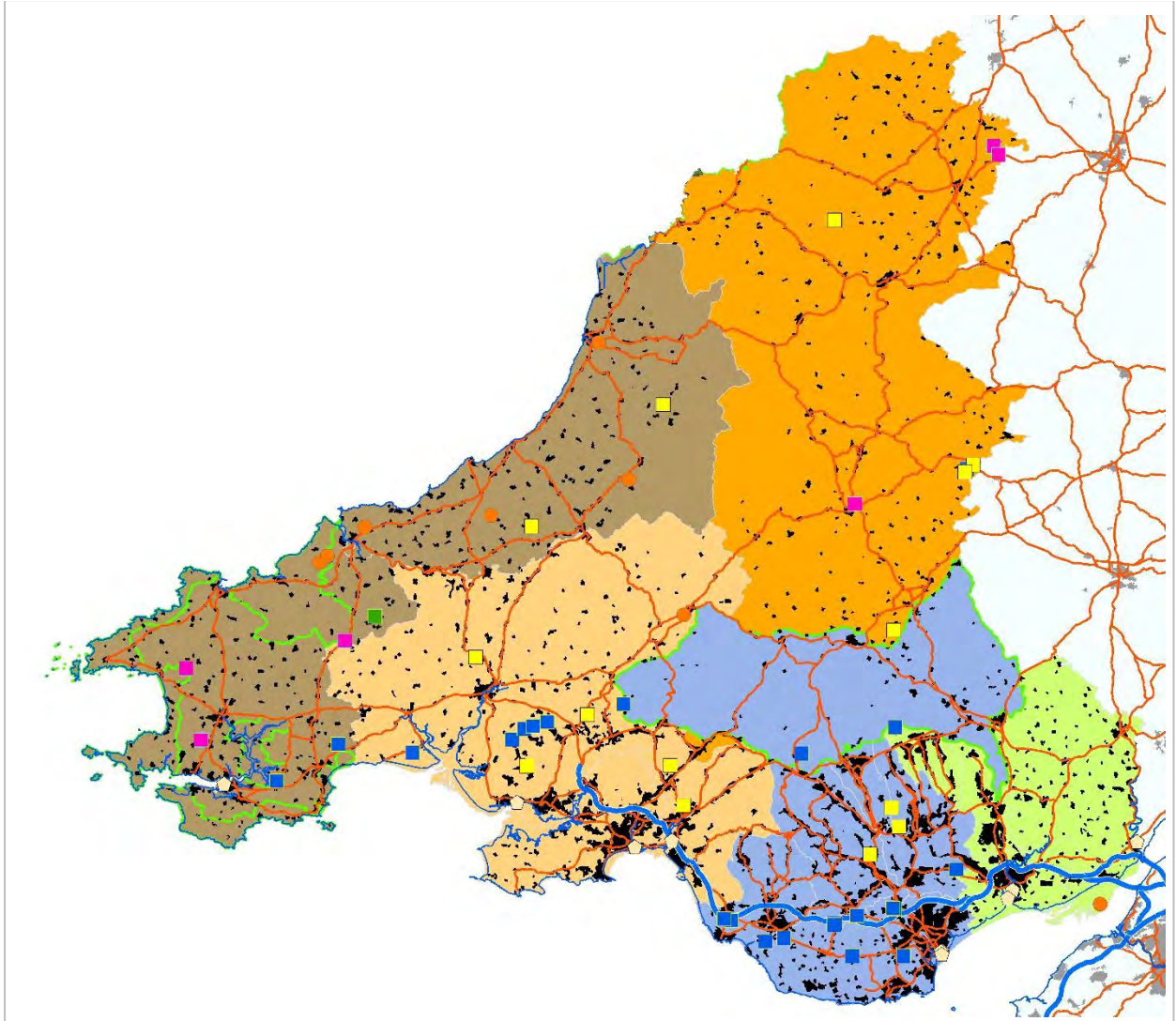


Regional Technical Statement (2nd Review)

Appendix B (South Wales)



Final – September 2020



Llywodraeth Cymru
Welsh Government

South Wales
Regional
Aggregates
Working Party

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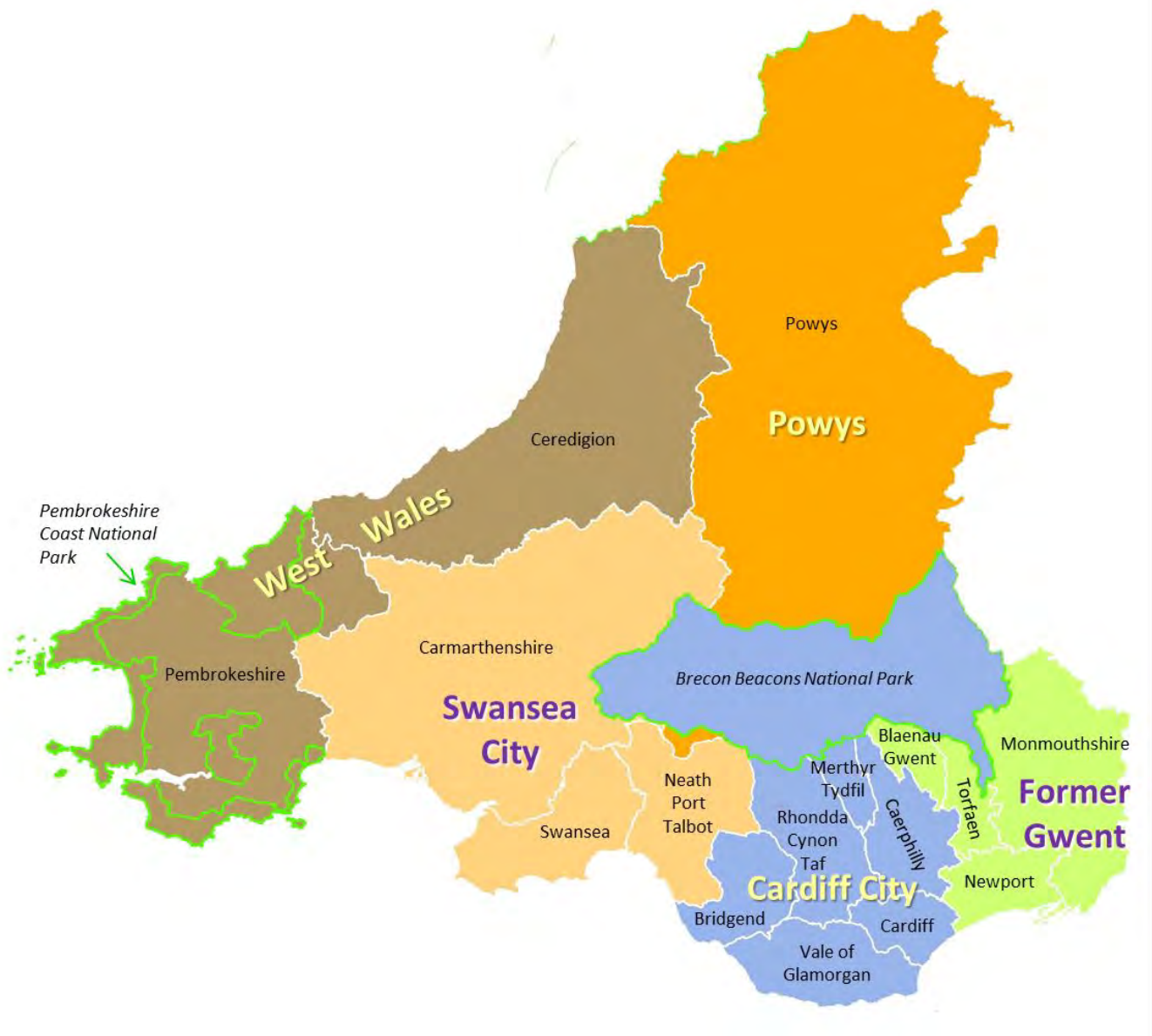
Appendix B: South Wales Region - Detailed Analysis & Recommendations

Introduction

- B1. This appendix is intended to complement, and should be read in conjunction with, the main document of the Second Review of the RTS. It provides additional explanation, specific to the South Wales Regional Aggregate Working Party (RAWP) Region, relating to the consideration of existing supply patterns, the detailed breakdown of sub-regional apportionments and requirements for new allocations. The final part of the Appendix, from paragraph B78 onwards, incorporates that information into specific recommendations and guidance for each individual Local Planning Authority (LPA).

Existing Supply Patterns in South Wales – Regional Overview

- B2. As explained in Chapter 3 of the main document, historical sales figures have been used in this review as a starting point for calculating the overall National requirement for land-won primary aggregate production in Wales, over the period covered by the revised RTS (i.e. 2020-2045). After applying a 30% uplift to reflect the planned increase in housing construction, this enhanced total has then been apportioned between North Wales and South Wales on the basis of their recent historical share of sales. The sub-regional apportionment of those regional figures has then been determined by looking carefully at the patterns of supply within each of seven sub-regions, created specifically for this purpose. That examination is briefly outlined in the main report and described more fully here.
- B3. Figure B1 shows the five sub-regions within the South Wales RAWP area. The sub-regions were created, at Welsh Government's suggestion, for the specific purpose of facilitating strategic minerals planning and collaborative approaches between LPAs. They each represent distinctive 'market areas' between which there is relatively little movement of aggregates, except for exports to England, and within which detailed, strategic consideration can be given as to the most appropriate patterns of supply. Looking carefully at the balance of supply between the LPAs within each sub-region is an important aspect of this.
- B4. For some LPAs, where the existing supply pattern already seems to provide a sensible balance between the spatial distributions of demand, resource availability and other factors, the new apportionments simply reflect the pattern of historical sales (i.e. the regional figures have been divided between the LPAs in proportion to their share of historical sales). In other areas, the new apportionments have been adjusted – primarily to take account of the distribution of planned housing activity, as indicated by the housing requirement figures in adopted LDPs - so that they reflect an improved (more equitable, more sustainable) spatial balance between supply and demand. In all cases, consideration has also been given, at least qualitatively, to factors such as environmental capacity, proximity and transport networks. The later sections of this document provide more detailed observations regarding these various factors within each of the sub-regions in South Wales.
- B5. It should be noted that the historical sales figures and apportionments relate only to land-won primary aggregates. These materials are needed to satisfy the residual levels of demand, once allowance has been made for the 'top-sliced' proportion of supply which is obtained from secondary and recycled sources and from marine-dredged aggregates. These materials contributed to the overall market throughout the baseline period and will continue to do so, leaving only the residual demand to be supplied from primary land-won sources.

Figure B1: Sub-Regional Areas and their constituent Local Planning Authorities in South Wales

- B6. No reliable monitoring data on recycled and secondary aggregate production is currently available for any part of the UK. The recently updated Mineral Planning Factsheet on aggregates produced by the British Geological Survey (BGS, 2019)¹ estimates that these materials now constitute approximately 30% of overall supply (based on data provided by the Mineral Products Association), and that most of the material that is suitable for aggregates use (primarily construction, demolition and excavation waste – CD&EW) is already being recovered and utilised. This has been the case since around 2005² and the proportion is thought unlikely to change in the foreseeable future. Being closely dependent upon the rate of construction activity, the actual tonnages can therefore be expected to rise and fall in line with variations in the overall rates of economic growth and will have a neutral impact on the demand for primary aggregates, compared to that seen during the baseline period (2007 to 2016). Moreover, in the case of recycled aggregates, since the arisings of CD&EW are (by definition) very closely associated with the occurrence of new construction work, their availability is unlikely to have any significant influence on spatial patterns of demand.

¹ <https://www.bgs.ac.uk/downloads/start.cfm?id=1355>

² https://mineralproducts.org/documents/Contribution_of_Recycled_and_Secondary_Materials_to_Total_Aggs_Supply_in_GB.pdf

- B7. That might not be the case for secondary aggregates, which have a more varied spatial distribution, with different types and different quantities being available within each LPA. Again, there are no up-to-date data sources to provide further details, but there are indications that some of these sources may be declining in availability, which would potentially increase the demand on primary aggregates within those areas. Further observations on this are noted, where appropriate, in the later sections on individual sub-regional areas.

Land-won Primary Aggregate Production

- B8. The historical sales figures for all land-won primary aggregates within each LPA in South Wales (including both crushed rock and natural sand & gravel) are shown in Table B1, below. The proportion supplied from crushed rock sources (averaged over 10 years) is shown in the right-hand column. The LPAs are grouped according to the sub-regions shown in Figure B1. The origin of the data is explained fully in Chapter 3 of the main text.

Table B1: 10-year and 3-year Total Land-Won Primary Aggregates Sales Averages (to 2016) for each LPA in South Wales.

Local Planning Authority	10-yr Average Aggregate Sales (total) (mtpa)	3-yr Average Aggregate Sales (total) (mtpa)	Highest of 3-yr and 10-yr ave. sales in each LPA (mtpa)	Proportion from crushed rock sources
Ceredigion	0.300	0.240	0.300	63.33%
Pembrokeshire	0.510	0.360	0.510	100%
Pembrokeshire Coast NP	0.330	0.270	0.330	63.64%
Carmarthenshire	0.832	0.821	0.832	76%
Swansea	0.000	0.000	0.000	100%
Neath Port Talbot	0.460	0.300	0.460	100%
Powys	2.470	2.650	2.650	100%
Brecon Beacons National Park	0.490	0.540	0.540	100%
Merthyr Tydfil	0.150	0.010	0.150	100%
Bridgend	0.580	0.600	0.600	100%
Rhonda Cynon Taf	0.610	0.670	0.670	100%
Vale of Glamorgan	0.660	0.580	0.660	100%
Caerphilly	0.390	0.100	0.390	100%
Cardiff	0.830	1.060	1.060	100%
Blaenau Gwent	0.170	0.180	0.180	100%
Monmouthshire	0.070	0.060	0.070	100%
Newport	0.000	0.000	0.000	100%
Torfaen	0.000	0.000	0.000	100%
TOTAL, South Wales			9.402	97.04%

SOURCE: Collated by the South Wales RAWP secretary from confidential industry data.

- B9. The figures for land-based sand & gravel production in South Wales (i.e. zero in most cases) are greatly distorted by the reliance of South East Wales, in particular, on marine-dredged aggregates from the Bristol Channel and the Severn Estuary. West Wales is less dependent on marine aggregates and has a small number of active land-based sites, primarily within the Pembrokeshire Coast National Park and Ceredigion. Carmarthenshire also has one very small operation. Powys is too far removed from the coast to be influenced to any significant degree by marine aggregates, but still has only one small land-based sand & gravel site where planning permission has been suspended. The county is reliant instead on crushed rock material. Whilst there are potential resources of natural sand & gravel within the upper reaches of the Severn,

Wye and Usk valleys, those are primarily within the Brecon Beacons National Park, part of the Cardiff City sub-regional area.

- B10. The figures for crushed rock production within South Wales are dominated by the output from Powys, where a number of sandstone and igneous rock quarries supply HSA material to England - particularly to adjoining parts of the West Midlands. In the rest of South Wales, the picture is affected by the much smaller size of most of the individual planning authorities, Historical crushed rock sales in South Wales have been concentrated within Cardiff, Carmarthenshire, Bridgend, Vale of Glamorgan, Rhondda Cynon Taf and the Brecon Beacons National Park (which is where most of the larger Carboniferous Limestone quarries in South Wales are located), in the adjoining LPAs of Caerphilly and Neath Port Talbot, where additional HSA sandstone quarries are located, and in Pembrokeshire, where there is a mixture of limestone, igneous and slate quarries.
- B11. Significantly, there has been no crushed rock production, during the baseline period, within Swansea, Torfaen or Newport, and very little in Monmouthshire. In the case of Torfaen and Newport this is a reflection of the very limited outcrop of suitable resources, although Carboniferous Limestone was formerly extracted from Penhow Quarry in Newport. In the case of Swansea, the limestone resources are plentiful but are either within the Gower AONB or constrained by existing urban development. Swansea does, however, have relatively unconstrained resources of HSA sandstone. In Monmouthshire, permitted reserves of Carboniferous limestone remain at Ifton Quarry, though this is currently inactive and has been since at least the time of the First Review. Further observations on the relationships between production, resources, markets and environmental capacity within each of the sub-regions are given in paragraphs B30 *et seq.*, below.

Marine-dredged Aggregates

- B12. As noted above, in South Wales, the availability of marine-dredged sand & gravel is of major importance, with supplies being sourced from both Welsh and English waters within the Severn Estuary and the Bristol Channel. Over the 2007 to 2016 baseline period, marine aggregate landings within South Wales accounted for an average of almost 83% of total sand & gravel production, and 9.1% of total primary aggregate production. In south-east Wales (i.e. the Cardiff City and Former Gwent sub-regions), marine-dredged material is the only source of sand & gravel currently available, though it is understood that some commercial exploration work has recently been undertaken of potential resource blocks identified in an earlier study for Welsh Government by Thompson *et al* (2002).
- B13. Discussions with BMAPA in 2019 suggest that similar levels of marine aggregates production are likely to continue in future years, in line with the current Interim Marine Aggregates Dredging Policy (IMADP).
- B14. For the time being, it seems reasonable to suppose that marine-dredged aggregates will continue to supply a similar proportion of overall demand as they have done over the last decade, so the demand for land-won aggregates in any of the LPAs in South Wales is not likely to be affected.

Secondary Aggregate Production

- B15. Secondary aggregates comprise the by-products of various industrial processes, including metallurgical slags and power station arisings, but also the by-products from certain types of non-aggregate mineral extraction, such as colliery spoil and slate waste, and from the recycling of glass, ceramics, asphalt planings and rail ballast³.
- B16. Aggregate production from metallurgical slags has traditionally been an important source of secondary aggregate within South Wales. Port Talbot continues to produce both blast furnace (iron) and steel slag, whilst electric arc furnace steel slag is still produced from one site in Cardiff. The processing of older stockpiles of blast furnace slag at the former Llanwern steel works is now understood to have ceased. Secondary aggregates are produced from all of these materials

³ it might appear more logical to group these substances with other recycled materials from construction, demolition and excavation wastes (CD&EW). However, the coverage of CD&EW is already well defined in terms of survey returns, so those items are included here as secondary aggregates.

although volumes are thought to be declining, placing increased pressure on primary aggregate sources.

- B17. Coal-fired power station arisings, comprising pulverised fuel ash (PFA) and furnace bottom ash (FBA) are currently produced only at the Aberthaw Power Station. With the planned closure of all coal-fired power stations by 2025, this production will cease. Whether or not historic PFA stockpiles will be able to be worked in future remains to be seen.
- B18. Small amounts of aggregate minerals (sandstone and occasionally sand) arise adventitiously from the reworking of former colliery spoil tips or from the working of opencast coal. In South Wales, significant quantities of colliery spoil still exist in tips that have not been removed or landscaped under the Derelict Land Reclamation Scheme (and successors). The overall potential for producing aggregate from this material is small, however, for a combination of local (social and planning), fiscal and regulatory reasons, but could be locally significant, where the quality of the material is suitable for the end-uses required. Planning permission for the reworking of former tips exists at Tower Colliery (RCT) but is not being actively exploited at present. Reworking of the spoil from the former opencast workings at Tir Pentwys (straddling the border between Torfaen and Blaenau Gwent) has also been considered and is the subject of Preferred Area allocations in both authorities. A planning application for reworking the Torfaen part of the Tir Pentwys site was the subject of a recent Public Inquiry, but the Appeal was dismissed in August 2019, on the basis of impacts of the proposed access route on an area of Ancient Woodland. Unless and until an acceptable alternative means of access is provided, this renders the resources within that Preferred Area unworkable, and also precludes access to those on the Blaenau Gwent side.
- B19. Sandstone arisings from new opencast workings have been important as 'windfall' resources at a number of sites within the South Wales coalfield, but these are classed as primary aggregates and are therefore not considered further here.
- B20. Slate waste is produced in very small quantities in South Wales, from the northern part of the Pembrokeshire Coast National Park and in southernmost Ceredigion. However, the extent to which this resource has been utilised as aggregate is understood to be minimal, and the prospects for future utilisation are equally limited. Mention was made in the original RTS of the possibility of importing secondary aggregates from the much greater quantities of higher quality slate waste in North Wales, though this was also seen as a 'remote' prospect and no progress has since been made.
- B21. The various sources of secondary aggregate noted above, together with recycled aggregates, as discussed below, are currently exempt from the Aggregates Levy, in a deliberate attempt to minimise the use of primary aggregates. During 2019 and 2020, the Aggregates Levy was comprehensively reviewed by HMRC, but no changes have been made to those exemptions.

Recycled Aggregates

- B22. Aggregates produced from construction, demolition and excavation wastes (CD&EW) form an important contribution to the overall consumption of construction aggregates. The 2008 RTSs noted a total output for the whole of Wales of 3.97mt, based on 2005 survey data, and suggested a roughly 3 to 1 split between South Wales and North Wales, based on earlier surveys and population ratios. They also noted that, despite the lack of quantitative detail, it is inevitable that the greatest volumes of CD&EW arisings and usage are in the urban areas. The RTS documents emphasised, however, that all statistics for this sector need to be used with a high degree of caution, because of the low rate of response to the surveys.
- B23. The situation, in terms of available data, has not improved since the original RTSs were published. No new survey data is available, other than a C&D Waste survey in 2012, so any observations on recent or future trends can only be regarded as broad approximations. If anything, the efficiency of recycling is likely to have increased, and the introduction of WRAP's (2005) 'Quality Protocol' for the production of aggregates from inert waste may have increased the proportion and usage of higher value products derived from the various recycled sources. Such improvements, however, represent only small increments on the progress which had previously been made - primarily as a consequence of the price advantages resulting from the landfill tax and, to a lesser extent, the aggregates levy. The view of the Mineral Products Association (MPA), which is not disputed by the NRW, remains that there is limited opportunity

for significant further increase in the proportion of construction aggregate likely to be derived from this sector. As noted earlier, the future availability of recycled aggregates seems likely to be inextricably linked to the overall rates of construction activity and economic growth, so the safest assumption is that it will rise and fall in a very similar way to overall demand, and will thus have a neutral impact on the demand for primary aggregates, compared to the baseline period (2007 to 2016).

Imports and Exports

- B24. Wales has always been a net exporter of land-won aggregates. Data on both exports and imports is recorded in the periodic Aggregate Minerals (AM) Surveys, and data for exports in the last four surveys is summarised in Table B2, below.

Table B2: Summary of key export statistics for South Wales from recent AM surveys

<i>Note: all figures exclude sales for non-aggregate use</i>	AM2001 (mt)	AM2005 (mt)	AM2009 (mt)	AM2014 (mt)
(data from Table 4j of the AM reports)				
Land won Sand & Gravel Sales	0.115	0.304	0.144	0.205
S&G Exports*	0.001	0.011	0	0
South Wales S&G Exports as % of S&G total	1%	4%	0%	0%
Limestone Sales	6.536	6.137	4.554	4.540
Limestone Exports*	0.262	0.154	0.052	0.332
Exports as % of Limestone total	4%	3%	1%	7%
Igneous Sales	0.838	1.238	1.025	1.577
Igneous Exports*	0.572	0.430	0.694	0.829
Exports as % of Igneous total	68%	35%	68%	53%
Sandstone Sales	2.648	3.498	2.605	1.709
Sandstone Exports*	1.457	1.941	1.258	0.852
Exports as % of Sandstone total	55%	55%	48%	50%
Total Crushed Rock Sales**	10.310	10.873	8.185	7.825
Total CR Exports*	2.302	2.527	2.003	2.013
South Wales CR Exports as % of CR total	22%	23%	24%	26%

* 'exports' are primarily to England but include some movement between South Wales and North Wales.

** Unlike the figures used elsewhere in this Review, crushed rock sales in the AM reports exclude slate

- B25. In South Wales, the main export in terms of overall tonnage is of sandstone, the vast majority of which is High Specification Aggregate (HSA) - skid-resistant road surfacing material with a Polished Stone Value (PSV) of 58 or above, and generally much higher (Thompson, Greig & Shaw 1993; Thompson *et al.*, 2004).
- B26. In 2002, the total output of HSA sandstone from South Wales was 1.280mt⁴. This amounts to some 88% of the previous year's (AM 2001) figure of 1.457 for all sandstone exports from South Wales (the difference representing the change from 2001 to 2002 and the inclusion of some non-HSA sandstone in the latter figure). Of the total HSA sandstone output from South Wales in 2002, some 69% is known to have been exported to England, with the remaining 31% being utilised in Wales, (including domestic consumption within South Wales and exports to North Wales). Of the total HSA sandstone exported, most was supplied from five quarries and two opencast sites in the Pennant Measures of the South Wales coalfield (from which 58% of HSA output was exported to England in 2002); whilst the remainder was sourced from three HSA sandstone quarries in Powys (from which a much higher proportion - 88% - was exported to England).

⁴ Source for this and subsequent data on High Specification Aggregates: unpublished information collated by the author as part of the Capita Symonds' analysis of High Specification Aggregates production in 2002 (Thompson *et al.*, 2004).

- B27. Reference to Table B2 shows that, although there was a reduction in sandstone exports between 2005 and 2009, the difference is much less marked than was the case for Wales' other main aggregate export – limestone from North Wales (see Appendix A), especially in percentage terms. This reflected the fact that the market for skid-resistant road aggregate held up better, during the recession of 2007 and 2008, than had been the case for more general-purpose limestone aggregate (presumably because of the safety imperative of continuing to maintain skid resistance on major roads). However, whilst the North Wales limestone exports had largely recovered by the time of the AM 2014 survey, HSA sandstone exports from South Wales continued to decline, as did the overall sales of these materials. The explanation for this decline is not clear. It may at least partly have been due to a marked reduction in production capacity from some of the major HSA quarries in South Wales over this period: Cribarth Quarry closed in 2014, following a number of years of declining output as permitted reserves were used up; Gelligaer Quarry was inactive between 2012 and 2015; and Hafod Fach Quarry has been inactive since 2015. There does also seem to have been a fall in demand, however, as seen in the steadily declining outputs from Cwm Nant Lleici Quarry, from 2007 to 2014 (Thompson, 2015). If similar trends occurred at other active HSA units, it may reflect the relatively low priority given to road construction and maintenance, since the recession, by comparison with the more focused spending on house building.
- B28. Imports of land-based aggregates are very minor, by comparison with exports. In South Wales in 2014 (from Table 5j of the AM 2014 survey report), land-based imports amounted to 0.042mt of sand & gravel and 0.079mt of crushed rock, primarily limestone from South West England. These compare with imports of 0.064mt of sand & gravel and 0.172mt of crushed rock in the previous (AM 2009) survey.
- B29. Imports and exports of marine-dredged sand and gravel between England and Wales are only relevant to the RTS apportionment exercise if they affect the continuity of supply of these materials to Wales and thus give rise to increased demand on land-based resources. This is potentially an issue in South East Wales which, as noted earlier, is heavily dependent upon marine aggregates. At the time of the First Review, Wales was a net importer of marine sand & gravel, dredged from the English side of the median line in the Bristol Channel and the Severn Estuary. This was noted in the Review as being likely to change, subject to the approval of new licence applications within Welsh waters. By 2019, the relative balance between imports and exports has shifted as a consequence of a new licence that has been recently permitted across the median line between English and Welsh waters. However, significant trade continues from English licences to Welsh markets as well as vice versa. In Liverpool Bay, the only licence area in Welsh waters remains a net exporter to north west English markets.

Sub-Regional Analysis

- B30. In the First Review, the sub-regional analysis for South Wales was based on three broad areas: Mid Wales, South West Wales and South East Wales. In this review, as explained earlier and as illustrated in Figure B1, above, it is based on five smaller areas, each one being intended to approximate a relatively 'self-contained' market area for aggregate production and sales, with little movement of aggregate taking place between adjoining areas, other than exports to England.
- B31. Maps corresponding to each of these areas are presented in Figures B2 to B11 below. For each sub-region there are three maps. The first one shows the distribution of aggregate resources and existing quarries. The second map, at a smaller scale, deals with 'proximity' issues (i.e. the relationships between resources, quarry locations, major roads and the distribution of both planned housing requirements in each LPA and existing urban areas). Planned housing requirements are used in preference to the population density maps that were used in the First Review, although both distributions are shown, for comparison, in Figures 4.7 and 4.8 of the main document. The third map for each sub-region then deals with environmental capacity issues, utilising output from the earlier IMAECA analysis (Enviros, 2005). All of the larger maps are presented at the same approximate scale, as are all of the smaller maps (as indicated in each case by the 30km scale bar).
- B32. It must be emphasised that these maps show only resources and not permitted reserves. **Resources** are geological materials, including rocks and naturally occurring sand & gravel, which have the potential to be used for a particular purpose (in this case as construction

aggregates). **Permitted Reserves** are those parts of a resource which are known to be suitable for this purpose (usually as a result of detailed ground investigations and laboratory testing) and which have valid planning permission for the winning and working of the materials in question. The outlines of permitted reserves are not shown on the maps.

- B33. The resources are illustrated in several main categories. Natural **sand & gravel resources**, as mapped by the British Geological Survey (BGS) may be associated with five different types of 'superficial' deposits, as shown on the key to each map, though the extent of workable mineral within these deposits is highly variable. Some of the maps show an additional category of sand & gravel resource blocks that were identified in more detailed study for the Welsh Assembly by the former Symonds Group. These were identified primarily in terms of reconnaissance-level mapping of Quaternary geology and geomorphology, supported by very limited borehole investigations (Thompson *et al*, 2000), and were examined further in a comparative environmental assessment of both marine and land-based resources (Thompson *et al*, 2002). The resource blocks are shown by the deep red shading on the maps for the Swansea, Cardiff and Former Gwent areas.
- B34. **Crushed rock resources** within the area comprise Carboniferous (and older) HSA sandstones (i.e. those which are generally suitable for use as High Specification Aggregates – HSA – for use in skid-resistant road surfacing); Carboniferous Limestones (which are subdivided, on the larger maps, into high purity (>97% CaCO₃) and other limestones); Igneous Rocks (including HSA dolerites, which are differentiated on the larger maps); and Slates.
- B35. The quarries shown on the maps are categorised in the same way as the resources. They include both active and inactive units (as of 2018), the latter including a small number of dormant sites and one suspended permission. Separate listings of all active, inactive and dormant (or suspended) sites in South Wales are given in Tables B3, B4 and B5, respectively.

West Wales Sub-Region

- B36. Figure B2, below illustrates the distribution of quarries and land-based aggregate resources within West Wales. For ease of presentation, Ceredigion is shown separately to Pembrokeshire and the Pembrokeshire Coast National Park. The crushed rock resources comprise:
- **Silurian and Ordovician HSA sandstones**, currently worked at Ystrad Meurig and Alltgoch quarries in Ceredigion, respectively;
 - a wide variety of **igneous rocks**, including quartz diorite worked at Bolton Hill in Pembrokeshire and volcanic rhyolite, worked at Rhyndaston Quarry, just inside the National Park;
 - **Ordovician slates**, currently worked only at Glogue Quarry in Pembrokeshire; and
 - **Carboniferous Limestone**, worked at Blaencilgoed (a.k.a. Gellihalog Quarry) in Pembrokeshire and at Carew, just inside the National Park.
- B37. In addition, there are extensive **glacial** and **glaciofluvial sand & gravel** deposits around Cardigan, straddling the boundaries between the National Park (Trefigin and Pantgwyn Quarries), Pembrokeshire and Ceredigion (Penyparc Quarry). Glaciofluvial deposits are also present along the Teifi valley in Ceredigion (currently worked at Pant Quarry), and in more localised areas elsewhere (including Crug-yr-Eryr Quarry, in Ceredigion). **Alluvial sand & gravel** is also worked, on a very small scale, in the Rheidol valley at Glanyrafon in Aberystwyth.
- B38. Figure B3 illustrates the relationships of these quarries and resources to issues relating to the likely pattern of demand (as indicated by proximity to existing urban areas, planned housing requirements and the primary road network); and issues relating to environmental capacity.
- B39. Most if not all of the quarries are thought likely to serve markets which lie primarily within the West Wales sub-region. This is not least because of the distance of most of them from other markets further north and east, the limited road connections across the Cambrian Mountains in mid-Wales and the existence of other quarries closer to those other market areas. Within the sub-region, some of the quarries are well-placed in relation to local centres of demand, for example around Pembroke, Haverfordwest and Cardigan, whilst others are located in more distant, rural locations, as dictated by the available resource outcrops.

- B40. Overall, there is limited justification for changing the existing pattern of supply, from a proximity point of view. There is more justification in seeking changes from an environmental perspective – particularly in order to encourage a shift of production, in future, away from the National Park. This would require increased output (and/or new sources to be established) in other areas – particularly in Ceredigion which, as noted in the main report, does not currently supply aggregates in proportion to its share of sub-regional housing requirements.
- B41. In the case of sand & gravel production, potential opportunities (in terms of resources) exist within Ceredigion, both close to Cardigan (though these are generally in areas of relatively low environmental capacity) and further upstream along the Teifi valley (where environmental capacity has not been assessed). Additional resources also occur on the opposite side of this valley in neighbouring Carmarthenshire, and it would be sensible for these to be included in the search for opportunities. In this regard, the First Review of the RTS suggested that there would be merit in developing a combined approach to future apportionments and allocations between Pembrokeshire, Ceredigion and Carmarthenshire. Although Carmarthenshire is in a separate sub-region (primarily because of the market for crushed rock in the Swansea area), it is recommended that these joint working arrangements should continue, with regard to sand & gravel.

Figure B2: Aggregate Resources and Quarries in the West Wales Sub-Region

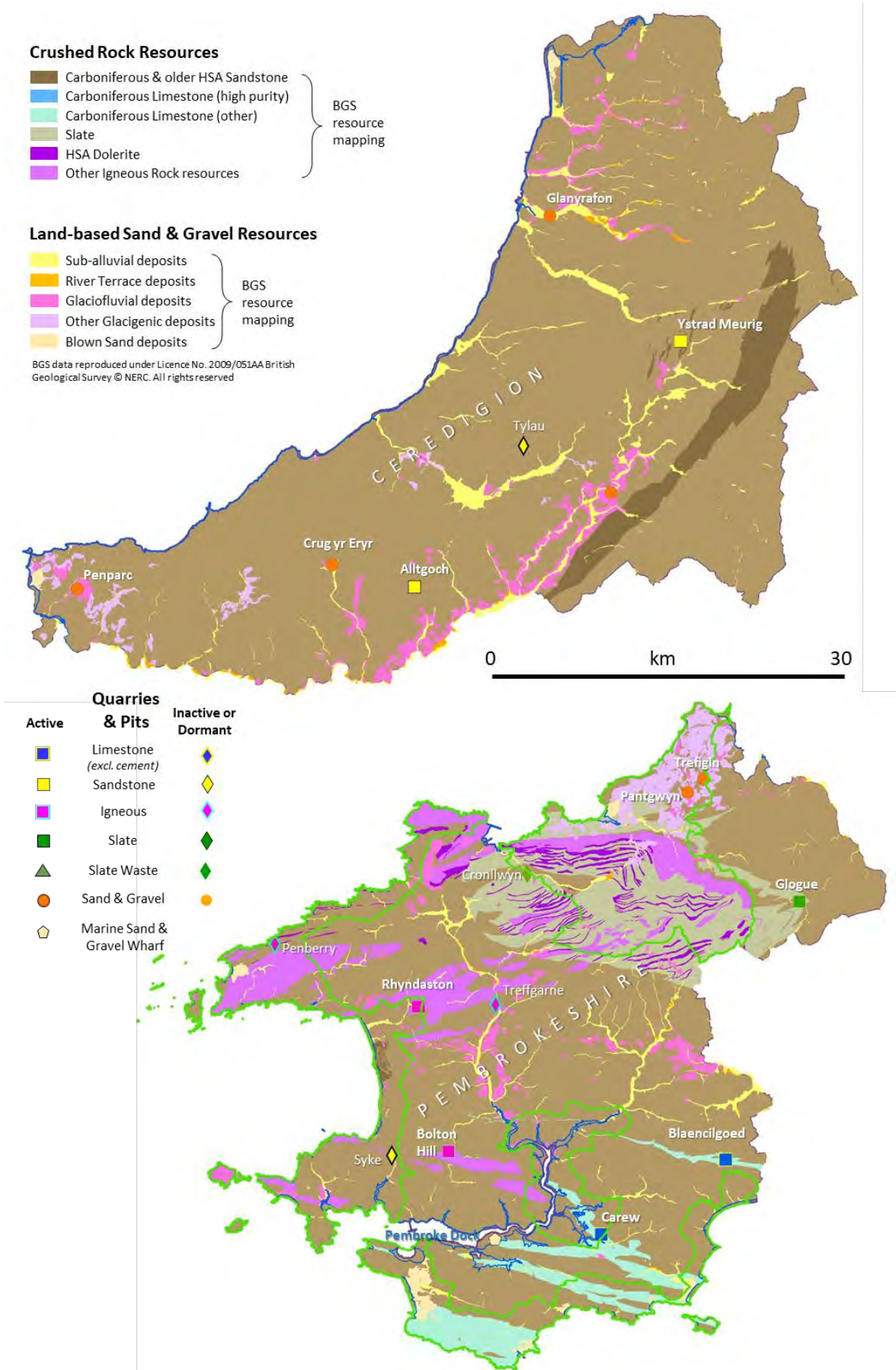
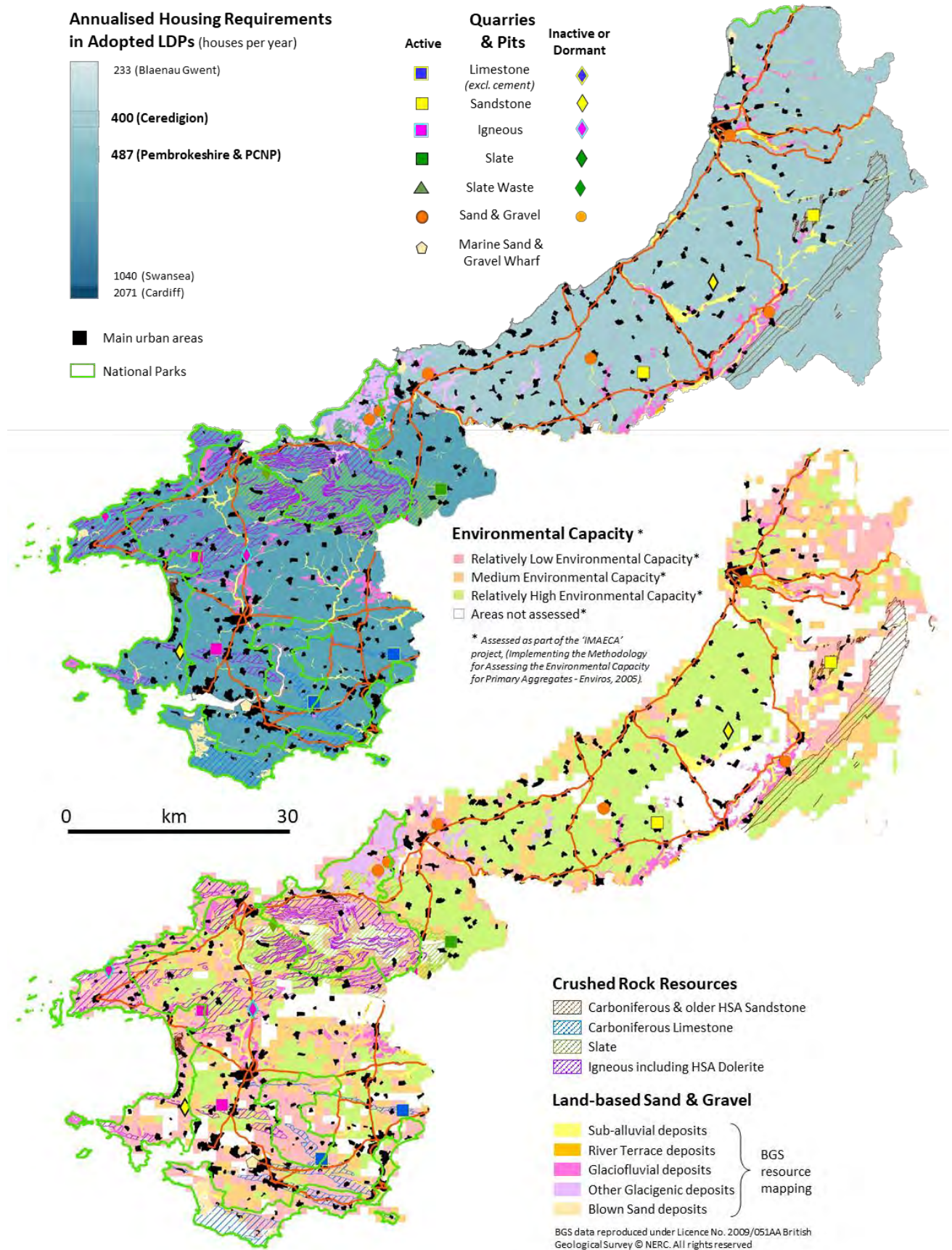


Figure B3: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the West Wales Sub-Region



Swansea City Sub Region

- B42. Figure B4 illustrates the distribution of quarries and land-based aggregate resources within the Swansea City sub-region. In this area, the rock resources are mostly confined to the southern part of Carmarthenshire and to Swansea and Neath Port Talbot. They comprise:
- **Carboniferous Limestone**, currently worked at several quarries along a narrow outcrop in southern Carmarthenshire, with a more extensive outcrop in the Gower Peninsula (almost all of which lies within the Gower Area of Outstanding Natural Beauty and is thus most unlikely to be worked);
 - **Carboniferous HSA sandstone**, currently worked predominantly at Cwm Nant Lleici and Gilfach quarries in Neath Port Talbot, and on a much smaller scale, at Pennant Quarry in Carmarthenshire, but extending though all areas in between, including Swansea itself;
 - **Silurian sandstone**, currently worked only at Foelfach, in Carmarthenshire
 - Small, isolated outcrops of **igneous rocks**, only one of which (at Garn Wen in western Carmarthenshire) is currently worked; and
 - **Ordovician slates**, in the same area of western Carmarthenshire, which are not worked at all.
- B43. In addition, there are **glaciofluvial sand & gravel** deposits in various parts of sub-region, including a number of potential resource blocks identified by the Symonds Group study for Welsh Assembly (Thompson *et al* 2000). At present, however, the only operational site is a very small, intermittently active area of river gravel extraction at Llwynjack in the Tywi valley.
- B44. Figure B5 illustrates the relationships of the various resources and quarries to issues relating to the likely pattern of demand (as indicated by proximity to existing urban areas, planned housing requirements and the primary road network); and issues relating to environmental capacity. As can be seen from these maps, the limestone quarries appear to be reasonably well-placed (given the distribution of unconstrained resources) in terms of their proximity to Swansea and adjoining urban areas. A number of inactive quarries are also present along the same narrow limestone outcrop in Carmarthenshire, close to four of the currently active sites, implying that there would be scope for increasing supplies from this area if demand were to increase. Given the constraints which apply to virtually all other limestone outcrops in the area, there would be no opportunity to change the overall pattern of limestone supply.
- B45. The Carboniferous HSA sandstones within the area primarily comprise those of the westernmost part of the South Wales Coalfield (i.e. the 'Pennant' Sandstones) and are highly sought-after as premium, skid-resistant road surfacing aggregates. The two main operational quarries (Gilfach and Cwm Nant Lleici) export to England, as well as supplying local markets. In the case of Cwm Nant Lleici, more than 50% of the output is distributed by rail, with a much lower proportion being transported by rail from Gilfach. The location of both quarries, within the eastern part of the sub-region, and close to the Neath Abbey railhead, is therefore sensible, from a proximity point of view. Gilfach is also within an area of high environmental capacity, as are most of the unworked resources in Neath Port Talbot, though that is not the case for Cwm Nant Lleici.

Figure B4: Aggregate Resources and Quarries in the Swansea City Sub-Region

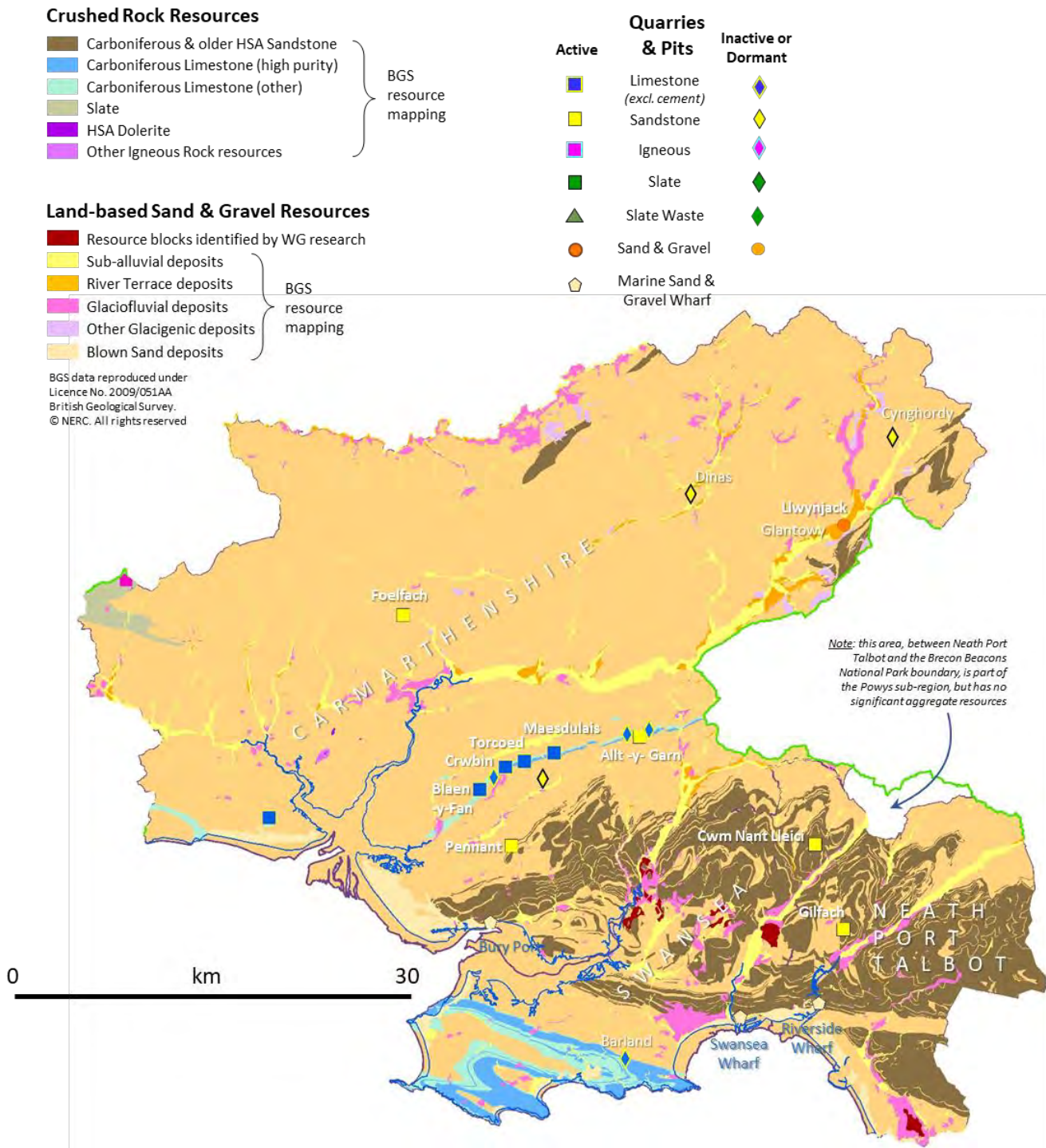
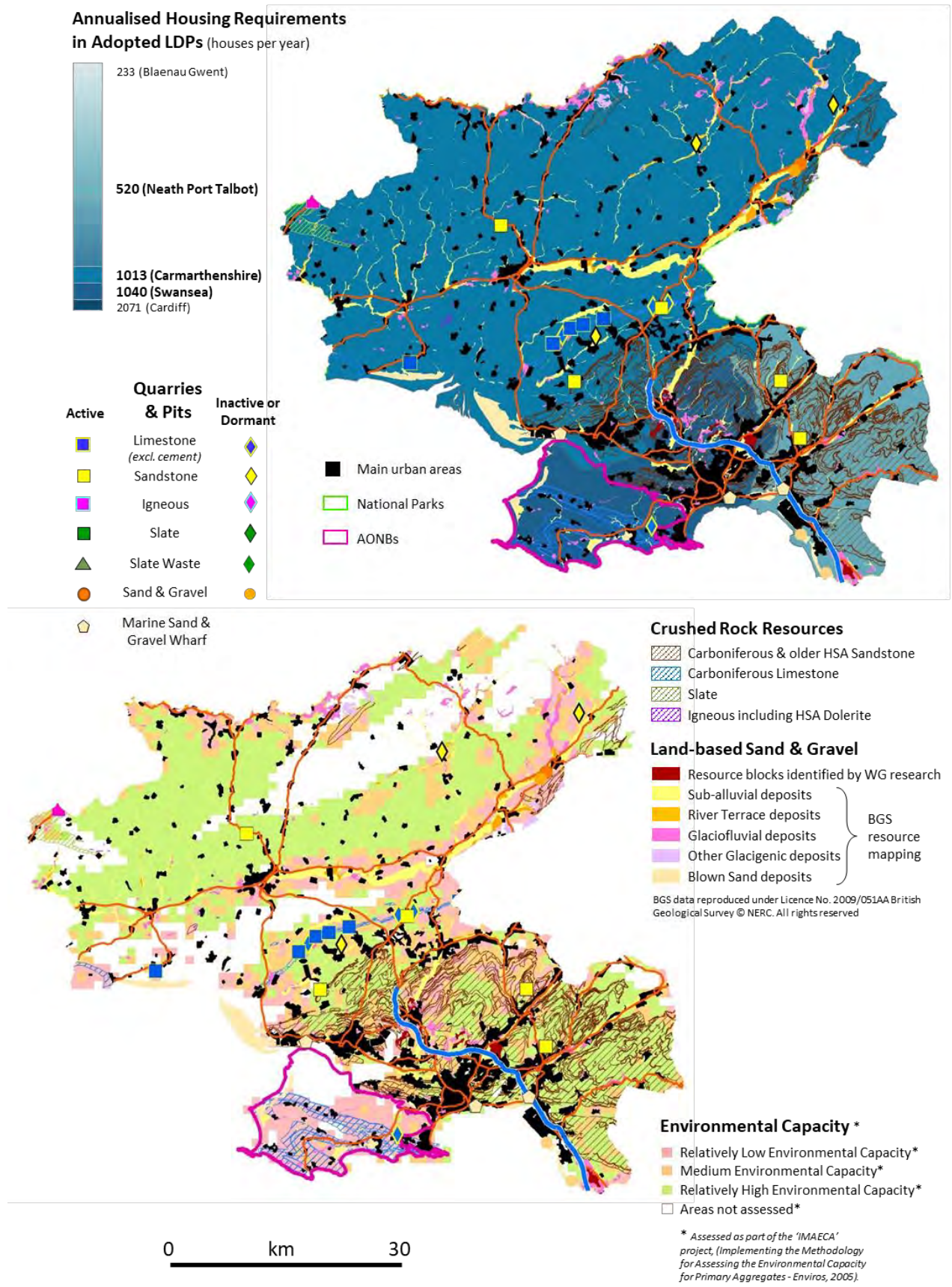


Figure B5: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the Swansea City Sub-Region



- B46. As noted in the main document, there would be some merit in seeking to redistribute future HSA sandstone within the region, in order to provide a more equitable distribution between Neath Port Talbot and Swansea (which has the same resources but no current production and, hitherto, no apportionments). This would, potentially, enable advantage to be taken of Pennant Sandstone outcrops within Swansea that are located in areas of relatively high environmental capacity (for example close to Junction 44 of the M4, south of Pontardawe, or between Pontardawe and Pontarddulais). In both cases, however, those outcrops lie within a higher part of the Pennant Sandstone sequence, known as the Swansea Beds, which have not, hitherto, been worked on a modern commercial scale and which may be of inferior quality in terms of aggregate properties and/or the continuity and thickness of sandstone units. The suggestion would require further detailed investigations before it could be relied upon.
- B47. In the RTS First Review it was noted that there might also be merit in deliberately seeking to change the existing supply pattern by reducing future output from Neath Port Talbot and increasing that from other LPAs further east within the Pennant Sandstone outcrop (e.g. Rhondda Cynon Taf, Caerphilly, Torfaen or Blaenau Gwent), in order to reduce the transportation distances of HSA material that is exported to England by road, rather than rail. It must be remembered, however, that proximity is only one aspect of sustainability which must be balanced against many other factors. For example, a high proportion of the resource outcrop within Neath Port Talbot coincides with areas of high environmental capacity whereas such areas are more limited further east.
- B48. Older (Silurian) sandstones including the Yr Allt Formation (formerly known as the Bala Series Grits) occur in various parts of northern Carmarthenshire. These are now worked at only one active quarry in the county (Foelfach), and only to supply local markets.
- B49. Igneous rocks (Prescelly dolerite) are currently exploited in only one location, at Garn Wen in Carmarthenshire. The rock has a reasonably high PSV of 57 but not sufficient to qualify as High Specification Aggregate (HSA) and tends to be used as a more general purpose aggregate within the local market area. Other outcrops of igneous rock within the sub-region are confined to localised minor intrusions in the west of Carmarthenshire and are not likely to be seen as commercially viable resources.
- B50. In terms of land-based sand & gravel resources, as noted above these do exist within the sub-region and, although many of those within river valleys, especially, fall within areas of low environmental capacity, others appear to be better placed in this respect. These include resource blocks close to Swansea, identified in the Symonds Group study, and extensive glaciofluvial deposits within the Teifi valley, around Llanybydder in Carmarthenshire. The fact that none of these are being exploited at present suggests that there is insufficient demand and/or commercial interest, not least because of the ready availability of marine dredged sand from the Bristol Channel, which is landed at the Swansea, Riverside and Bury Port wharves (shown in Figure B4). This almost certainly diminishes the commercial prospects for working resources in Swansea, Neath Port Talbot, and much if not all of Carmarthenshire.

Powys Sub-Region

- B51. Figure B6, below, shows the distribution of resources and quarries within the county of Powys, excluding the Brecon Beacons National Park in the south, which forms part of a separate sub-region. In this area, despite the widespread occurrence of hard rock resources, those which are regarded as exploitable aggregate resources are far more limited and localised. This is, not least, because of the relatively remote and upland nature of the landscape which dictates that only those resources of exceptional quality and/or proximity to established markets, are actively worked. These comprise:
- **Precambrian HSA Sandstone**, of the Yat Wood and Strinds Formations, worked from very localised inliers at Gore, Dolyhir and Strinds quarries, close to the Herefordshire border, near Kington;
 - **Ordovician HSA sandstone**, of the Cribarth Formation – worked until recently at Cribarth Quarry, which closed in 2014 following the exhaustion of permitted reserves;
 - **Silurian HSA sandstone**, worked in only one part of the extensive outcrop of the Penstrowed Grits Formation, at Tan-y-Foel quarry, north-west of Newtown;

- **Ordovician HSA dolerite**, worked from a large but very localised intrusion at Criggion Quarry near Welshpool;
 - **Ordovician HSA igneous rocks** of the Llanellwedd Volcanic Formation, worked at the very large Builth Wells Quarry;
 - **Ordovician igneous rock**, worked from a localised intrusion within a predominantly shale quarry at Middletown, near Welshpool; and
 - **Devonian Old Red Sandstone**, worked on a very small scale, primarily for building stone, at Tredomen Quarry in the south of the area.
- B52. Limestone resources are largely absent within mid Wales, though a very small outcrop of Silurian limestone is worked alongside HSA sandstones at Strinds Quarry, close to the English border.
- B53. There are also **glaciofluvial** and **fluvial (river terrace and sub-alluvial) sand & gravel** deposits in various parts of sub-region, though none of these is currently exploited. The resources are mostly within the upper reaches of river valleys and are unlikely to offer much in the way of commercially viable opportunities - not least because of the widely dispersed population and hence limited local demand. One site that was previously worked, at Caerfagu, is now a suspended planning permission, with (effectively) no remaining reserves.
- B54. The emphasis in Powys is therefore very clearly on the production, and export to England, of High Specification (skid-resistant) Aggregates. With the exception of Builth and Tan-y-Foel, the HSA quarries exploit very localised geological outcrops. To varying degrees, similar material is likely to exist in adjoining parts of the same formations, but only within a few kilometres of those quarries. Tan-y-Foel is a relatively small quarry which exploits HSA sandstones from the Penstrowed Grits Formation. Whilst the outcrop of this formation is far more extensive, most of it is not suitable for commercial HSA quarrying because of the interbedded nature of the rocks, with the HSA sandstones alternating with largely unsaleable mudstones and shales. For this reason, the formation is not shown on Figure B6, or on B7 (which shows the relationship of the quarries and resources to factors relating to proximity and environmental capacity). Builth Wells Quarry exploits part of a much larger and variable outcrop of volcanic igneous rocks in central Powys. The extent to which similar (HSA) qualities will occur in other parts of those outcrops is not known, but the extremely large permitted reserves which remain at Builth render this immaterial.
- B55. Overall, the scope for significantly modifying the existing supply pattern of sandstone and igneous rock within central Powys is therefore extremely limited. There would be potential benefits to be gained, in terms of proximity, by limiting future planning permissions to resource outcrops closest to the English border, although those areas (around Criggion, Gore and Dolyhir quarries) are seen to have relatively low environmental capacity (in part, at least, because of the existing quarries).

Figure B6: Aggregate Resources and Quarries in the Powys Sub-Region

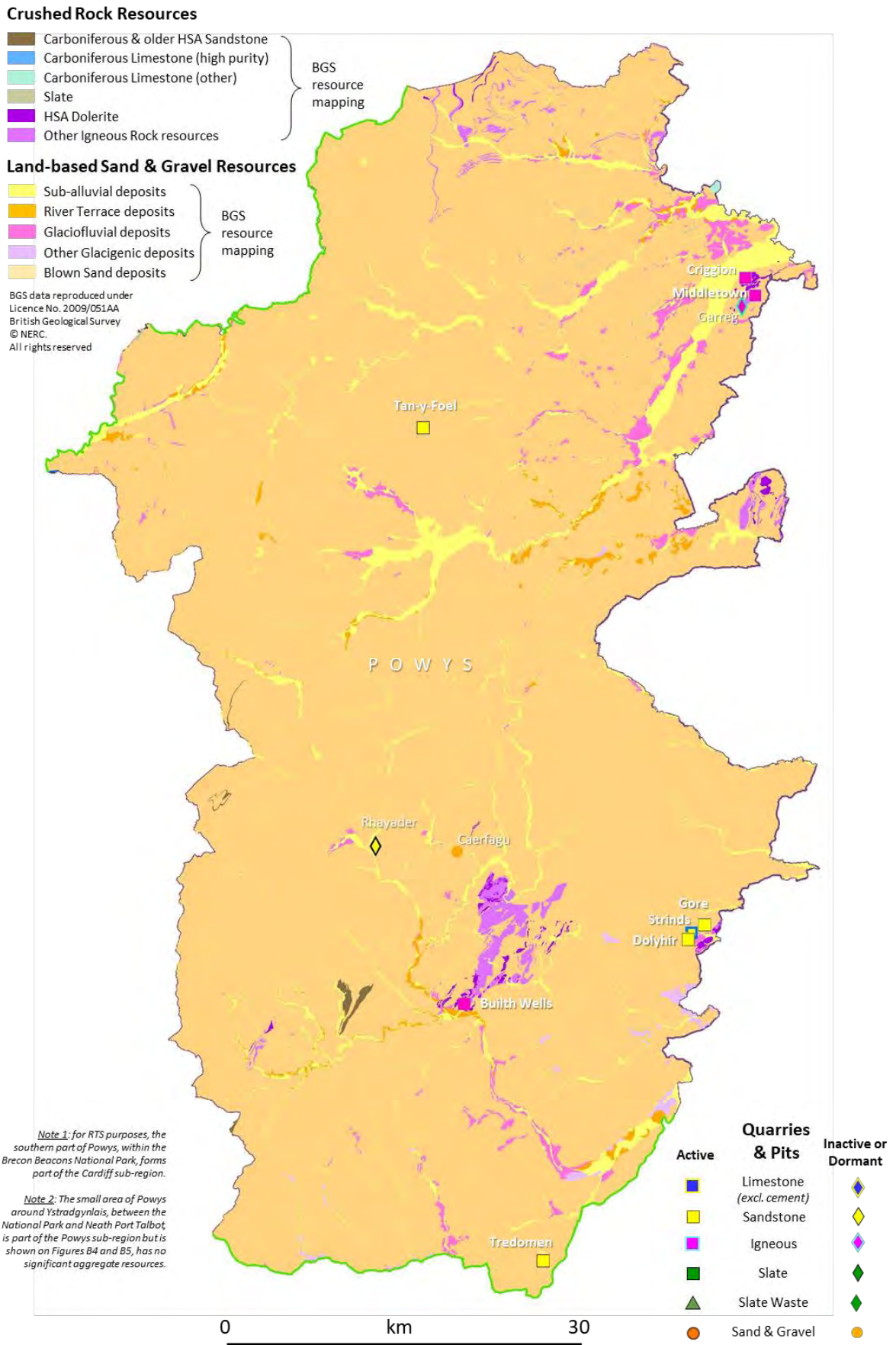
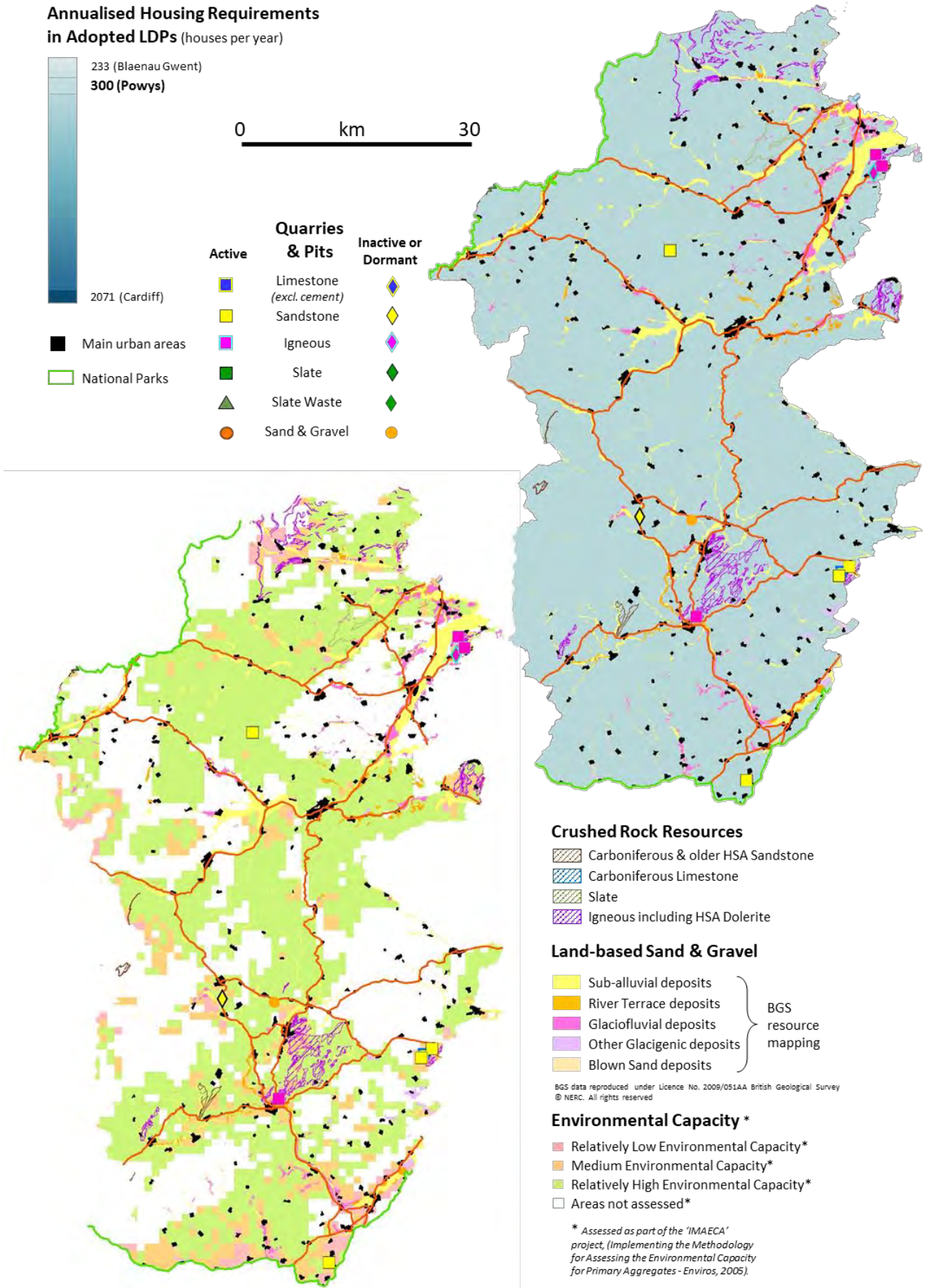


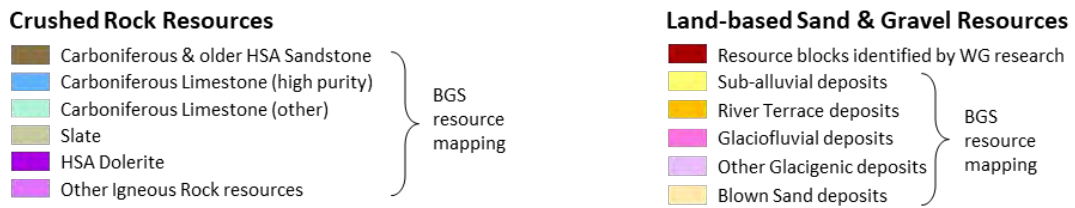
Figure B7: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the Powys Sub-Region



Cardiff City Sub-Region

- B56. This sub-region, as illustrated in Figures B8 and B9, below, comprises Cardiff, the Vale of Glamorgan and Bridgend, along with the valleys directly to the north in Rhondda Cynon Taf, Merthyr Tydfil and Caerphilly, and the Brecon Beacons National Park. The National Park is included primarily because of the major Carboniferous Limestone quarries of Penderyn (active) and Vaynor (currently inactive) which are located within or straddling the southern edge of the Park, and which primarily supply aggregates southwards into the valleys. Ammanford quarry, at the far western edge of the Park is anomalous in this regard, being associated primarily with the neighbouring Swansea sub-region, but its output is very small.
- B57. Crushed rock resources in this sub-region fall into just two, very clearly distinguished groups:
- **Carboniferous HSA sandstone** resources within the coalfield area which, like those to the west, are highly sought-after as sources of premium, skid-resistant road surfacing aggregates. They are exploited by a number of specialist quarries – Craig-yr-Hesg, Gelligaer, Bryn and Hafod Fach (currently inactive) which supply much of their output to England; and
 - **Carboniferous Limestone** resources, to the north and south of the coalfield, which are host to a large number of active and inactive quarries, focused primarily on the supply of general purpose construction aggregates into Cardiff and other centres of demand within the area.
- B58. **Land-based sand & gravel resources** have also been identified within the area, primarily within the valleys. However, many of these are either sterilised by existing urban development or lie within the National Park, and none are currently worked. Instead, the area is entirely dependent, for natural sand, on marine-dredged material from the Bristol Channel which is landed in Cardiff.
- B59. The Carboniferous ‘Pennant’ Sandstone quarries are generally well-placed, within the overall resource outcrop, to supply both local markets within SE Wales and to export HSA to England, though none of them is rail-connected. The sales, both for local consumption and exports, include end-uses other than skid resistant road surfacing, though this is usually because it is often convenient and economical to use the same aggregate in some of the lower layers of road construction as that which is required for use in the surface course.
- B60. Pennant Sandstone resources are widespread within the sub-region, where they coincide, to some extent, with areas of relatively high environmental capacity - particularly within parts of Bridgend, Rhondda Cynon Taf and Caerphilly. Whilst these areas are less extensive than those within Neath Port Talbot and Swansea in the adjoining sub-region (see para’s B45 to B47 above), they may, nevertheless offer prospects for future resource development, as indeed may those of lower apparent capacity - particularly in the case of extensions to existing quarries. In terms of proximity to export markets, these areas offer greater benefits than those further west, though there is less opportunity (if any) for access to railheads. These may be important factors when considering the pattern of future allocations, though this is not required at present within this sub-region (see Chapter 5 of the main document).
- B61. The Carboniferous Limestone resources within this sub-region occur in two distinct areas: the **north crop** (to the north of the South Wales coalfield); the **south crop** (to the south of the coalfield). Each of these areas is considered separately, below.
- B62. Within the north crop, the limestones occur almost entirely within the Brecon Beacons National Park and are currently (or have until recently been) worked at two main sites: Penderyn (within the National Park, in the northern part of Rhondda Cynon Taf); and Vaynor (north of Merthyr Tydfil, on the boundary of the National Park). Both of these sites are well-placed, in terms of proximity, to serve the densely populated valleys of the South Wales coalfield, with most of those areas being within 20 to 30km of the quarries. However, the location of the quarries within areas of low environmental capacity and wholly or partly within the National Park places major constraints on any future expansion. In the case of Vaynor Quarry, the adjoining resources outside the National Park are partially sterilised by other development and could not be developed as an extension of the existing quarry.

Figure B8: Aggregate Resources and Quarries in the Cardiff City Sub-Region



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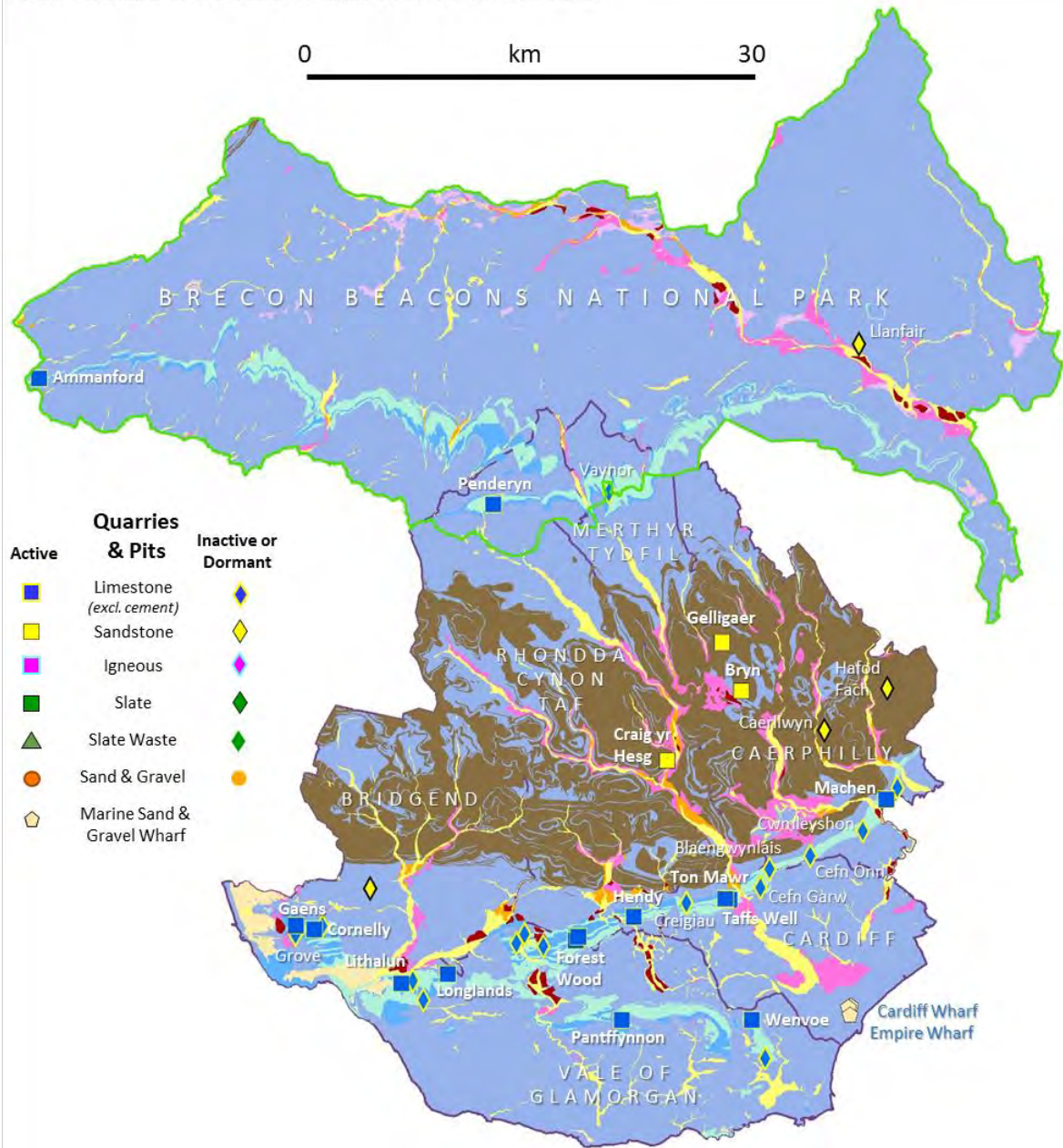
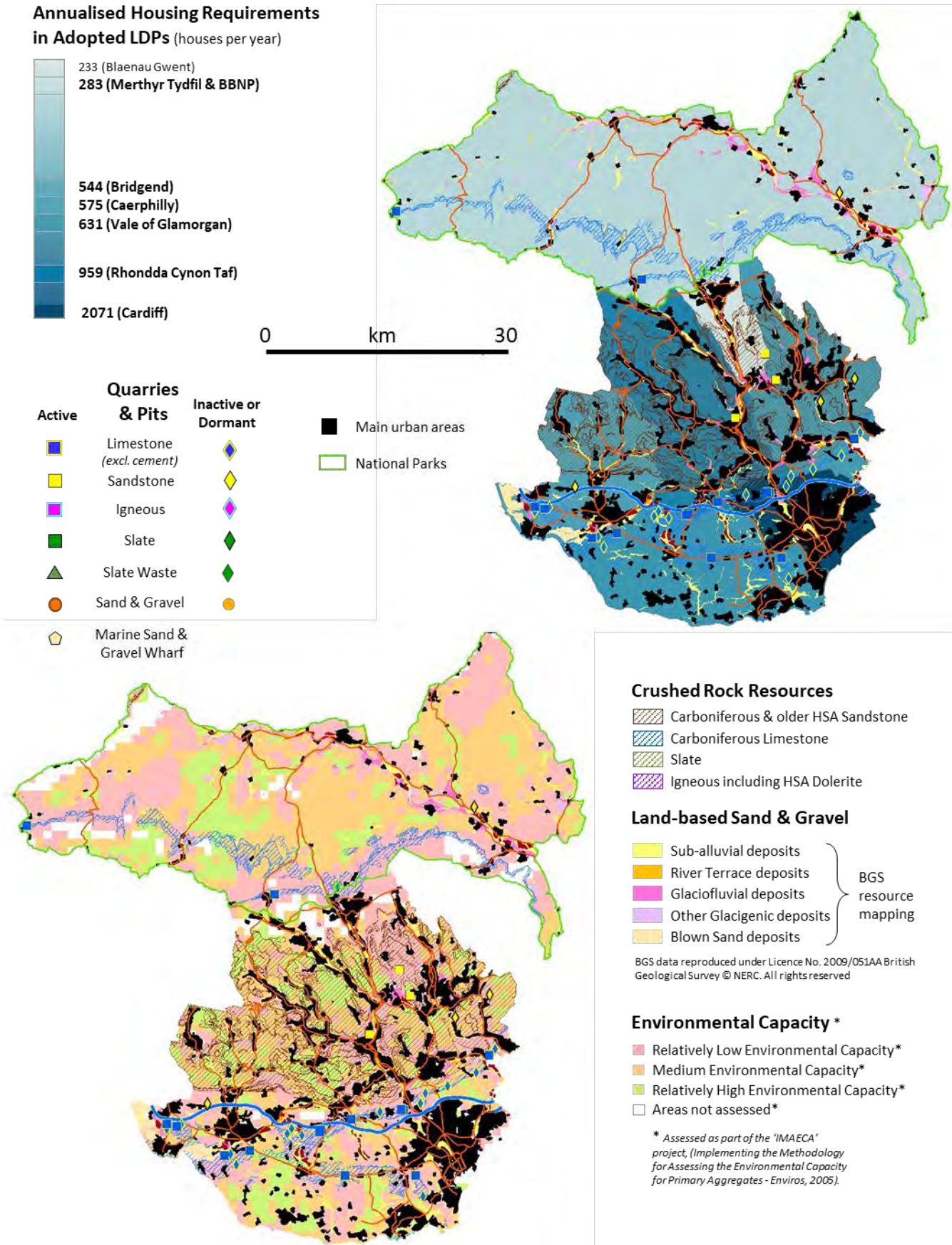


Figure B9: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the Cardiff City Sub-Region

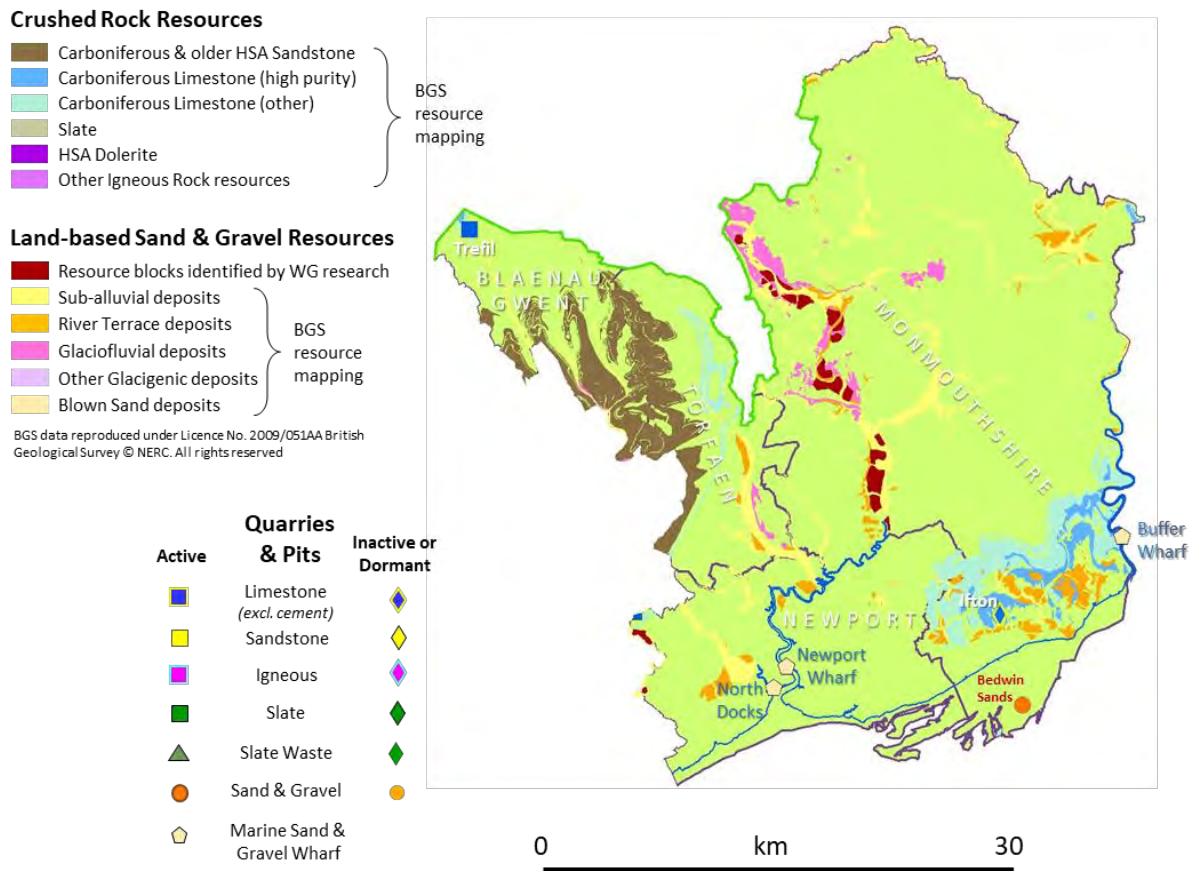


- B63. The second, and most important area of Carboniferous Limestone resource in the Cardiff City sub-region is that within the 'south crop', extending from Bridgend in the west, through the Vale of Glamorgan and Cardiff to Caerphilly in the east. No less than ten active limestone aggregate quarries are located in this area, although one of these (Cornelly) supplies industrial limestone, to the steelworks at Port Talbot, as well as aggregates. Most of these units are located close to the M4 motorway and, together, they are well-placed to supply most of the Cardiff city sub-region as well as the markets in Port Talbot to the west and Newport and Torfaen, to the east.
- B64. Almost all of the south crop resources fall within areas of relatively low environmental capacity (though these are less constrained than those within the National Park). Areas with higher capacity appear to be those in the southernmost part of Caerphilly, in the east, and around Cowbridge in the Vale of Glamorgan, further west. Either of those areas could potentially offer prospects for future resource development, though extensions to existing quarries within the area would be less disruptive and more likely to be preferred.
- B65. As noted above, there is currently no land-based sand & gravel extraction within the Cardiff City sub-region (or indeed within the whole of SE Wales), and this has generally been the case for decades. This is due in part to the ready availability of marine dredged sand from both the Severn Estuary and the Bristol Channel, but also reflects the environmental sensitivity of many of the inland areas which might contain potentially suitable resources. The situation is compounded by the lack of detailed knowledge of those resources (not least because there has been virtually no history of extraction). Reconnaissance-level surveys commissioned by the Welsh Assembly (Thompson *et al*, 2000, 2002) identified a series of potential resource blocks, which are shown by the deep red shading on the maps. Most of those in the Cardiff sub-region are located within the Brecon Beacons National Park, but others are located close to and south of the M4 motorway in the southern part of the area. Most of these fall within areas which have since been assessed as being of relatively low environmental capacity, though some of them, at least, may justify further investigation.

Former Gwent Sub-Region

- B66. Figures B10 and B11, below, illustrate the distribution of land-based aggregate resources, quarries and marine aggregate wharves within the former-Gwent sub-region (i.e. Blaenau Gwent, Torfaen, Newport and Monmouthshire).
- B67. As in the Cardiff sub-region directly to the west, the crushed rock resources in this area fall into two, very clearly distinguished categories:
- **Carboniferous HSA sandstone** resources within the eastern edge of the coalfield, in Blaenau Gwent and Torfaen. Like those in both Cardiff and Swansea sub-regions to the west, these provide sources of premium, skid-resistant road surfacing aggregates though, in this area, they have yet to be exploited as such; and
 - **Carboniferous Limestone** resources, which crop out in a very limited area in the north of Blaenau Gwent (where they are currently worked at Trefil Quarry); along a narrow, hitherto unworked outcrop at the eastern edge of the coalfield in Torfaen, largely sterilised by existing development; and over a much larger area in southern Monmouthshire (including the currently inactive Ifton Quarry). The latter outcrop extends into the eastern edge of Newport and was formerly worked at Penhow Quarry.
- B68. **Land-based sand & gravel resources** have also been identified within the area, primarily as glacio-fluvial, river terrace and sub-alluvial gravels within the Usk Valley, but also as terrace and sub-alluvial gravels elsewhere. As with the resources in both Cardiff and Swansea sub-regions, none of the deposits are currently worked. Marine-dredged sand is, instead, obtained from licences within the Bristol Channel and the Severn Estuary, and from a planning permission (above the low water mark) on the Bedwin Sands. These are landed at Newport Wharf and North Docks, within the Usk estuary, and at Buffer Wharfe on the Wye estuary.

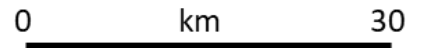
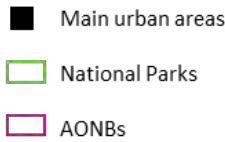
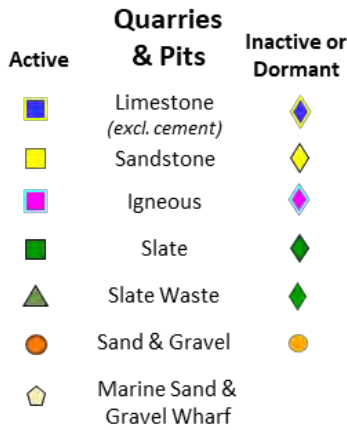
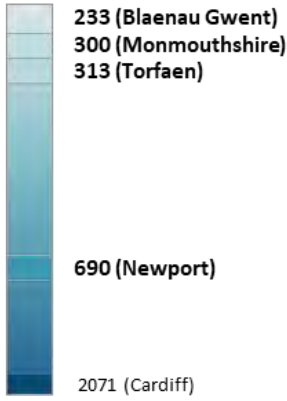
Figure B10: Aggregate Resources and Quarries in the Former Gwent Sub-Region



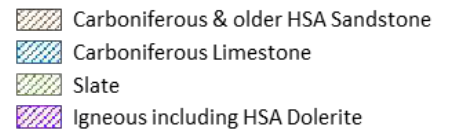
- B69. The Carboniferous Limestone resources provide essential, general-purpose construction aggregates. Those around Trefil Quarry in the north are recognised as a Preferred Area for future extraction in the Blaenau Gwent LDP, but are also constrained by being at the western edge of a subsequently-designated geological SSSI. They are located within an area of relatively low environmental capacity and are directly adjacent to the southern boundary of the Brecon Beacons National Park. Trefil is important, however, in providing the only source of active limestone production in the whole of this sub-region and the most proximal source of construction aggregates for the eastern coalfield valleys. It is also the only location within the whole of the north crop limestone resources in South Wales where an existing permission could be extended without encroaching into the National Park itself.
- B70. A far more extensive outcrop of Carboniferous Limestone resources occurs within southern Monmouthshire, though the eastern part of this outcrop falls within the Wye Valley Area of Outstanding Natural Beauty. There are currently no active quarries in the whole of this area but there is one inactive quarry at Ifton which has significant unworked permitted reserves. Beyond that site, virtually all of the unworked resources fall within areas of low environmental capacity. Pressure for future quarry development here appears to be offset, at present, by the availability of supplies from Machen quarry in Caerphilly, to the west, and from other quarries within the neighbouring Forest of Dean, in England, to the east.
- B71. Although Newport and Torfaen do have Carboniferous Limestone resources, the outcrop in those areas is very thin and much of it is sterilised by existing built development. Most of the available resources there are also within areas of relatively low environmental capacity, though that applies equally to most (but not all) of the south crop limestone resources.

Figure B11: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the Former Gwent Sub-Region

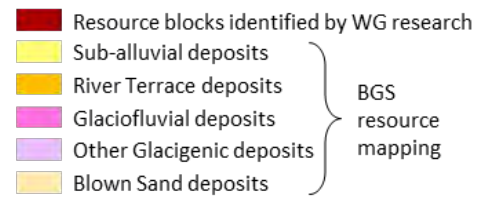
Annualised Housing Requirements in Adopted LDPs (houses per year)



Crushed Rock Resources

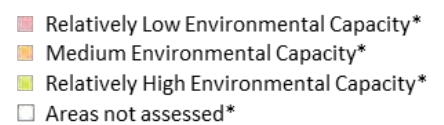


Land-based Sand & Gravel

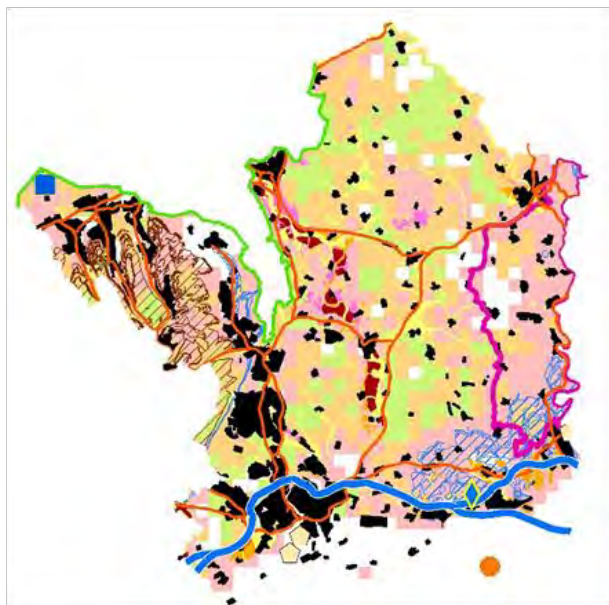


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Environmental Capacity *



* Assessed as part of the 'IMAECA' project, (Implementing the Methodology for Assessing the Environmental Capacity for Primary Aggregates - Enviro, 2005).



- B72. Pennant Sandstone resources are widespread within Blaenau Gwent, and along the high ground at the western edge of Torfaen. Some of the outcrop coincides with areas of relatively high or moderate environmental capacity and one such area, to the south of Cwm, in Blaenau Gwent, has been allocated in the LDP as a Preferred Area for future sandstone extraction. A further area, straddling the Blaenau Gwent /Torfaen border at Tir-Pentwys, further south, is an area of former opencast coal extraction where the remaining spoil had been identified as Preferred Areas for future working of secondary aggregate⁵ in both LDPs. However, as noted earlier, an application for sandstone extraction (on the Torfaen side) was dismissed on Appeal, effectively sterilising the resources within both of those areas.
- B73. As noted earlier, there is currently no land-based sand & gravel extraction in the whole of SE Wales, including the Former Gwent sub-region. The extraction which takes place on the Bedwin Sands within the Severn Estuary, though technically a land-based planning permission rather than a marine dredging licence, has traditionally been grouped with other landings of marine sand & gravel.
- B74. The reconnaissance-level surveys commissioned by the Welsh Assembly (Thompson et al., 2000; 2002) identified several potential resource blocks within the lower Usk Valley (shown by the deep red shading on Figure B10 and B11). Again, these fall almost entirely within areas which have since been assessed as being of low environmental capacity, though it is understood that some of the areas have recently been subject to more detailed, and promising, commercial investigations. It remains to be seen whether or not any proposals for developing these resources will be brought forward.

Summary of Current Sources of Supply in South Wales

- B75. Tables B3 to B5, below, list the currently active, inactive and dormant aggregate quarries (respectively) in each of the sub-regions of South Wales, updated to August 2018. The lists exclude quarries devoted to the manufacture of cement, building stone, silica sand, shale or other non-aggregate products, although they include two quarries which supply both aggregates and industrial limestone.

Table B3: Active Aggregate Quarries in South Wales (2018)

Quarry Name	Operator	Commodity	Easting	Northing
CEREDIGION				
Alltgoch / Bryn	G D Harries & Sons Ltd	Sandstone	249100	248500
Crug-yr-Eryr	R Powell	Sand & Gravel	242075	250310
Glanrafon Gravel Pit	CB Environmental Ltd	Sand & Gravel	260635	280300
Pant	Teifi Sand & Gravel	Sand & Gravel	265825	256575
Penparc	Cardigan Sand & Gravel Co.	Sand & Gravel	220000	248260
Ystrad Meurig (HSA)	Hanson Aggregates	Sandstone	271810	269570
PEMBROKESHIRE				
Blaencilgoed / Gellihalog	G D Harries & Sons Ltd	Limestone	215800	210700
Bolton Hill	G D Harries & Sons Ltd	Igneous	191800	211400
Cefn	Dyffrig Davies	Slate	220500	242900
Glogue	Mansel Davies & Son Ltd	Slate	221900	232840
PEMBROKESHIRE COAST NATIONAL PARK				
Carew	T Scourfield & Sons	Limestone	204900	204300
Pantgwyn	Cware Pantgwyn Quarry Ltd	Sand & Gravel	212400	242820
Rhyndaston	Mason Brothers	Igneous	189250	223625
Trefigin	Cware Trefigin Quarries Ltd	Sand & Gravel	214000	243900
CARMARTHENSHIRE				
Allt-y-garn	Alan Griffiths (Contractors)	Silica Sandstone	258676	215794
Blaen-y-Fan	Gower Plant Hire	Limestone	245640	211520

⁵ The RTS requirements for primary aggregate extraction are based on the assumption that secondary and recycled aggregates will continue to contribute to the overall aggregate requirements, as they have done in the past. Secondary aggregate production cannot therefore be utilised to offset the RTS requirements for primary aggregates.

REGIONAL TECHNICAL STATEMENT: FIRST REVIEW - APPENDIX B (SOUTH WALES)

Coygen	GD Harries & Sons Ltd	Limestone	228430	209210
Crwbin	Tarmac	Limestone	247805	213360
Garnbica (Maesdulais)	Gower Plant Hire	Limestone	251720	214610
Garn Wen	G D Harries & Sons Ltd	Igneous	216740	228680
Foelfach	Sigma Rock	Sandstone	239368	225753
Llwynjack	C J Lewis	Sand & Gravel	275400	233100
Pennant	T. Richard Jones Ltd.	Sandstone	248225	206950
Torcoed	Tarmac	Limestone	249000	213870
NEATH PORT TALBOT				
Cwm Nant Lleici (HSA)	Aggregate Industries UK	Sandstone	273175	207080
Gilfach (HSA)	CEMEX UK	Sandstone	275370	199880
POWYS				
Builth Wells (HSA)	Hanson Aggregates	Igneous	305105	252125
Criggion (HSA)	Hanson Aggregates	Igneous	328900	314400
Dolyhir (HSA)	Tarmac	Sandstone	324300	258425
Gore (HSA)	Tarmac	Sandstone	325700	259250
Middletown	Border Hardcore & Rockery	Igneous	329880	312850
Strinds	Tarmac	Limestone	324110	257855
Strinds (HSA)	Tarmac	Sandstone	324110	257855
Tan-y-Foel (HSA)	Breedon / H V Bowen	Sandstone	301240	301460
Tredomen	Powys Stone Supplies	Sandstone	311820	230400
BRECON BEACONS NATIONAL PARK				
Ammanford	Messrs Griffiths & Williams	Limestone	264910	217640
Penderyn	Hanson Aggregates	Limestone	295500	209000
MERTHYR TYDFIL				
Gelligaer (HSA)	Hanson Aggregates	Sandstone	311550	199600
BRIDGEND				
Cornelly	Tarmac	Limestone	283625	180160
Gaen's	T S Rees Ltd	Limestone	282380	180430
RHONDDA CYNON TAF				
Craig-yr-Hesg (HSA)	Hanson Aggregates	Sandstone	307917	191726
Forest Wood	Hanson Aggregates	Limestone	301600	179650
Hendy	Tarmac	Limestone	305340	181095
VALE OF GLAMORGAN				
Forest Wood extension	Hanson Aggregates	Limestone	301425	179400
Lithalun	Hanson Aggregates	Limestone	289560	176500
Longlands	Green Circle Aggregates Ltd	Limestone	292770	177220
Pantyyffynnon Quarry	Seth Hill & Son Ltd	Limestone	304565	174000
Wenvoe	CEMEX UK	Limestone	313410	174000
CAERPHILLY				
Bryn (HSA)	Bryn Aggregates Ltd	Sandstone	312600	196400
Machen	Hanson Aggregates	Limestone	322555	189000
CARDIFF				
Taff's Well	CEMEX UK	Limestone	312200	182200
Ton Mawr	T S Rees Ltd	Limestone	311560	182350
BLAENAU GWENT				
Trefil	Gryphon Quarries Ltd	Limestone	311975	213690

Table B4: Inactive Aggregate Quarries in South Wales (2018)

Quarry Name	Operator	Commodity	Easting	Northing
CEREDIGION				
Tylau	W J Evans	Sandstone	258380	260590
PEMBROKESHIRE				
Cronllwyn	Cronllwyn Quarry	Slate Waste	198550	235195
PEMBROKESHIRE COAST NATIONAL PARK				
Bottom Meadow	E Morgan	Limestone	203750	205870
Syke	G D Harries & Sons Ltd	Sandstone	187120	210915
CARMARTHENSHIRE				
Cilyrychen	Tarmac	Limestone	225900	221500
Coed Moelion	Mr N. Richards	Sandstone	250800	212400
Dinas (HSA)	Tarmac	Sandstone	262740	235530
SWANSEA				
Barland	Cuddy Group	Limestone	257540	189530
NEATH PORT TALBOT				
Margam Sand Pit	Associated British Ports	Sand	275500	188500
POWYS				
Rhayader (HSA)	Tarmac	Sandstone	297395	265875
BRECON BEACONS NATIONAL PARK				
Vaynor (part)	Hanson Aggregates	Limestone	303600	209900
MERTHYR TYDFIL				
Vaynor (part)	Hanson Aggregates	Limestone	303600	209900
BRIDGEND				
Cefn Cribbwr	T S Rees Ltd	Sandstone	287400	182800
Grove	Tarmac	Limestone	282249	179871
VALE OF GLAMORGAN				
Ewenny	Tarmac	Limestone	290250	176805
Garwa	Tarmac	Limestone	297940	179840
CAERPHILLY				
Blaengwynlais (part)	Tarmac	Limestone	314610	184265
Cwmleyshon	Hanson Aggregates	Limestone	321000	186930
Hafod Fach (HSA)	Tarmac	Sandstone	322580	196500
CARDIFF				
Blaengwynlais (part)	Tarmac	Limestone	314610	184265
Cefn Garw	Mr E Bassett	Limestone	314000	183000
Creigiau	Tarmac	Limestone	309000	181975
MONMOUTHSHIRE				
Ifton	Hanson Aggregates	Limestone	346400	188770

Table B5: Dormant (or Suspended) Aggregate Quarries in South Wales (2018)

Quarry Name	Operator	Commodity	Easting	Northing
PEMBROKESHIRE				
Treffgarne	Sealyham Activity Centre	Igneous	195875	223965
PEMBROKESHIRE COAST NATIONAL PARK				
Penberry	Hendre Eynon Farm Ltd.	Igneous	176940	229220
CARMARTHENSHIRE				
Cynghordy	Mr D Roderick	Sandstone	279400	240300
Glantowy	Mr A Lewis	Sand & Gravel	274745	232375
Limestone Hill	Dan Williams	Limestone	246670	212600
Llwyn-y-Fran	Hobbs Holdings Ltd	Limestone	257690	216032
Pen-y-banc	Mrs Antonia Jones-Davies	Limestone	247035	212960
Pwll-y-March	Gower Plant	Limestone	259475	216380
POWYS				
Caerfagu (suspended)	Caerfagu Products	Sand & Gravel	304400	265350
Garreg	Hanson Aggregates	Igneous	328760	311935
BRECON BEACONS NATIONAL PARK				
Llanfair	Glanusk Estate	Sandstone	320705	219975
BRIDGEND				
Stormy Down	Hobbs Holdings Ltd	Limestone	284185	180380
VALE OF GLAMORGAN				
Argoed Isha	T Pritchard & J Rosser	Limestone	299250	179050
Cnap Twt	Duchy of Lancaster	Limestone	291055	175350
Ruthin	Tarmac	Limestone	297390	179220
St Andrews	Mr T J Bowles	Limestone	314350	171340
CAERPHILLY				
Caerllwyn	Mr & Mrs Thomas	Sandstone	318350	193700
Cefn Onn	Trustees of W. Lewis Estate	Limestone	317400	185200
Ochr Chwith	Hanson Aggregates	Limestone	323325	189810

- B76. Whilst any of the sites listed in these tables may be able to contribute to future supply (subject to the dormant sites obtaining new development consents through the ROMP process⁶), it is only the active and remaining inactive sites which contributed to the reserves figures presented in Table 5.5 and 5.7 of the main document. Reserves at dormant sites are noted separately in those tables. The active sites and some of the currently inactive ones, together with a small number of other sites which have since closed, contributed to the historical sales over the baseline period (2007 to 2016).
- B77. Full lists of active, inactive and dormant sites for individual years prior to 2018 are given in the relevant annual RAWP reports.

Apportionments, Allocations and Guidance to LPAs in South Wales

- B78. Tables B6 and B7, below, summarise the apportionments, permitted reserves and allocations for land-won sand & gravel and for crushed rock (respectively) which have been assigned to each Local Planning Authority in South Wales.
- B79. The pages which follow set out in more detail the recommendations and guidance for each individual LPA in South Wales, drawing upon the figures set out in these tables. The LPAs are dealt with in alphabetical order. In each case, reference to the 'Plan period' relates to the end date of the Local Development Plan which has been adopted or is nearing completion (whichever is later) for that particular planning authority.

⁶ ROMP is the acronym for the Review of Old Mineral Permissions, under the Environment Act 1995. Further details are given in the Glossary at the end of the Main Document.

Table B6: Apportionments, Reserves and Allocations for Sand & Gravel in South Wales

Local Planning Authority	New Annualised Apportionment for sand & gravel (mt)	Total Apportionment Required over 22 years	Existing permitted reserves at end of 2016 in mt	Minimum Allocation needed to meet Required Provision (mt)	Additional reserves at Dormant sites, 2016 (mt)
Ceredigion	0.188	4.136	0.510	3.626	0
Pembrokeshire	0.000	0.000	0.000	0.000	0
Pembrokeshire Coast NP	0.118	2.600	2.600	0.000	0
Carmarthenshire	0.003	0.058	0.100	See note 1	0.35
Swansea	0.000	0.000	0.000	0.000	0
Neath Port Talbot	0.000	0.000	0.000	0.000	0
Powys	0.000	0.000	0.000	0.000	0
Brecon Beacons NP	0.000	0.000	0.000	0.000	0
Merthyr Tydfil	0.000	0.000	0.000	0.000	0
Bridgend	0.000	0.000	0.000	0.000	0
Rhondda Cynon Taf	0.000	0.000	0.000	0.000	0
Vale of Glamorgan	0.000	0.000	0.000	0.000	0
Caerphilly	0.000	0.000	0.000	0.000	0
Cardiff	0.000	0.000	0.000	0.000	0
Blaenau Gwent	0.000	0.000	0.000	0.000	0
Monmouthshire	0.000	0.000	0.000	0.000	0
Newport	0.000	0.000	0.000	0.000	0
Torfaen	0.000	0.000	0.000	0.000	0
Sub-totals, South Wales	0.309	6.795	3.21	3.626	0.35
TOTALS Wales	1.353	29.758	18.406	11.394	0.85

SOURCE: Table 5.5 of the main document

1. There is no specific allocation for Carmarthenshire but, subject to collaborative agreement with the LPAs in West Wales, the sand & gravel allocations needed for Ceredigion could potentially be provided, in part, from neighbouring parts of Carmarthenshire, despite being in a different sub-region.

Where allocation requirements are shown these are the minimum amounts required to meet the RTS requirements. In many cases an application for an individual new permission will exceed these amounts, in the interests of economic viability. Such applications should not be rejected purely on the grounds of exceeding the minimum requirements shown here. In some cases, the suggested allocations may already have been partially or entirely fulfilled, either by new permissions granted since 2016, or by allocations that have already been identified in LDPs. See following text for details

Table B7: Apportionments, Reserves and Allocations for Crushed Rock in South Wales

Local Planning Authority	New Annualised Apportionment for crushed rock (mt)	Total Apportionment Required over 25 years.	Existing permitted reserves at end of 2016 in mt	Minimum Allocation needed to meet Required Provision (mt)	Additional reserves at Dormant sites, 2016 (mt)
Ceredigion	0.272	6.798	5.370	1.428	0
Pembrokeshire	0.677	16.932	16.720	0.212	0
Pembrokeshire Coast NP	0.259	6.470	10.370	0.000	0
Carmarthenshire	1.102	27.556	59.900	0.000	13.82
Swansea	0.305	7.636	0.000	7.636	0
Neath Port Talbot	0.305	7.636	16.480	0.000	0
Powys	3.519	87.981	139.240	0.000	0
Brecon Beacons NP	0.368	9.200	120.100	0.000	0.36
Merthyr Tydfil	0.199	4.975			
Bridgend	0.699	17.471	27.270	0.000	0.15
Rhondda Cynon Taf	0.753	18.816	9.830	8.986	0
Vale of Glamorgan	0.672	16.806	18.730	0.000	13
Caerphilly	0.535	13.371	31.280	0.000	5.21
Cardiff	1.383	34.578	27.800	6.778	0
Blaenau Gwent	0.201	5.027	1.320	3.707	0
Monmouthshire	0.235	5.866	11.250	0.000	0
Newport	0.434	10.854	0.000	10.854	0
Torfaen	0.258	6.441	0.000	6.441	0
Sub-totals, South Wales	12.177	304.415	495.66	46.043	32.54
TOTALS Wales	18.871	471.781	670.850	81.971	34.20

SOURCE: Table 5.7 of the main document

Where allocation requirements are shown these are the minimum amounts required to meet the RTS requirements. In many cases an application for an individual new permission will exceed these amounts, in the interests of economic viability. Such applications should not be rejected purely on the grounds of exceeding the minimum requirements shown here. In some cases, the suggested allocations may already have been partially or entirely fulfilled, either by new permissions granted since 2016, or by allocations that have already been identified in LDPs. See following text for details.

- B80. As explained more fully in the main document, the figures for each authority are based on the assumptions that future aggregate requirements will increase in future years to reflect the increased planned requirements for house construction, and that supplies of alternative aggregates, from marine, secondary and recycled sources, will continue to be maintained in proportions comparable to those experienced during the baseline period (2007 to 2016).
- B81. The validity of these assumptions will continue to need to be monitored by the planning authority, using information from various data sources and new surveys (e.g. by Welsh Government, NRW, and the Mineral Products Association) and that data will be used to inform a revision of the apportionment requirements, if this is needed, as part of the next review of the RTS.
- B82. It should be emphasised that the annualised apportionment figures are given only as a guide to the calculation of the total apportionment required over the duration of the LDP. In practice, sales

will vary from year to year and there is no requirement for an LPA to maintain or limit those sales in line with the annualised apportionments.

- B83. The need for provision to extend beyond the Plan period is based on the requirement in MTAN1 for maintaining landbanks of 7 years for sand & gravel and 10 years for crushed rock, throughout the full duration of the LDP. Subject to this requirement being met, the overall provision at any given time may comprise both landbanks of permitted reserves and allocations for future working, where these are required.
- B84. In all cases, the recommendations are based on currently available information regarding reserves, production, proximity and environmental capacity. As noted in 'Box 1' of the original RTS documents, the suggested apportionments and allocations may not take fully into account all factors that may be material to the ensuring an adequate supply of aggregates obtained from appropriately located sources. Such factors may include such things as:
- The technical capability of one type of aggregate to interchange for another;
 - The relative environmental cost of substitution of one type of aggregate by another;
 - The relative environmental effects of changing patterns of supply; and
 - Whether adequate production capacity can be maintained to meet the required level of supply.
- B85. For such reasons, and as already noted in Chapter 1 of the main document, *in exceptional circumstances*, and where it is justified by new (e.g. more up to date, more detailed or more precise) evidence, it is open for individual LPAs to depart from the apportionment and allocation figures recommended by the RTS when preparing their LDP policies. In doing so, however, an LPA would need to demonstrate that their intended departure would not undermine the overall strategy provided by the RTS itself (e.g. by working together with other LPAs within the same sub-region to ensure that sub-regional and regional totals are still achieved) and this would need to be reflected in the Statement of Sub-Regional Collaboration (SSRC) agreed with all other constituent LPAs within that sub-region, prior to Examination. Any shared arrangements that may be agreed between individual LPAs would need to offer advantages, in terms of the proximity principle, environmental capacity and other sustainable criteria, compared with the basic RTS recommendations. Guidelines relating to the preparation of SSRCs, including details of the circumstances under which departures from RTS recommendations may be made, are provided at Annex A of the Main Document.
- B86. As noted in MTAN 1, paragraph A3: If the local authorities reach no agreement or if individual local authorities do not accept the Regional Technical Statement, the Welsh Assembly Government will consider its default powers to intervene in the planning process as a last resort.

BLAENAU GWENT

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.201 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Blaenau Gwent, as calculated in Tables 5.5 and 5.7 of the main document, are zero for land-won sand & gravel and 5.027 million tonnes for crushed rock, over 25 years. These compare with existing landbanks of zero for sand & gravel and 1.32 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In order to address the resulting crushed rock shortfall, new allocations totalling at least 3.707 million tonnes will need to be identified within the LDP. The main requirement (as in both previous editions of the RTS) is to supplement the existing reserves of Carboniferous Limestone. A Preferred Area for this has already been identified within the adopted LDP but, as the landbank is substantially less than the minimum requirement of 10 years, there is now an urgent requirement for new permitted reserves.

The area also has substantial resources of HSA sandstone which, though not urgently required, would be beneficial in terms of helping to shift the overall pattern of sandstone production further east, towards the principal markets in England. Again, a preferred area for this has been identified within the LDP, along with part of the former opencast site at Tir-Pentwys, where the spoil tips are identified in the LDP as a preferred area for secondary aggregate production. Working of those resources, however, would be dependent on access through the Torfaen part of the site, where a recent application has been dismissed on appeal, effectively rendering the resources unworkable unless and until an alternative means of access is agreed.

Consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any further requirements for resource allocations.

In view of the fact that the neighbouring authorities of Torfaen and Newport may have difficulty in meeting their own new apportionments, given the limited resources in those areas, Blaenau Gwent may *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, need to work in collaboration with those authorities, and with Monmouthshire, in order meet the combined requirements for the Former Gwent sub-region as a whole. Where different apportionments are agreed, these will need to be set out in a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Use of alternative aggregates

In the absence of any significant known land-based sand & gravel resources, Blaenau Gwent relies upon supplies of marine-dredged sand, imported via three wharves in Newport.

Secondary aggregates in the form of overburden material from former opencast coal workings have been identified as a Preferred Area at Tir Pentwys, straddling the border with neighbouring Torfaen. The exploitation of the material within Blaenau Gwent, however, is dependent on access through the Torfaen part of the site.

There is, however, likely to be continued recycled aggregate production within the area from construction, demolition and excavation wastes.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

BRIDGEND

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.699 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

These figures exclude the provision of limestone for non-aggregate use (primarily for use in the steel industry within neighbouring Neath Port Talbot), for which separate consideration will need to be given in the LDP.

Comparison with existing landbanks

The total apportionments for Bridgend, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 17.471 million tonnes for crushed rock, over 25 years. These compare with existing landbanks (excluding dormant sites) of zero for sand & gravel and 27.27 million tonnes for crushed rock (as at 31st December 2016). These figures exclude limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plan

In view of the surplus of existing permitted reserves for crushed rock, and the lack of sand & gravel production, no further allocations for future working are required to be identified within the LDP. However, consideration should be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Consideration is also needed regarding the extent to which some of the surplus of Carboniferous Limestone reserves in Bridgend might, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, be needed to accommodate any increase in apportionment, to compensate for shortages of supply of such aggregate in neighbouring LPAs. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Treatment of Dormant sites

One dormant limestone quarry exists within Bridgend, as detailed in Table B5, above. The planning authority should assess the likelihood of this quarry being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. If there is a likelihood of reactivation, and if the quarry is considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, it may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

Bridgend is currently reliant, for supplies of sand, on marine-dredged material imported via wharves in neighbouring Neath Port Talbot (and perhaps Cardiff). This is despite the existence of limited potential land-based resources within its area, as indicated on BGS resource maps

and in reconnaissance-level mapping carried out for the Welsh Government by Symonds Group Ltd. in 2000.

There are no secondary aggregate sources of any significance within Bridgend, although steel/blast furnace slag may be delivered by road from Neath-Port Talbot.

In addition, construction, demolition and excavation wastes are generated and recycled at a number of points within the area.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

CAERPHILLY

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.535 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Caerphilly, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 13.371 million tonnes for crushed rock, over 25 years. These compare with existing landbanks (excluding dormant sites) of zero for sand & gravel and 31.28 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In view of the surplus of existing permitted reserves for crushed rock, and the lack of sand & gravel production, no further allocations for future working are required to be identified within the LDP. However, consideration should be given to whether any of the other factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Consideration is also needed regarding the extent to which some of the surplus of crushed rock reserves in Caerphilly might, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, be needed to accommodate any increase in apportionment to compensate for shortages of Carboniferous Limestone supply in neighbouring LPAs. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Treatment of Dormant sites

A total of three dormant quarries exist within Caerphilly, as detailed in Table B5, above. The planning authority should assess the likelihood of each of these sites being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and where the site(s) in question are considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, they may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

In the absence of any current land-based sand & gravel pits within Caerphilly or adjoining areas (despite the existence of potential land-based resources, as indicated on BGS resource maps), supplies of sand from marine-dredged sources are imported via the wharves in Newport and/or Cardiff. All of Caerphilly lies within 30 to 40 km of those wharves.

Substantial quantities of colliery spoil are understood to exist above Bedwas, Machen, and Llanbradach, but these are generally remote from transport links and therefore difficult to

utilise effectively. Moreover, as noted in the original RTS, previous efforts to obtain planning permission for the removal of tips in Machen have been refused.

Recycled aggregates from construction, demolition and excavation wastes are likely to be available within most of the major towns within the borough.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

CARDIFF

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **1.383 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Cardiff, as calculated in Tables 5.5 and 5.7 of the main document, are zero for land-won sand & gravel and 34.578 million tonnes for crushed rock, over 25 years. These compare with existing landbanks of zero for sand & gravel and 27.8 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In order to address the resulting crushed rock shortfall, new allocations totalling at least 6.778 million tonnes will need to be identified within the LDP. The requirement in this area is for Carboniferous Limestone. Consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

In the event that allocations (or new permissions) cannot be made to address the shortfall, and *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, consideration may need to be given to collaborative working with neighbouring LPAs within the same sub-region, such that some of the required provision (apportionment) is effectively transferred. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Use of alternative aggregates

Cardiff is reliant for its sand on marine-dredged aggregates from the Bristol Channel, imported via two wharves within Cardiff docks. Although potential land-based resources are indicated within its area, on BGS resource maps, most of these are sterilised by existing built development.

Some secondary aggregates are available, including steel slag from the electric arc furnace steelworks in Cardiff, but most arisings are fully utilised as they are produced, with relatively small stockpiles.

Construction, demolition and excavation wastes suitable for recycling as aggregate materials are likely to be extensive, amounting to a considerable proportion of the regional total.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

CARMARTHENSHIRE

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: **0.003 million tonnes per year** until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: **1.102 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Carmarthenshire, as calculated in Tables 5.5 and 5.7 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are 0.058 million tonnes for land-won sand & gravel and 27.556 million tonnes for crushed rock. These figures compare with existing landbanks (excluding dormant sites) of 0.1 million tonnes for sand & gravel and 59.9 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In view of the slight surplus of existing permitted reserves of sand & gravel within Carmarthenshire, no allocations are specifically required to be identified in the LDP. However, some of the resources in Carmarthenshire lie in close proximity to the neighbouring authorities of Ceredigion, Pembrokeshire and the Pembrokeshire Coast National Park, where there is a need to find new sources of sand & gravel outside the National Park. Consideration is therefore also needed regarding the extent to which, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, there may be a need to identify allocations to assist with the future provision of sand & gravel to those areas. This would necessitate a transfer of apportionments (for sand & gravel) between the authorities (but would not apply to the apportionment for crushed rock). If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

In view of the substantial surplus of existing crushed rock reserves, no crushed rock allocations are required to be made in the LDP. However, consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Treatment of Dormant sites

A total of six dormant quarries exist within Carmarthenshire, as detailed in Table B5, above. The planning authority should assess the likelihood of each of these sites being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and where the site(s) in question are considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, they may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

Carmarthenshire is currently reliant upon supplies of sand from marine-dredged sources in the outer Bristol Channel, imported via Burry Port. This is despite the existence of potential land-based resources within its area, as indicated on BGS resource maps.

There are no known sources of secondary aggregates within the County.

Recycled aggregates are likely to be minimal over most of the County, and widely dispersed, although greater concentrations are likely to arise in the south east of the county, coincident with the redevelopment of former industrial areas.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

CEREDIGION

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: **0.188 million tonnes per year** until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: **0.272 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Ceredigion, as calculated in Tables 5.5 and 5.7 of the main document, over the 22-year horizon required for sand & gravel, and the 25-year timescale required for crushed rock, are 4.136 million tonnes for land-won sand & gravel and 6.798 million tonnes for crushed rock. These figures compare with existing landbanks of 0.51 million tonnes for sand & gravel and 5.37 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

To address the sand & gravel shortfall, sand & gravel allocations totalling at least 3.626 million tonnes will need to be identified within the LDPs of this and/or neighbouring authorities of Pembrokeshire and Carmarthenshire. Existing specific site allocations of 1.8mt at Penparc and approximately 0.15mt at Pant Quarry can be deducted from this total, leaving a requirement of at least 1.676 million tonnes still to be identified.

Additional crushed rock allocations totalling at least 1.428 million tonnes will also need to be made. Consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

In practice, given the close proximity of Ceredigion to the neighbouring authorities of Pembrokeshire and the Pembrokeshire Coast National Park, where there is a need to find new sources of sand & gravel outside the National Park, Ceredigion should continue to work in collaboration with those authorities and, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, may also need to collaborate with neighbouring Carmarthenshire. If necessary, Ceredigion may need to increase its share of the combined sub-regional apportionment for sand & gravel, compared with the figures given above. This does not apply to the apportionment for crushed rock. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any new allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

As noted in the main document, it may be better (in terms of deliverability) to rely on specific sites in neighbouring authorities (additional to the LPAs' own requirements), where these have been agreed through collaborative working, in preference to relying upon highly uncertain Areas of Search.

Use of alternative aggregates

As noted in the original RTS, Ceredigion is beyond the notional haulage limit for marine-dredged aggregate from the Bristol Channel. Although there had been some indications that southern Cardigan Bay could provide marine sand and gravel in future years, there has been

no further development of this, not least because of the high costs of infrastructure associated with setting this up as a new source of supply.

There are no sources of secondary aggregate within the area and recycled aggregate sources are both minimal and widely dispersed.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

Ceredigion has no operational wharves but has a number of small working harbours. These, together with all existing railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

MERTHYR TYDFIL /BRECON BEACONS NATIONAL PARK**Apportionment for the future provision of land-won primary aggregates**

The two planning authorities are treated jointly in order to protect the commercial confidentiality of data for the small number of quarries involved, and because one of those quarries (Vaynor) straddles the boundary between the two authorities. Together, they are required to make future provision for land-won primary aggregates within their Local Development Plans on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: 0.199 million tonnes per year within Merthyr Tydfil and 0.368 million tonnes per year within the National Park until the end of the Plan period and for 10 years thereafter.

The figures exclude the provision of limestone for non-aggregate use, for which separate consideration may need to be given in the LDPs.

Comparison with existing landbanks

The total apportionments for Merthyr Tydfil and the Brecon Beacons National Park, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 14.175 million tonnes for crushed rock, over 25 years (made up of 4.975 million tonnes in Merthyr Tydfil and 9.2 million tonnes in the National Park). These compare with existing landbanks (excluding dormant sites) of zero for sand & gravel and more than 120 million tonnes for crushed rock (as at 31st December 2016). These figures exclude any limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plans

In view of the substantial surplus of existing permitted crushed rock reserves, and the lack of any sand & gravel extraction in either authority, no further allocations are required to be identified within either of the LDPs. However, consideration should be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations. If any adjustments are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A of the RTS Main Document, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Paragraph 49 of MTAN 1 notes that landbanks are not required to be maintained within National Parks. For this reason, no allocations should be identified within the Brecon Beacons National Park, unless there are no environmentally acceptable alternatives and efforts should be made to gradually transfer production which currently takes place within the National Park to neighbouring authorities. Given that this production relates only to limestone and that it serves markets which, if not within the National Park, are largely (if not exclusively) to the south and west (mostly within the Cardiff City sub-region), it is logical that limestone quarries and resources in those areas should be the main focus of any substitution which can be achieved. This has been the intention of the present Review of the RTS and is the reason why the apportionments for the National Park have been reduced.

Treatment of Dormant and Suspended sites

One dormant sandstone quarry exists within the Brecon Beacons National Park, as detailed in Table B5, above. The planning authority should assess the likelihood of this site being worked within the Plan period, subject to the completion of an initial review of planning conditions and

submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and if the site considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, the permitted reserves may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

Some imports of sand from marine-dredged sources, imported primarily via wharves in Cardiff to the south, are likely to be utilised in the absence of any current land-based sand & gravel extraction. This is despite the existence of potential land-based resources within both Merthyr and the National Park, as indicated on BGS resource maps and in reconnaissance-level mapping carried out for the Welsh Government by Symonds Group Ltd. in 2000.

As noted within the original RTS, no significant amounts of secondary aggregate are present within Merthyr Tydfil, but volumes of construction, demolition and excavation wastes are likely to be widely available in the main valley areas.

The residual requirements for primary land-won aggregates assume that these alternative materials will continue to be utilised and the authority should continue to encourage this.

Within the National Park, there are very few ongoing mineral workings of any kind and therefore only limited, if any, sources of secondary aggregate. Similarly, there are likely to be only limited quantities of recycled material from local construction and demolition projects. Nevertheless, the National Park Authority should continue to promote the use of these materials where they are available.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDPs of both authorities, in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within both LDPs, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

MONMOUTHSHIRE

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.235 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Monmouthshire, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 5.866 million tonnes for crushed rock, over 25 years. These compare with existing landbanks (excluding dormant sites) of zero for sand & gravel and 11.25 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In view of the surplus of existing permitted reserves for crushed rock, and the lack of sand & gravel production, no further allocations for future working are specifically required to be identified within the LDP. However, consideration should be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

In view of the fact that the neighbouring authorities of Torfaen and Newport may have difficulty in meeting their own new apportionments, given the limited resources in those areas, Monmouthshire may, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, need to work in collaboration with those authorities, and with Blaenau Gwent, in order to meet the combined requirements for the Former Gwent sub-region as a whole. As illustrated in Figure B11 above, Monmouthshire does have extensive unworked resources of Carboniferous Limestone, together with potential resources of sand & gravel along parts of the Usk Valley and elsewhere. Most of those resources, however, fall primarily within areas of relatively low environmental capacity and much of the limestone lies beneath the water table within a principal aquifer. Both of these factors would need to be taken into consideration.

Where different apportionments are agreed, these will need to be set out in a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Use of alternative aggregates

Marine sand from the Severn Estuary, including the Bedwin Sands, is landed at three wharves in neighbouring Newport. The whole of the county lies within a maximum radius 30 miles from one or more of these wharves and is reliant upon this material. This is despite the existence of extensive potential land-based resources, particularly within the Usk Valley, as indicated on BGS resource maps and in reconnaissance-level mapping carried out for the Welsh Government by Symonds Group Ltd. in 2000.

As noted in the original RTS, there are no significant sources of secondary aggregates in the area.

Recycled aggregates are likely to be available to a limited extent within some of the small rural towns but are these are widely dispersed within the predominantly rural area and are not thought likely to contribute significantly to the overall pattern of supply.

The residual requirements for primary land-won aggregates in Monmouthshire assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Limestone and land won sand and gravel is also imported by road from England. These imports are less desirable in terms of the proximity principle, but are beyond the control of the local planning authority.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

NEATH PORT TALBOT

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.305 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Neath Port Talbot, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 7.636 million tonnes for crushed rock, over 25 years. These compare with existing landbanks of zero for sand & gravel and 16.48 million tonnes for crushed rock (as at 31st December 2016). These figures exclude any limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plan

In view of the surplus of existing permitted crushed rock reserves, and the lack of sand & gravel production, no further allocations are required to be identified within the LDP. However, consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

It should be noted that the apportionment for Neath Port Talbot has been significantly reduced, compared with that given in previous RTS editions, with the deliberate intention of encouraging a more equitable pattern of supply, with future production of crushed rock being supplied from neighbouring Swansea as well as from NPT. In effect, part of Neath Port Talbot's apportionment (for HSA sandstone production) has been transferred to Swansea. In the event that new allocations (or permissions) cannot be made to address the shortfall, and *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, consideration may need to be given to collaborative working with neighbouring LPAs within the same sub-region, such that some or all of the transferred provision is reversed. Any revised arrangements that may be agreed between these authorities would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Use of alternative aggregates

Neath Port Talbot is reliant, for its supplies of sand, on marine-dredged sources, imported via the three operational wharves at Briton Ferry and Giant's Wharf. This is despite the existence of limited potential land-based resources within its area, as indicated on BGS resource maps and in reconnaissance-level mapping carried out for the Welsh Government by Symonds Group Ltd. in 2000.

There are considerable secondary aggregate resources within Neath Port Talbot, primarily associated with the reprocessing of steel and blast furnace slag from the Port Talbot steelworks. Most of the slag is fully utilised, partially as construction aggregate and partly as a sustainable alternative to cement. Some of the secondary aggregate is transported by sea to Newport for processing and distribution. One of the largest construction and demolition waste recycling facilities in the region is based at Neath.

In addition, and in common with other MPAs within the South Wales coalfield, the overburden and 'waste' associated with opencast coal extraction includes some high PSV sandstone, but these are acknowledged as temporary 'windfalls' rather than permanent supply sources (and in any case are included in the figures for primary, rather than secondary aggregates). Future proposals for opencast coal extraction should, nevertheless, be encouraged to utilise such material in order to offset the need for additional allocations of sandstone (subject to there being satisfactory proposals relating to the restoration of these large-scale sites and to the stockpiling and distribution of the stone).

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

NEWPORT

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.434 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Newport, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 10.854 million tonnes for crushed rock, over 25 years. The authority currently has zero existing landbanks of permitted reserves, both for sand & gravel and for crushed rock.

Allocations required to be identified in the Local Development Plan

In view of the lack of any existing permitted reserves within Newport, allocations totalling at least 10.854 million tonnes will need to be identified within the LDP. This contrasts with the zero allocation given in the First Review of the RTS but is less than the recommendations given in the original RTS which, purely on the basis of the 'per capita' approach, required Newport to assess the potential to make a resource allocation of 8 to 8.5 million tonnes over a 15-year period (equivalent to 13 to 14mt over 25 years). The requirement, based on the potential availability of resources within Newport (albeit that these are limited), is specifically for Carboniferous Limestone, although contributions from land won sand & gravel resources might be feasible.

Consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

Given the lack of existing operational sites within Newport, the authority will need to seek proposals for new working from industry. In the event that that allocations (or new permissions) cannot be made to address the shortfall then, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, consideration may need to be given to collaborative working with neighbouring LPAs, such that some of the required provision (apportionment) is effectively transferred. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be identified should, as far as possible, be Specific Sites or, failing that, Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Use of alternative aggregates

Newport is supplied with sand from marine-dredged sources within the Severn Estuary and the Bristol Channel, via up to three separate wharves within the city. This is despite the existence of limited potential land-based resources within its area, as indicated on BGS resource maps (most but not all of which are sterilised by existing built development).

The original RTS recommended that the feasibility of sea borne rock imports, via these wharves, should be explored. Discussions with the wharf operators in 2009 suggested that the scope for landing additional tonnages of crushed rock aggregate here is extremely limited (Cuesta Consulting Ltd., 2009). The operations are geared up for the landing and processing of marine-

dredged sand. Whilst it would be theoretically possible to land crushed rock, there is insufficient space for both operations to co-exist. In the absence of any current land-based sand & gravel operations in South East Wales, the marine sand is vital to the local construction industry and is therefore unlikely to be displaced by crushed rock imports.

In terms of secondary aggregates, the former Llanwern steelworks previously supplied aggregates derived from blast furnace slag on an ongoing basis, but this ceased when the blast furnace closed in July 2001. The same site continued to produce Basic Oxygen Steel (BOS) slag from the stockpiles of this material which have accumulated over many previous decades of steel production, but it is understood that this has now ceased.

The rail sidings at 'Monmouthshire Bank' in Newport were also previously utilised to process spent rail ballast for use as aggregate. However, in March 2009, aggregate production at this site ceased and Network Rail redistributed the remaining stocks to other sites, elsewhere. This site therefore no longer represents a source of supply for Newport.

Recycled aggregates, produced from construction, demolition and excavation wastes, are likely to continue to provide an important contribution to the overall supply pattern for construction aggregates within this predominately urban area.

The residual requirements for primary land-won aggregates assume that these various alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

PEMBROKESHIRE

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil.
- Crushed rock aggregates provision: **0.677 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Pembrokeshire, as calculated in Tables 5.5 and 5.7 of the main document, over the 22-year horizon required for sand & gravel and the 25-year timescale required for crushed rock are zero for land-won sand & gravel and 16.932 million tonnes for crushed rock. These figures compare with existing landbanks (excluding dormant sites) of zero for sand & gravel and 16.72 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

Given that Pembrokeshire currently has no sand & gravel operations, and that its permitted reserves of crushed rock are very close to the total apportionment required, no allocations for either are specifically required to be identified within the LDP at this time. However, consideration should be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

In practice, given the close proximity of Pembrokeshire to the Pembrokeshire Coast National Park, as well as to Ceredigion, and the need to find new sources of sand & gravel outside the National Park, Pembrokeshire should continue to work in collaboration with those authorities in order to support the wider objective of maintaining adequate supplies within the West Wales sub-region as a whole. *Subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, it may also need to collaborate with neighbouring Carmarthenshire. If necessary, the authority may need to increase its share of the combined sub-regional apportionment for sand & gravel, compared with the figures given above and in those circumstances might well need to identify new allocations. This does not apply to the apportionment for crushed rock. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Where allocations are required these should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Given the availability of unworked crushed rock and sand & gravel resources in Pembrokeshire, and the longer-term ambition to reduce quarrying activity within the National Park, there would be merit in identifying new Areas of Search (even if specific allocations are not required) in order to encourage future interest from mineral operators.

Treatment of Dormant sites

One dormant igneous rock quarry exists within Pembrokeshire, as detailed in Table B5, above. The planning authority should assess the likelihood of this site being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and if the site is considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, the permitted reserves may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

The whole of this area lies within a 30 mile radius of Pembroke Docks, where marine aggregates are landed from dredging in the outer Bristol Channel. The northern part of the area is in closer proximity to land-based sand & gravel sites within the National Park, located to the south-west of Cardigan. The possibility might need to be considered that, as the current permitted reserves at those sites are depleted, marine aggregates may need to provide a greater contribution in future years. For the time being, however, Pembrokeshire should retain a focus on maintaining adequate supplies from terrestrial sources, and all land-based options would need to be thoroughly tested by the Local Plan process before any consideration is given to such a shift in local policy. It should also be recognised that marine sand and gravel cannot always substitute for terrestrial materials in specific end uses.

Slate waste is produced in very small quantities in the northern part of the National Park although the extent to which this has hitherto been utilised as aggregate is understood to be minimal, and the prospects for future utilisation would seem to be equally limited.

Recycled aggregate production from construction, demolition and excavation wastes is likely to be concentrated within the various towns of southern and central Pembrokeshire, outside the National Park.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

PEMBROKESHIRE COAST NATIONAL PARK

Apportionment for the future provision of land-won primary aggregates

Pembrokeshire National Park Authority has been working in collaboration with its neighbouring authorities in West Wales since the previous RTS Review, with a view to reducing the future extent of working within the National Park. Whilst this is expected to continue, the National Park does have extant mineral permissions which make important contributions to the sub-regional supply pattern. The planning authority is therefore required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: **0.118 million tonnes per year** until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: **0.259 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for the Pembrokeshire National Park, as calculated in Tables 5.5 and 5.7 of the main document, over the 22-year horizon required for sand & gravel and the 25-year timescale required for crushed rock are 2.6 million tonnes for land-won sand & gravel and 6.470 million tonnes for crushed rock. These figures compare with existing landbanks (excluding dormant sites) of 2.6 million tonnes for sand & gravel and 10.37 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In view of the surplus of existing permitted reserves for crushed rock and taking note of paragraph 49 of MTAN 1 regarding landbanks within National Parks, no further allocations are required to be identified within the LDP. However, consideration should be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

In practice, given the close proximity of the National Park to both Pembrokeshire and Ceredigion, the authority should continue to work in collaboration with those authorities in order to support the wider objective of maintaining adequate supplies within the West Wales sub-region as a whole. In view of its status as a National Park, it may also need to collaborate with neighbouring Carmarthenshire, in terms of future sand & gravel provision. If changes to apportionments are needed, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Treatment of Dormant sites

One dormant igneous rock quarry exists within the National Park, as detailed in Table B5, above. The planning authority should assess the likelihood of this site being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and where the site is considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, they may be offset against any requirements that may otherwise be identified for allocations for future working in neighbouring Pembrokeshire (outside the National Park).

Use of alternative aggregates

The whole of this area lies within a 30 mile radius of Pembroke Docks, where marine aggregates are landed from dredging in the outer Bristol Channel. The northern part of the area is in closer proximity to land-based sand & gravel sites within the National Park, located to the south-west of Cardigan. The possibility might need to be considered that, as the current permitted reserves at those sites are depleted, marine aggregates may need to provide a greater contribution in future years. For the time being, however, Pembrokeshire should retain a focus on maintaining adequate supplies from terrestrial sources, and all land-based options would need to be thoroughly tested by the Local Plan process before any consideration is given to such a shift in local policy. It should also be recognised that marine sand and gravel cannot always substitute for terrestrial materials in specific end uses.

Slate waste is produced in very small quantities in the northern part of the National Park although the extent to which this has hitherto been utilised as aggregate is understood to be minimal, and the prospects for future utilisation would seem to be equally limited.

Recycled aggregate production from construction, demolition and excavation wastes is likely to be concentrated within the various towns of southern and central Pembrokeshire, outside the National Park.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

POWYS

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **3.519 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Powys, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 87.981 million tonnes for crushed rock, over 25 years. These compare with existing landbanks (excluding dormant sites) of zero for sand & gravel and 139.24 million tonnes for crushed rock (as at 31st December 2016).

Allocations required to be identified in the Local Development Plan

In view of the large surplus of existing permitted crushed rock reserves, and the lack of sand & gravel production within Powys, no further allocations are required to be identified within the LDP. However, consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Treatment of Dormant sites

One dormant igneous rock quarry and one suspended permission for sand & gravel extraction exist within Powys, as detailed in Table B5, above. The planning authority should assess the likelihood of each of these sites being worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. If there is a likelihood of reactivation, and if the site(s) in question are considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, they may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

Powys is not thought to be a significant user of marine-dredged aggregates, in view of its considerable distance from relevant ports and wharves.

Sources of secondary aggregate within the County are thought to be scarce or absent and, in view of the remote and rural nature of much of the County, there is likely to be only a limited degree of recycled aggregate production from construction, demolition and excavation wastes.

Nevertheless, the residual requirements for primary land-won aggregates assume that alternative materials will continue to be utilised to at least the same extent as in the past, and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

RHONDDA CYNON TAF

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.753 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

The figures exclude the provision of limestone for non-aggregate use, for which separate consideration may need to be given in the LDP.

Comparison with existing landbanks

The total apportionments for Rhondda Cynon Taf, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 18.816 million tonnes for crushed rock, over 25 years. These compare with existing landbanks of zero for sand & gravel and 9.83 million tonnes for crushed rock (as at 31st December 2016). These figures exclude any limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plan

In view of the shortfall of existing crushed rock reserves within RCT, allocations totalling at least 8.986 million tonnes are required to be identified within the LDP. There is already a preferred area for the extension of Craig-yr-Hesg Quarry, amounting to approximately 10 million tonnes. An application to develop that extension was refused in 2019, against officer advice, but may be appealed. That, however, is specifically for HSA Sandstone resources, which would not be able to substitute for any shortage of Carboniferous Limestone. Additional allocations may therefore be required to address this and other factors set out in paragraph B84 above.

In the event that allocations (or new permissions) cannot be made to address the shortfall, consideration may, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, need to be given to collaborative working with neighbouring LPAs within the same sub-region, such that some of the required provision (apportionment) is effectively transferred. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any additional allocations should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Use of alternative aggregates

As with all other parts of south-east Wales, Rhondda Cynon Taf relies, for its supplies of sand, on marine-dredged materials from the Bristol Channel. Although limited potential land-based resources within its area are indicated on BGS resource maps, most of these are sterilised by existing built development.

Considerable quantities of colliery spoil exist at Tower Colliery, Hirwaun, which closed (for a second time, following an earlier workers buy-out), in 2008. This material could potentially be used for low quality fill if there were large contracts nearby, but it would not meet normal aggregate specifications.

No significant amounts of other secondary aggregates are present within RCT but reasonable volumes of construction, demolition and excavation wastes are likely to be widely available for the production of recycled aggregates throughout most of the urbanised parts of the MPA.

In addition, and in common with other MPAs within the South Wales coalfield, the overburden and 'waste' associated with opencast coal extraction includes some high PSV sandstone, but these are acknowledged as temporary 'windfalls' rather than permanent supply sources (and in any case are included in the figures for primary, rather than secondary aggregates). Future proposals for opencast coal extraction should, nevertheless, be encouraged to utilise such material in order to offset the need for additional allocations of sandstone (subject to there being satisfactory proposals relating to the restoration of these large-scale sites and to the stockpiling and distribution of the stone).

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised). In particular, as noted in the original RTS, opportunities for co-using rail facilities, (primarily established for opencast coal), for aggregates should be considered as they arise.

SWANSEA

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.305 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Swansea, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 7.636 million tonnes for crushed rock, over 25 years. The authority currently has zero existing landbanks of permitted reserves, both for sand & gravel and for crushed rock.

Allocations required to be identified in the Local Development Plan

In view of the lack of any existing permitted reserves within Swansea, allocations totalling at least 7.636 million tonnes will need to be identified within the LDP. This contrasts with the zero allocation given in the First Review of the RTS but is substantially less than the recommendations given in the original RTS which, purely on the basis of the 'per capita' approach, required Swansea to assess the potential to make a resource allocation of 13.1 to 13.9 million tonnes over a 15 year period (equivalent to 21.8 to 23.2 million tonnes over 25 years). The requirement, based on the potential availability of resources, and the concept of replacing some of the output from NPT, is specifically for Carboniferous HSA Sandstone.

Given the lack of existing operational sites within Swansea, the authority will need to seek proposals for new working from industry. In the event that allocations (or new permissions) cannot be made to address the shortfall, consideration may, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, need to be given to collaborative working with neighbouring LPAs within the same sub-region, such that some of the required provision (apportionment) is effectively transferred. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Paragraph 49 of MTAN 1 notes that landbanks are not required to be maintained within Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Gower AONB.

Use of alternative aggregates

Swansea imports all of its sand from marine-dredged sources in the Bristol Channel, via wharves in Swansea and in neighbouring Neath Port Talbot. This is despite the existence of potential land-based resources within its area, as indicated on both BGS resource maps and in reconnaissance-level mapping carried out for the Welsh Government by Symonds Group Ltd. in 2000.

Secondary aggregate is also imported (by road) from the Port Talbot steelworks, whilst recycled aggregates from construction, demolition and excavation wastes are likely to be in plentiful supply within the urban areas of Swansea itself.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this. It should also promote and facilitate the maximum use of locally-derived recycled aggregates in order to offset the transportation of both primary and secondary aggregates from other sources.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

TORFAEN

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.258 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

Comparison with existing landbanks

The total apportionments for Torfaen, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 6.441 million tonnes for crushed rock, over 25 years. The authority currently has no existing landbanks of permitted reserves, either for sand & gravel or for crushed rock.

Allocations required to be identified in the Local Development Plan

In view of the lack of any existing permitted reserves within Torfaen, allocations totalling at least 6.441 million tonnes will need to be identified within the LDP. This contrasts with the zero allocation given in the First Review of the RTS but is less than the recommendations given in the original RTS which, purely on the basis of the 'per capita' approach, required Torfaen to assess the potential to make a resource allocation of 5.25 to 5.66 million tonnes over a 15-year period (equivalent to 8.75 to 9.3mt over 25 years). The requirement, based on the potential availability of resources, could be fulfilled either by HSA Sandstone and/or by Carboniferous Limestone, although contributions from land won sand & gravel resources might also be feasible.

The existing allocation for secondary aggregate extraction from the former opencast coal tip at Tir Pentwys was the subject of a recent planning application, dismissed on Appeal in August 2019. That decision, however, related to the impact of the proposed access route on an area of Ancient Woodland, and not to the principle of working the resources themselves, which therefore remain available subject to alternative access being agreed.

Consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

Given the lack of existing operational sites within Torfaen, the authority will need to seek proposals for new working from industry. In the event that allocations (or new permissions) cannot be made to address the shortfall, consideration may, *subject to the circumstances and considerations set out in Annex A of the RTS Main Document*, need to be given to collaborative working with neighbouring LPAs, such that some of the required provision (apportionment) is effectively transferred. If such arrangements are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be identified should, as far as possible, be Specific Sites or, failing that, Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Use of alternative aggregates

The whole of Torfaen is within a maximum distance of 17 miles (26km) of the marine aggregate wharves in Newport. As a consequence, the area is reliant on the supply of sand from marine-dredged sources. Limited potential land-based resources within its area are indicated on BGS resource maps, but most of these are either sterilised by existing built development and/or are unlikely to be commercially exploitable because of their limited extent.

Secondary aggregates in the form of overburden material from former opencast coal workings may be available for use as general fill and, in part, as a substitute for primary High Specification Aggregate. The main source, at Tir Pentwys, has been identified as a Preferred Area within the LDP.

Regeneration schemes in this area are likely to produce construction, demolition and excavation wastes which may be suitable for use as aggregates.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this. It should also promote and facilitate the maximum use of locally-derived recycled aggregates in order to offset the transportation of both primary and secondary aggregates from other sources.

Safeguarding of primary aggregate resources

Relevant resources of both crushed rock aggregates and land-based sand & gravel have been safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping, prior to the publication of the BGS safeguarding maps.

Safeguarding of wharves and railheads

All existing and potential new railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).

VALE OF GLAMORGAN

Apportionment for the future provision of land-won primary aggregates

The planning authority is required to make future provision for land-won primary aggregates within its Local Development Plan on the basis of the following annualised apportionments:

- Land-won sand & gravel provision: Nil
- Crushed rock aggregates provision: **0.672 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

The figures exclude the provision of limestone for non-aggregate use, for which separate

Comparison with existing landbanks

The total apportionments for the Vale of Glamorgan, as calculated in Tables 5.5 and 5.7 of the main document are zero for land-won sand & gravel and 16.806 million tonnes for crushed rock, over 25 years. These compare with existing landbanks (excluding dormant sites) of zero for sand & gravel and 18.73 million tonnes for crushed rock (as at 31st December 2016), all of which relates to Carboniferous Limestone. However, these figures exclude limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plan

In view of the slight surplus of existing permitted crushed rock reserves, and the lack of sand & gravel production within the Vale of Glamorgan, no further allocations are specifically required to be identified within the LDP. However, consideration should also be given to whether any of the factors set out in paragraph B84 above give rise to any other requirements for resource allocations.

If any adjustments are made, they would need to be confirmed within a Statement of Sub-Regional Collaboration, produced in accordance with the guidance set out in Annex A of the RTS Main Document, before any of the constituent LDPs are submitted for Examination.

Any allocations that may be required should, as far as possible, be identified as Specific Sites or, failing that, as Preferred Areas. If, as a last resort, it is only possible to identify broad Areas of Search, these should be sufficient to offer the potential of much greater quantities of reserves, in order to reflect the uncertainties involved.

Treatment of Dormant sites

A total of four dormant limestone quarries exist within the Vale of Glamorgan, as detailed in Table B5, above. The planning authority should assess the likelihood of each of these sites to be worked within the Plan period, subject to the completion of an initial review of planning conditions and submission of an Environmental Impact Assessment. Where there is a likelihood of reactivation, and where the site(s) in question are considered by the authority to conform to the definition of 'Specific Sites', as set out in paragraph 5.14.19 of Planning Policy Wales, they may be offset against any requirements that may otherwise be identified for allocations for future working.

Use of alternative aggregates

The Vale of Glamorgan is reliant upon supplies of sand from marine-dredged sources, despite the existence of limited potential land-based resources within its area, as indicated on BGS resource maps and in reconnaissance-level mapping carried out for the Welsh Government in 2000. Until 2005, marine aggregates were imported via Barry Docks but are now supplied from other wharves in neighbouring Cardiff.

There are also substantial resources of secondary aggregate in the form of pulverised fuel ash (pfa) and furnace bottom ash (fba) from the Aberthaw power station, although the quantities utilised for aggregate purposes remain small.

Equally, there is likely to be a modest level of recycled aggregate production from construction, demolition and excavation wastes, primarily in the vicinity of the main urban areas and industrial sites.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised and the authority should continue to encourage this.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within the LDP in accordance with the British Geological Survey's safeguarding maps, or such other geological information as may be available and suitable for this purpose.

Safeguarding of wharves and railheads

All existing and potential new wharves and railheads should be identified for safeguarding within the LDP, in order to provide a full range of sustainable transport options (whether or not they are currently utilised).