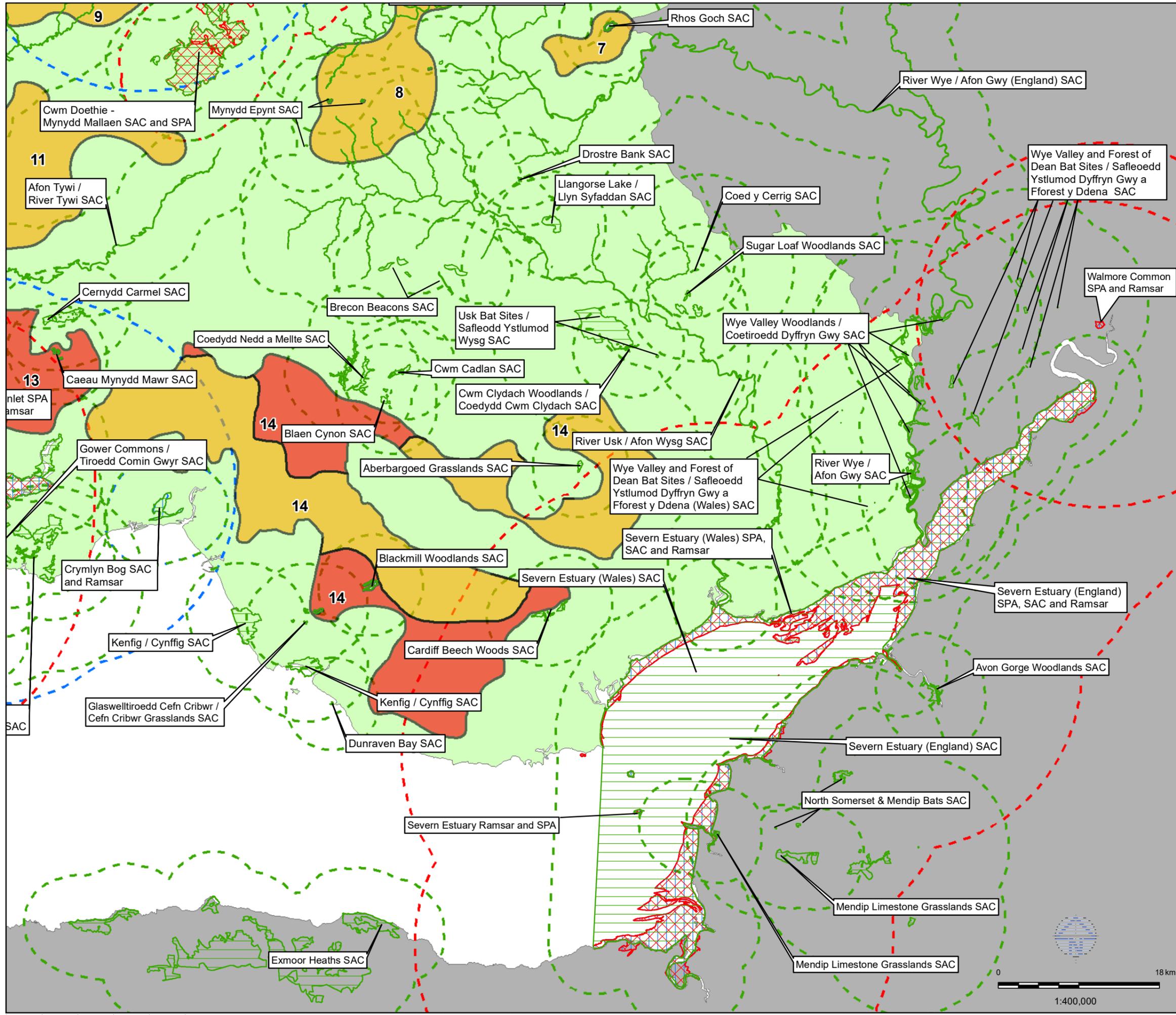
Registered office: Arcadis House, 34 York Way, London N1 9AB
Coordinating office: 5TH Floor, 401 Faraday Street, Warrington WA3 6GA
www.arcadis.com

TITLE: Figure 2: Detailed maps of Priority Areas for Solar and Wind Energy and Natura 2000 / Ramsar Sites with Site Buffers
Page 1 of 8

Drawn	R.MILLMAN	Date	21JUN19	Signed
Checked	J.DAVIES	Date	21JUN19	Signed
Approved	D.HOARD	Date	21JUN19	Signed
Scale:	1:400,000	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10012279	

Suitability Description: Issued for information

Drawing Number: 10012279-ARC -XX-XX-DR-YE-0002
Revision: P01



Legend:

Ramsar site	Special Area of Conservation Buffer
Special Area of Conservation	Candidate Special Area of Conservation Buffer
Candidate Special Area of Conservation	Special Protection Area Buffer
Special Protection Area	Special Protection Area Supporting Chough
Priority Areas for Solar and Wind Energy	
Priority Areas for Solar Energy only	
Ramsar site Buffer	

Rev	Date	Description	Drawn	Check	Approv
01	06/06/19	First Draft	RM	JD	DH

Client WELSH GOVERNMENT

PROJECT: WALES NATIONAL DEVELOPMENT FRAMEWORK – ENVIRONMENTAL ASSESSMENTS

Site WALES

Client Welsh Government
Cathays Park
Cardiff
CF10 3NQ
0300 0604400

ARCADIS Design & Consultancy for natural and built assets

Registered office: Arcadis House, 34 York Way, London N1 9AB
Coordinating office: 5TH Floor, 401 Faraday Street, Warrington WA3 6GA

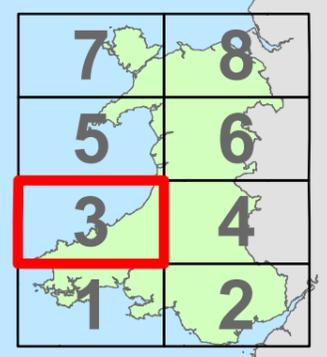
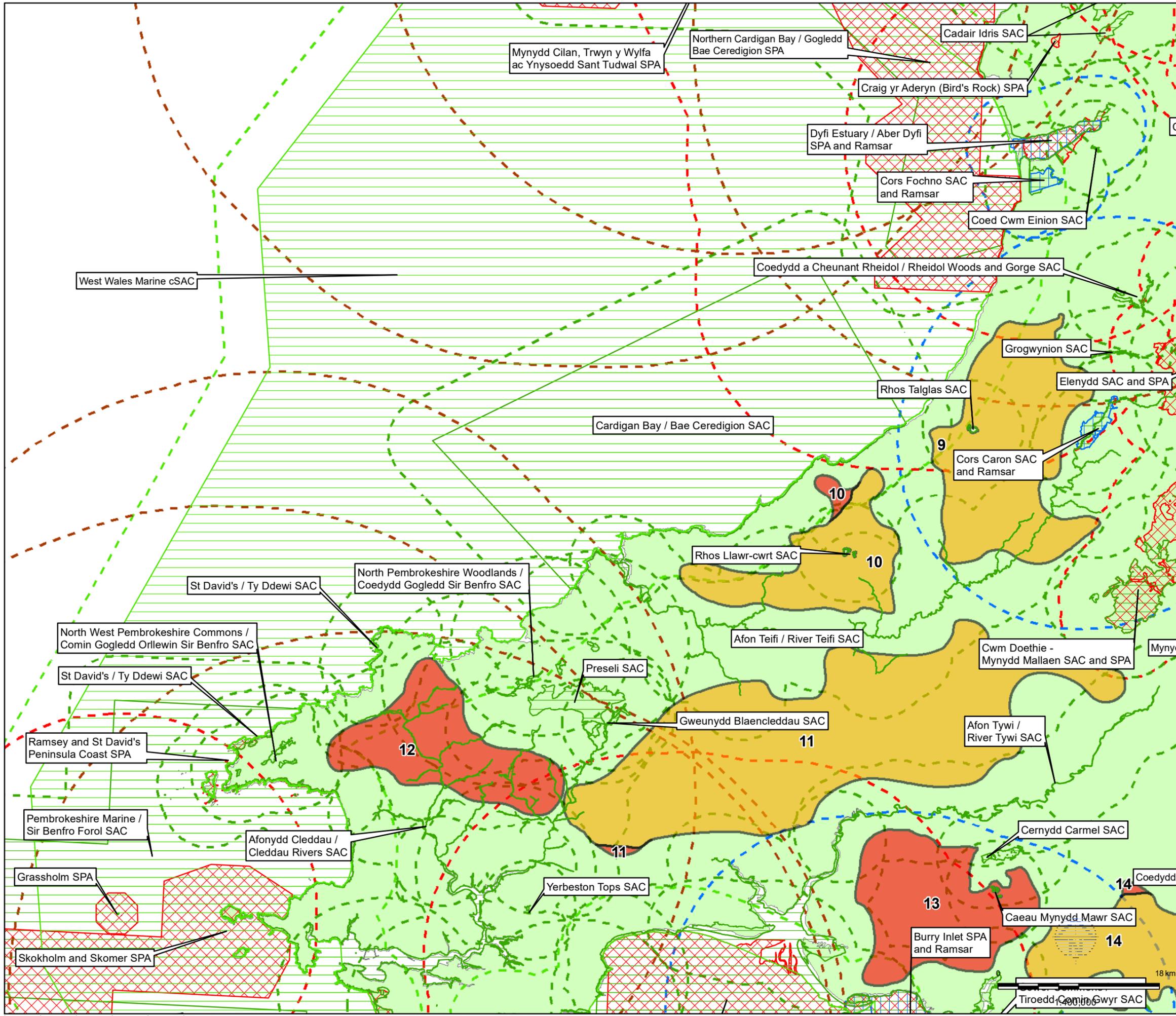
www.arcadis.com

TITLE: Figure 2: Detailed maps of Priority Areas for Solar and Wind Energy and Natura 2000 / Ramsar Sites with Site Buffers Page 2 of 8

Drawn	R.MILLMAN	Date	21JUN19	Signed
Checked	J.DAVIES	Date	21JUN19	Signed
Approved	D.HOARD	Date	21JUN19	Signed
Scale:	1:400,000	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10012279	

Suitability Description: Issued for information

Drawing Number: 10012279-ARC -XX-XX-DR-YE-0002 | Revision: P01



Legend:

	Ramsar site		Special Area of Conservation Buffer
	Special Area of Conservation		Candidate Special Area of Conservation Buffer
	Candidate Special Area of Conservation		Special Protection Area Buffer
	Special Protection Area		Special Protection Area Supporting Chough
	Priority Areas for Solar and Wind Energy		
	Priority Areas for Solar Energy only		
	Ramsar site Buffer		

Rev	Date	Description	Drawn	Check	Approv
01	06/06/19	First Draft	RM	JD	DH

Client WELSH GOVERNMENT

PROJECT: WALES NATIONAL DEVELOPMENT FRAMEWORK – ENVIRONMENTAL ASSESSMENTS

Site WALES

Client Welsh Government
Cathays Park
Cardiff
CF10 3NQ
0300 0604400

ARCADIS Design & Consultancy for natural and built assets

Registered office: Arcadis House, 34 York Way, London N1 9AB
Coordinating office: 5TH Floor, 401 Faraday Street, Warrington WA3 6GA

www.arcadis.com

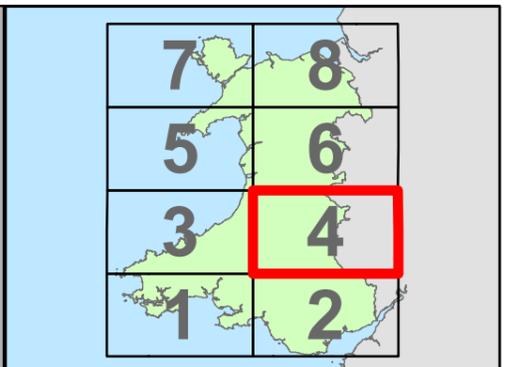
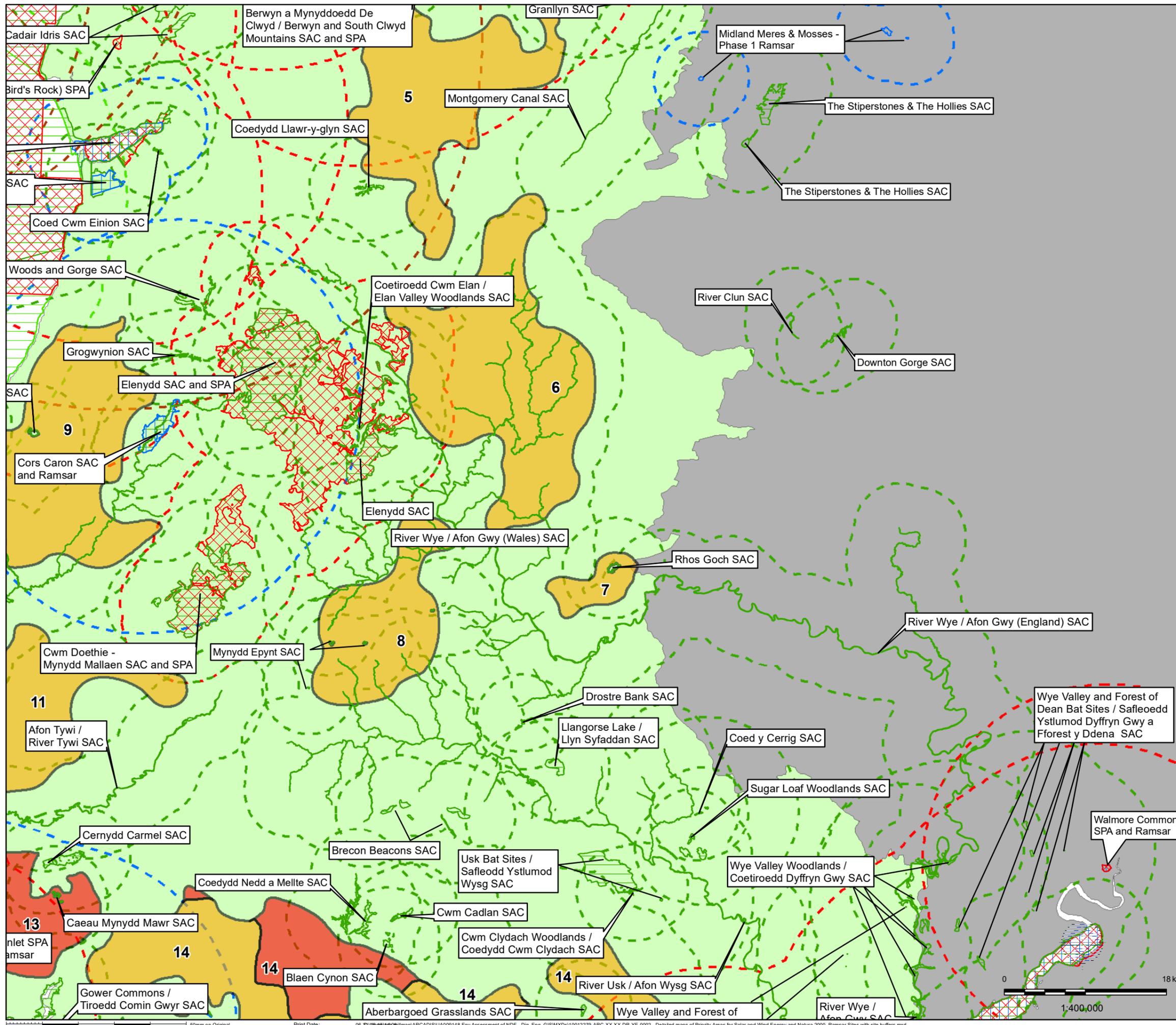
TITLE: Figure 2: Detailed maps of Priority Areas for Solar and Wind Energy and Natura 2000 / Ramsar Sites with Site Buffers Page 3 of 8

Drawn	R.MILLMAN	Date	21JUN19	Signed
Checked	J.DAVIES	Date	21JUN19	Signed
Approved	D.HOURD	Date	21JUN19	Signed
Scale:	1:400,000	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10012279	

Suitability Description: Issued for information

Drawing Number: 10012279-ARC -XX-XX-DR-YE-0002 P01

Revision: P01



Legend:

- Ramsar site
- Special Area of Conservation
- Candidate Special Area of Conservation
- Special Protection Area
- Priority Areas for Solar and Wind Energy
- Priority Areas for Solar Energy only
- Ramsar site Buffer
- Special Area of Conservation Buffer
- Candidate Special Area of Conservation Buffer
- Special Protection Area Buffer
- Special Protection Area Supporting Chough

Rev	Date	Description	Drawn	Check	Approv
01	06/06/19	First Draft	RM	JD	DH

Client WELSH GOVERNMENT

PROJECT: WALES NATIONAL DEVELOPMENT FRAMEWORK – ENVIRONMENTAL ASSESSMENTS

Site WALES

Client Welsh Government
Cathays Park
Cardiff
CF10 3NQ
0300 0604400

ARCADIS Design & Consultancy for natural and built assets

Registered office: Arcadis House, 34 York Way, London N1 9AB
Coordinating office: 5TH Floor, 401 Faraday Street, Warrington WA3 6GA

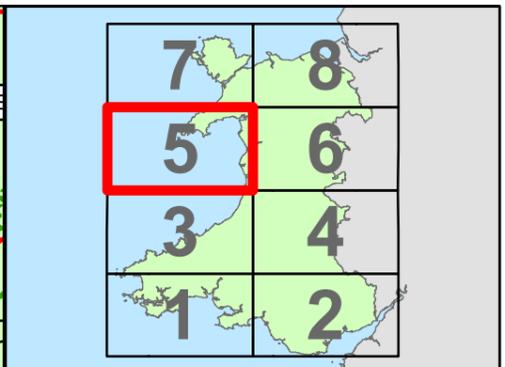
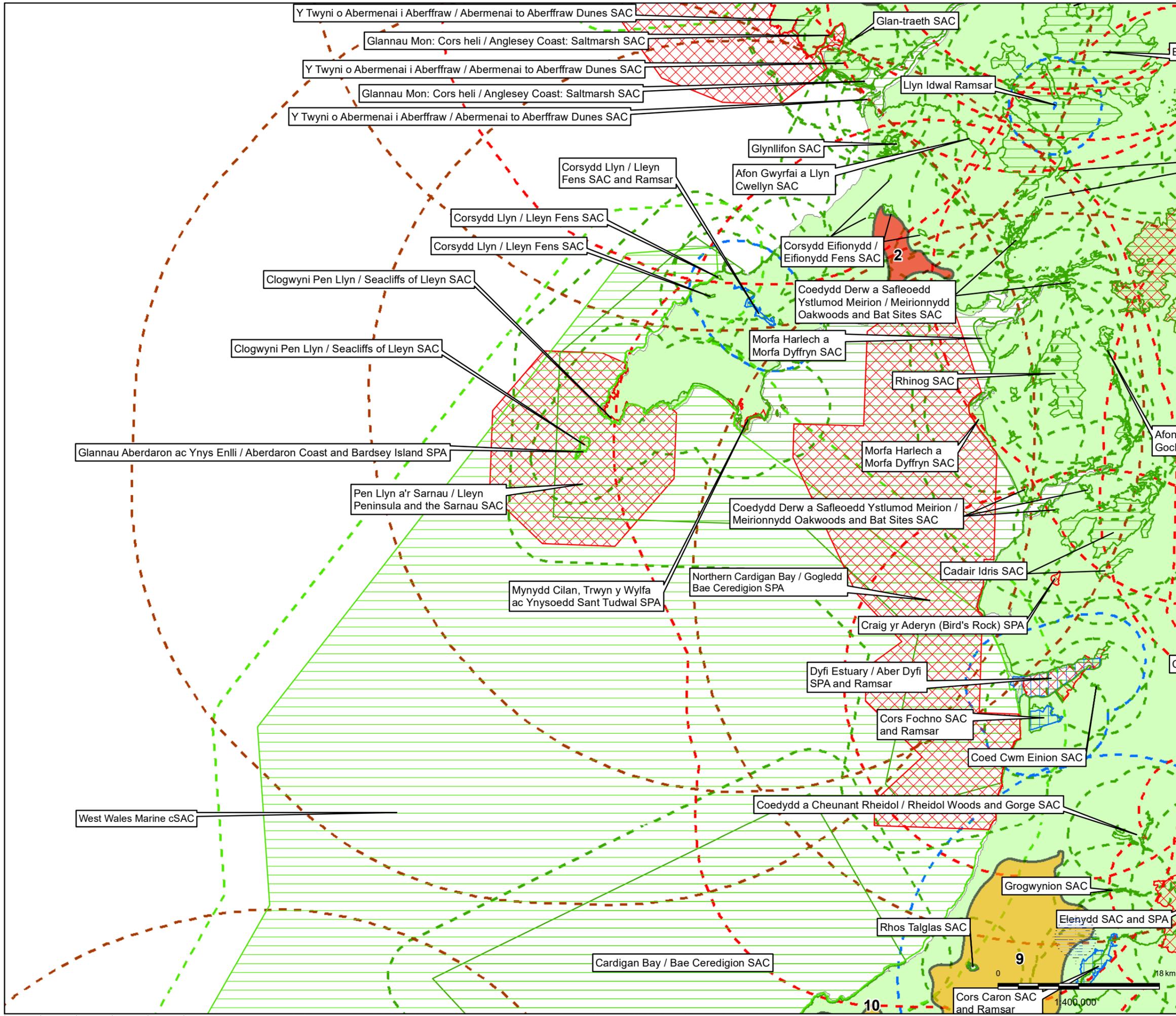
www.arcadis.com

TITLE: Figure 2: Detailed maps of Priority Areas for Solar and Wind Energy and Natura 2000 / Ramsar Sites with Site Buffers Page 4 of 8

Drawn	R.MILLMAN	Date	21JUN19	Signed
Checked	J.DAVIES	Date	21JUN19	Signed
Approved	D.HOURD	Date	21JUN19	Signed
Scale:	1:400,000	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10012279	

Suitability Description: Issued for information

Drawing Number: 10012279-ARC -XX-XX-DR-YE-0002
Revision: P01



Legend:

	Ramsar site		Special Area of Conservation Buffer
	Special Area of Conservation		Candidate Special Area of Conservation Buffer
	Candidate Special Area of Conservation		Special Protection Area Buffer
	Special Protection Area		Special Protection Area Supporting Chough
	Priority Areas for Solar and Wind Energy		
	Priority Areas for Solar Energy only		
	Ramsar site Buffer		

Rev	Date	Description	Drawn	Check	Approv
01	06/06/19	First Draft	RM	JD	DH

Client WELSH GOVERNMENT

PROJECT: WALES NATIONAL DEVELOPMENT FRAMEWORK – ENVIRONMENTAL ASSESSMENTS

Site WALES

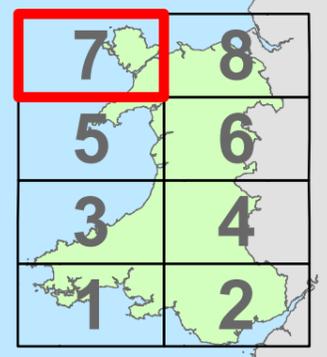
Client Welsh Government
Cathays Park
Cardiff
CF10 3NQ
0300 0604400

ARCADIS Design & Consultancy for natural and built assets

Registered office: Arcadis House, 34 York Way, London N1 9AB
Coordinating office: 5TH Floor, 401 Faraday Street, Warrington WA3 6GA

TITLE: Figure 2: Detailed maps of Priority Areas for Solar and Wind Energy and Natura 2000 / Ramsar Sites with Site Buffers
Page 5 of 8

Drawn	R.MILLMAN	Date	21JUN19	Signed
Checked	J.DAVIES	Date	21JUN19	Signed
Approved	D.HOURD	Date	21JUN19	Signed
Scale:	1:400,000	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10012279	
Suitability Description: Issued for information				
Drawing Number:	10012279-ARC -XX-XX-DR-YE-0002	Revision:	P01	



North Anglesey Marine cSAC

Anglesey Terns / Morwenoliaid Ynys M SPA

Bae Cemlyn / Cemlyn Bay SAC and SPA

Ynys Seiriol / Puffin Island SPA

Glannau Ynys Gybi / Holy Island Coast SPA and SAC

Glannau Ynys Gybi / Holy Island Coast SAC and SPA

Llyn Dinam SAC

Corsydd Mon / Anglesey Fens SAC and Ramsar

Glannau Ynys Gybi / Holy Island Coast SPA

Traeth Lafan / Lavan Sands, Conway Bay SPA

Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC

Glan-traeth SAC

Glannau Mon: Cors heli / Anglesey Coast: Saltmarsh SAC

Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC

Glannau Mon: Cors heli / Anglesey Coast: Saltmarsh SAC

Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes SAC

Glynllifon SAC

Corsydd Llyn / Lleyn Fens SAC and Ramsar

Afon Gwyrfa i Llyn Cwellyn SAC

Corsydd Llyn / Lleyn Fens SAC

Corsydd Llyn / Lleyn Fens SAC

Corsydd Eifionydd / Eifionydd Fens SAC

Clogwyni Pen Llyn / Seacliffs of Lleyn SAC

Coedydd Derw a Safleoedd Ystumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC

Clogwyni Pen Llyn / Seacliffs of Lleyn SAC

Morfa Harlech a Morfa Dyffryn SAC

Rhinog SAC

Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA

Morfa Harlech a Morfa Dyffryn SAC

Legend:

- Ramsar site
- Special Area of Conservation
- Candidate Special Area of Conservation
- Special Protection Area
- Priority Areas for Solar and Wind Energy
- Priority Areas for Solar Energy only
- Ramsar site Buffer
- Special Area of Conservation Buffer
- Candidate Special Area of Conservation Buffer
- Special Protection Area Buffer
- Special Protection Area Supporting Chough

Rev	Date	Description	Drawn	Check	Approv
01	06/06/19	First Draft	RM	JD	DH

Client WELSH GOVERNMENT

PROJECT: WALES NATIONAL DEVELOPMENT FRAMEWORK – ENVIRONMENTAL ASSESSMENTS

Site WALES

Client Welsh Government
Cathays Park
Cardiff
CF10 3NQ
0300 0604400

ARCADIS Design & Consultancy for natural and built assets

Registered office: Arcadis House, 34 York Way, London N1 9AB
Coordinating office: 5TH Floor, 401 Faraday Street, Warrington WA3 6GA
www.arcadis.com

TITLE: Figure 2: Detailed maps of Priority Areas for Solar and Wind Energy and Natura 2000 / Ramsar Sites with Site Buffers Page 7 of 8

Drawn	R.MILLMAN	Date	21JUN19	Signed
Checked	J.DAVIES	Date	21JUN19	Signed
Approved	D.HOURE	Date	21JUN19	Signed
Scale:	1:400,000	Datum:	AOD	
Original Size:	A3	Grid:	OS	
Suitability Code:	S2	Project Number:	10012279	

Suitability Description: Issued for information

Drawing Number: 10012279-ARC -XX-XX-DR-YE-0002 P01

Arcadis (UK) Limited

Arcadis Cymru House
St Mellons Business Park,
St Mellons,
Cardiff CF3 0EY
United Kingdom

T: +44 (0) 2920 926700

[arcadis.com](https://www.arcadis.com)

