

Meeting of:	Cabinet
Date of Meeting:	Monday, 07 December 2020
Relevant Scrutiny Committee:	Environment and Regeneration
Report Title:	Regional Technical Statement on Aggregates - North and South Wales (Second Review)
Purpose of Report:	To advise Cabinet of the Second Review of the Regional Technical Statement (RTS) prepared by the South Wales Regional Aggregates Working Party and to seek its endorsement by Cabinet
Report Owner:	Cabinet Member for Legal, Regulatory and Planning Services
Responsible Officer:	Rob Thomas - Managing Director
Elected Member and Officer Consultation:	Cabinet Member for Legal, Regulatory and Planning Services Head of Regeneration and Planning Lawyer - Legal Division Operational Manager Accountancy Operational Manager for Planning and Building Control Minerals Officer
Policy Framework:	This report is a matter for Executive Decision by Cabinet

Executive Summary:

- Minerals Technical Advice Note 1: Aggregates (2004) (MTAN 1) requires the preparation of Regional Technical Statements (RTS) for the areas covered by both the South Wales and North Wales Regional Aggregates Working Parties (RAWPs). Forward planning for minerals forms an intrinsic part of the Local Development Plan (LDP) process. LDPs have benefited from the clear technical direction the RTS has provided on the sustainable approach to mineral development in Wales. The principal objectives of the RTS are to inform the provision of adequate reserves of aggregates in the LDPs in order to ensure sufficient provision for construction and other industries in the most sustainable manner reasonably achievable.
- As the RTS first review is now outdated a second review has been prepared. The second review provides updated projections and amends the methodology in relation to the forecast consumption of aggregate as well as the historic pattern of supply. This means that Vale of Glamorgan has an apportionment to provide 0.67 Million Tonnes Per Annum (MTPA) of

aggregate through the LDP review process (due to commence before June 2021). A new sub-regional approach towards aggregate provision has been introduced to reflect the fact that aggregates only occur in certain locations which may not reflect the areas with the highest levels of consumption. All local authorities within the designated sub-regions will be required to agree a Statement of Sub Regional Collaboration (SSRC) to address the aggregate needs identified in the RTS. In exceptional circumstances, alternative patterns of supply can be agreed, provided there are sustainability benefits and the approach would not undermine the overall RTS strategy.

Recommendations

1. That Cabinet endorse the Regional Technical Statement (Second Review) attached to this report and agree the next steps in meeting the apportionment set out in the Regional Technical Statement (RTS) through the LDP Review process at a sub-regional level.

Reasons for Recommendations

1. To enable the Council to use the Regional Technical Statement (Second Review) for minerals planning purposes.

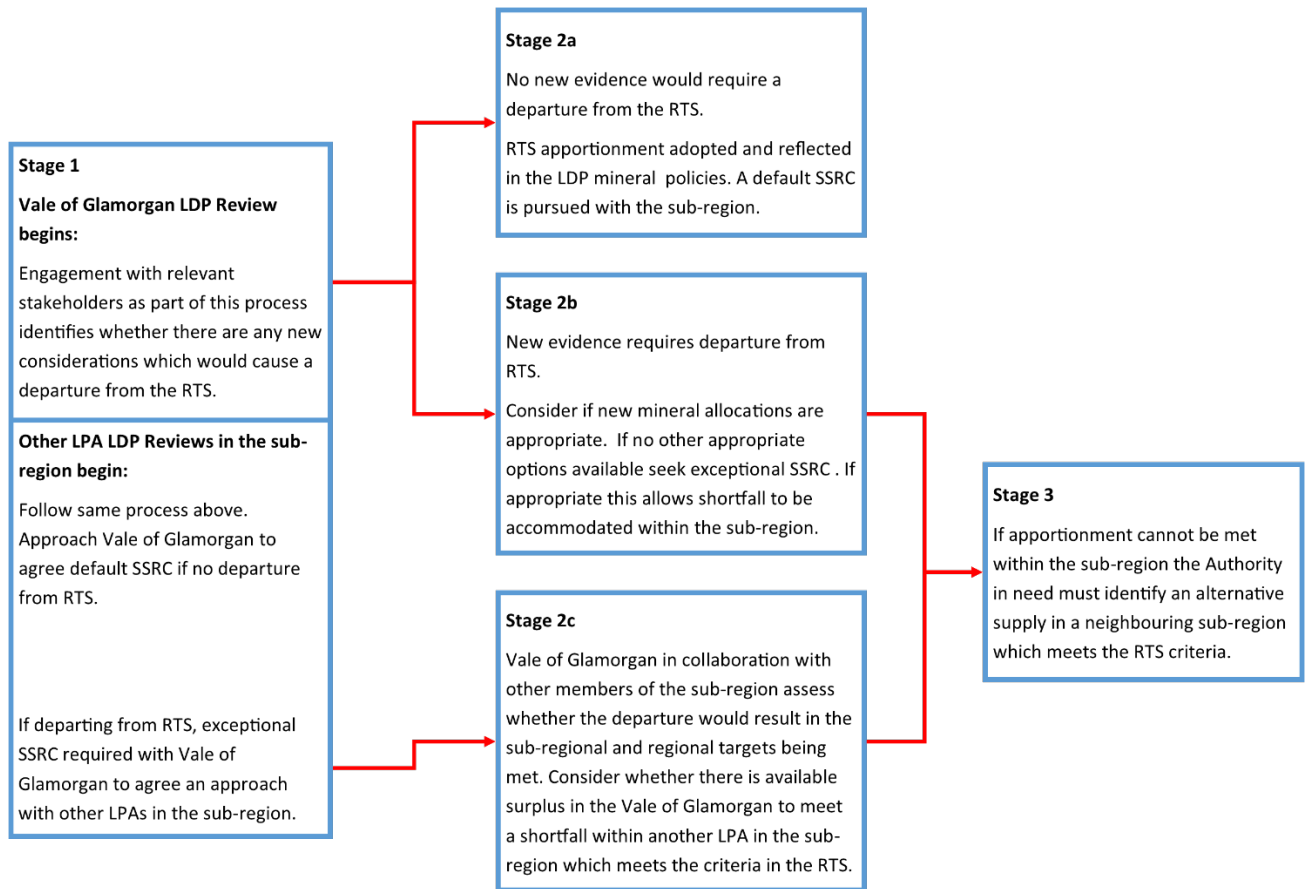
1. Background

- 1.1 Minerals Technical Advice Note 1: Aggregates (2004) (MTAN 1) requires the preparation of Regional Technical Statements (RTS) for the areas covered by both the South Wales and North Wales Regional Aggregates Working Parties (RAWPs). The original RTS documents for both regions were completed in 2008 and are required, by MTAN 1, to be reviewed every five years. The First Review was undertaken in 2013/2014 and, the Second Review (documents attached at Appendix 1), was commenced in 2018.
- 1.2 The methodology used in the previous (First) Review, in 2014, had been based primarily on historical sales averages, combined with an assessment of the various 'drivers' of potential future change. For the Second Review, this has been combined with an attempt to reflect planned future requirements for housing construction activity, in order to avoid perpetuating historical supply patterns in areas where there is scope to encourage more sustainable patterns of supply.
- 1.3 The calculation of the apportionments recommended in the latest RTS followed a four-stage process. Each stage and its relevance to the Vale of Glamorgan is set out below:
- 1.4 **Stage 1- Setting the National Level for future aggregates provision** - According to Welsh statistics there is a high degree of correlation between housing completions and aggregate sales. Statistics show that housing accounts for approximately 30% by value of all new construction. At a national level, therefore, and on the basis of being consistent in terms of planned provision for both housing and aggregates, it was agreed that the provision required for aggregates should be guided by a 30% uplift on historical sales figures. The national figure is 20.224Million Tonnes Per Annum (MTPA).
- 1.5 **Stage 2 - Calculation of the Regional Split between North and South Wales** - The national figure, set out in stage one, is split between North and South Wales. This split is based on the historical sales, that is 38% for North Wales and 62% for South Wales. The South Wales figure is 12.486MTPA.

- 1.6 Stage 3 -Calculation of Sub-Regional and LPA (Local Planning Authority) Apportionments** - South Wales has been split into seven sub-regions which reflect distinct market areas, between which there is relatively little movement of aggregate. The percentage of historic sales and house build rates for each authority provides the basis for the LPA apportionment (as set out at Table 5.3 of the RTS Second Review main document).
- 1.7** For the Vale of Glamorgan this meant that the average historic sales were 0.660MTPA which accounts for 7.02% share of the regional total resulting in an annual apportionment for all land-won primary aggregates of 0.876MTPA based on historic aggregate sales data. However, it is considered that relying solely upon historic sales data would not give a realistic apportionment therefore the housing completions within an authority are also considered (284.3 units pa over the baseline period between 2007-2016 for the Vale of Glamorgan). This resulted in an annualised apportionment of 0.468MTPA. To account for both the historic sales and the planned residential development within an authority the average of both figures is calculated resulting in the recommended annual apportionment of 0.672MTPA for the Vale of Glamorgan.
- 1.8** Based upon the methodology in the Second Review of the RTS the Vale of Glamorgan is required through its Local Development Plan (LDP) process to meet the apportionment set out in the RTS. For the Vale of Glamorgan this requirement is set at 16.806 Million Tons (MT) of crushed rock required over 25 years. The authority currently has 18.730MT of existing landbanks of permitted reserves for crushed rock meaning there is sufficient existing quantitative provision to meet the identified apportionment.
- 1.9 Stage 4 - Sand and Gravel and Crushed Rock total Apportionment** - This final stage relates to the separation of each authority's apportionment figure by aggregate type (i.e. natural sand and gravel and crushed rock). This stage used the figures calculated in stage 3 and multiplied them by the number of years required (25 years for crushed rock) to determine the recommended LDP allocation for each aggregate type. The Vale of Glamorgan does not have any active sand and gravel workings or permitted reserves to put towards the sand and gravel requirement, therefore the total requirement is for 16.806MT of crushed rock. There is no requirement for sand and gravel.
- 1.10** Although the RTS has confirmed that the Vale of Glamorgan has sufficient quantitative reserves to meet its apportionment over the next 25-year period, the RTS is unable to take all the relevant considerations into account for each Local Authority area. For example, other material considerations may include: the technical capability of one type of aggregate to interchange with 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 (as set out in the attached Appendix B to Appendix 1 (South Wales) paragraph B84 of RTS 2nd Review).

- 1.11** Additional considerations, as outlined above, would be considered through the LDP review process which is due to commence June 2021 for the Vale of Glamorgan Council. Consequently, the RTS does allow individual Local Planning Authorities (LPAs) to depart from the apportionment in exceptional circumstances and where it is justified by new evidence when preparing their LDPs. If new evidence is considered to increase the apportionment the RTS requires the apportionment to be met through the allocation of 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. However, where an LPA deviates from the RTS apportionment they would need to demonstrate that the departure from the RTS would not undermine the overall strategy of the RTS. This can be demonstrated by working with other LPAs within the identified sub-regions to ensure the sub-regional and regional RTS totals are still achieved. This would need to be reflected in the Statement of Sub Regional Collaboration (SSRC).
- 1.12** An SSRC must be prepared by all LPAs within a sub region as part of the evidence base needed to support each LDP. The Vale of Glamorgan has been grouped with the following LPAs: Brecon Beacons National Park, Merthyr Tydfil, Bridgend, Rhondda Cynon Taf, Caerphilly and Cardiff which forms the Cardiff City sub-regional area as shown in the attached Appendix 1 (RTS 2nd Review Appendix B to Appendix 1 (South Wales) document under Figure B1). However, where all the LPAs within a sub-region meet the apportionments within the RTS each SSRC will simply confirm that all members of the sub-region accept the individual apportionments for aggregates for the individual Authority areas as set out in the RTS. An SSRC can also be agreed when another LPA starts their LDP review process. If an Authority is unable to meet their apportionment they can seek to agree an exceptional SSRC where the shortfall in their mineral reserves is met within the sub-region where there may be a surplus of aggregate which could be accessed by the Authority in need, subject to the criteria set out in the RTS. These different approaches are summarised Figure 1 below.

Figure 1: Statement of Sub-Regional Collaboration Stages



2. Key Issues for Consideration

- 2.1 The RTS requires the Vale of Glamorgan to meet the 16.806MT of crushed rock apportionment over 25 years through the LDP process.
- 2.2 An SSRC is required to be prepared by the Cardiff City Sub-Region as part of the evidence base needed to support each LDP. The timescale for preparing SSRCs will need to meet that of the first Authority in the sub-region to review their LDP. The purpose of the SSRC is to confirm that all constituent LPAs within a particular RTS sub-region accept the individual apportionments for aggregates for their individual authority areas, as set out in the latest Review of the RTS, and that (as a minimum) the RTS requirements for that sub-region as a whole will therefore be met.
- 2.3 If an SSRC cannot be achieved this will have a serious impact on the progression of the LDP for each authority area as the requirements of National Policy will not have been met. In such a case, the Welsh Government can as a last resort, consider its default powers to intervene in the Development Plan process (MTAN 1, paragraph A3 refers).

- 2.4** In addition to the SSRC the Vale of Glamorgan LDP review will also need to safeguard primary aggregate resources. This will mean that relevant resources of both crushed rock aggregates and land-based sand and gravel should be safeguarded within the LDP, in accordance with detailed advice based on the use of British Geological Survey mapping.
- 2.5** The Vale of Glamorgan has historically played an important role in the delivery of marine based supplies being landed at the wharves in Barry. However, the majority of marine based supply for the Vale of Glamorgan is now landed in Cardiff. The LDP will still need to safeguard the wharves and railheads in Barry in order to provide a full range of sustainable transport options into the future whether or not they are currently utilised.

3. How do proposals evidence the Five Ways of Working and contribute to our Well-being Objectives?

- 3.1** The Well-being and Future Generations (Wales) Act seeks to improve the social, economic environmental and cultural well-being of Wales. Public bodies should ensure that decisions take into account the impact they could have on people living in Wales, in the future. It should be noted that the planning system is central to achieving sustainable development and the five ways of working are an intrinsic part of the planning system. The RTS is clear in its overarching objective to ensure sustainability is at the heart of all future mineral planning in Wales. The 5 main considerations of the WCFG Act are set out below with an explanation of how this work meets their objective:
- 3.2 Long term:** The RTS sets out the nationally approved approach for sustainable management of aggregate resource over a 25-year period. The RTS is subject to review every 5-years to ensure it can react to any significant change in circumstances.
- 3.3 Prevention:** The aim of the RTS and indeed the LDP which this report will inform, is to create sustainable places by influencing a future supply of aggregate in the most sustainable manner.
- 3.4 Integration:** The RTS is required by Welsh Government Planning Policy and is one aspect that the LDP Review will have to address. The RTS Second Review takes into account the regional supply of minerals, changes in approach and policy requirements which have been reflected in the reviewed methodology.
- 3.5 Collaboration:** The RTS will require the Vale of Glamorgan to work within a sub-region of Cardiff City authorities. This regional work will provide part of the evidence base and influence the policy outcomes for the Vale of Glamorgan e.g. meeting the requirements of Planning Policy Wales. This work has been undertaken in collaboration with the mineral industry and other groups including Natural Resources Wales (NRW). This collaborative approach will be continued in the work to fulfil the requirements of the RTS.

- 3.6 Involvement:** The endorsement of the RTS will finalise the process that has seen involvement from technical and non-technical stakeholders. The resultant work will require input from those affected by the requirements including neighbouring authorities, the mineral industry and through the LDP process.
- 3.7** It is considered that this proposal is in line with the Council's well-being objectives.

4. Resources and Legal Considerations

Financial

- 4.1** Endorsement of the RTS does not have a financial cost to the authority. The work associated with the RTS will however require further workstreams which will be funded through the LDP review process.

Employment

- 4.2** The technical information contained within the RTS will require staff resources to consider and implement. Furthermore, staff time will need to be given to assess and agree a subsequent SSRC for the sub-region. However, there would be no new employment implications to meet the requirements of the RTS as it can be accommodated within the existing workstreams of the Planning Policy Team.

Legal (Including Equalities)

- 4.3** The requirements of the Well Being of Future Generations (Wales) Act 2015 and the 7 well-being goals have been considered in the preparation of the RTS. The RTS was developed through a series of consultation events and processes which were open to all interested parties. It is therefore considered that the RTS was prepared in accordance with the Equality Act 2010.

5. Background Papers

Welsh Government Minerals Planning Policy Wales (MPPW)

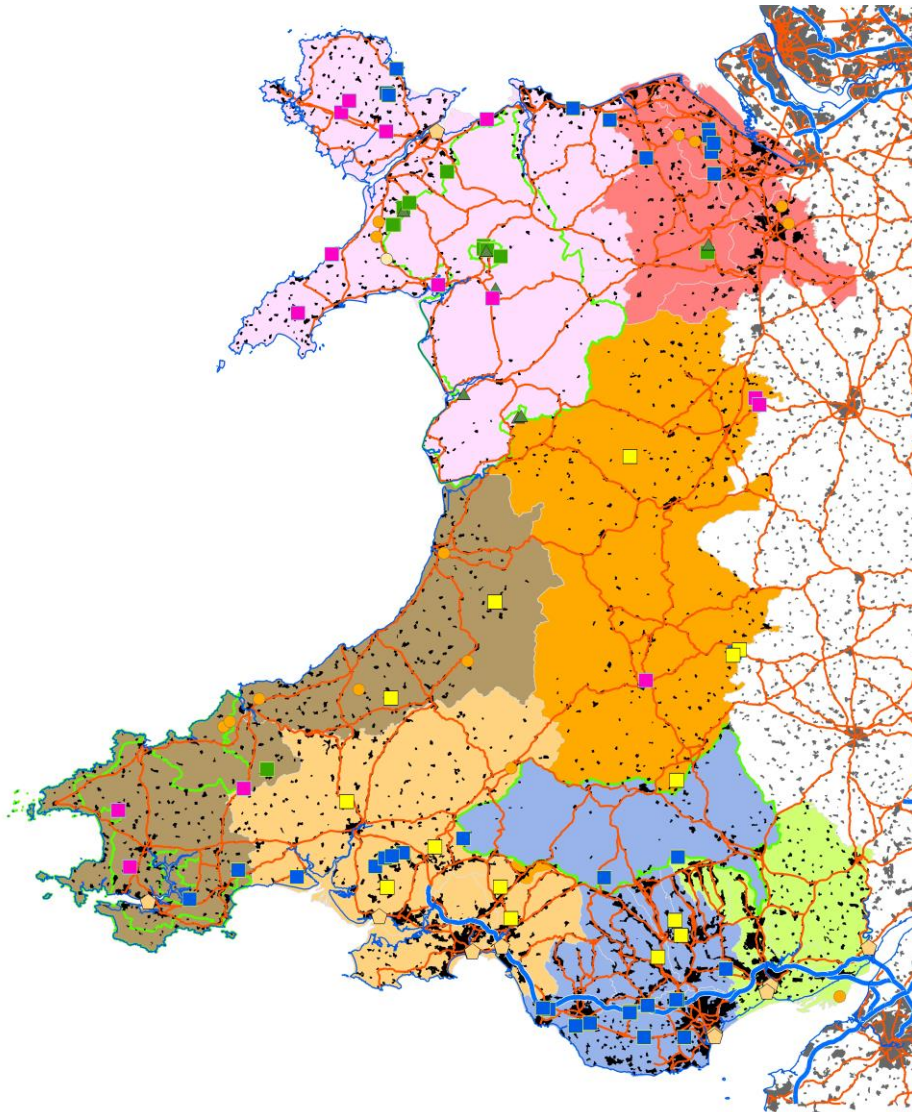
Minerals Technical Advice Note 1 (MTAN 1): Aggregates - <https://gov.wales/minerals-technical-advice-note-mtan-wales-1-aggregates>

Regional Technical Statements

for the North Wales and South Wales

Regional Aggregate Working Parties

- 2nd Review -
(Main Document)



Final - September 2020

North Wales
Regional
Aggregates
Working Party



Llywodraeth Cymru
Welsh Government

South Wales
Regional
Aggregates
Working Party

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Prepared, on behalf of the Welsh Government and the North Wales and South Wales Regional Aggregate Working Parties

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Foreword

Since the original Regional Technical Statements (RTS) were issued in October 2008, forward planning for minerals has formed an intrinsic part of the Local Development Plan (LDP) process. The LDPs have benefited from the clear direction the RTS has provided on the sustainable approach to mineral development in Wales. There is almost full LDP coverage and all have embraced the principal objectives of the RTS to provide adequate reserves of aggregate for the construction and other industries in the most sustainable manner reasonably achievable.

It is particularly satisfying to see certain elements of the RTS, such as the safeguarding of mineral resources, now enshrined in development plans to ensure such resources are protected for future generations. More importantly, new allocations, defined areas of search and preferred areas have also been incorporated into some LDPs.

As was the case with the First Review of the RTS, this Second Review has been prepared, on behalf of the North Wales and South Wales RAWPs, by Cuesta Consulting Ltd., with advice and peer review from a Steering Group which included representatives from both Regional Aggregate Working Parties (RAWPs), the Mineral Products Association and industry, Natural Resources Wales, officers from local government and the Welsh Government. The Steering Group provided vital technical information, updating and refining that given in previously published RAWP reports and in the original Regional Technical Statements. The Steering Group also provided or confirmed expert judgement, where this was called for in situations where precise factual detail was not available, and has provided a consensus endorsement of the various recommendations.

The Second Review RTS covers the 25 year period up to 2041, but further reviews will still be initiated every 5 years, in accordance with MTAN1, to ensure that the RTS can react to any significant change in circumstances. This will ensure that any major changes to supply and demand can be addressed and the RTS changed or modified as appropriate. This process underpins the plan, monitor and manage approach to aggregate planning in the UK. The new edition will continue to be considered as a strategic document for the purposes of Development Plan preparation and may be a material consideration when determining planning applications. We remain confident that all authorities will continue to embrace and implement the recommendations of the revised RTS in their development plans on a voluntary basis, and that Welsh Government (WG) will not need to have recourse to its powers of direction.

We would like to take this opportunity to gratefully acknowledge the considerable amount of work that has been undertaken to complete the Second Review, which includes the significant efforts of the RTS steering group and the diligent work of the consultant appointed to undertake and complete the work on schedule on behalf of the Welsh Government, and the participation of key stakeholders.

The Second Review has built on the foundation of the original RTS and the First Review and has been further refined and now offers greater clarity and is more concise. Most importantly, it provides a strong and improved statement of the desire to ensure that sustainability is at the heart of all future mineral planning in Wales.

Llinos Quelch

Chair of the South Wales Regional Aggregates Working Party.

Andrew Farrow

Chair of the North Wales Regional Aggregates Working Party.

Date 22nd July 2020

Statement from the Minister for Energy, Planning & Rural Affairs

To be Added.

Executive Summary

Minerals Technical Advice Note 1: Aggregates (2004) (MTAN 1) requires the preparation of Regional Technical Statements (RTS) for the areas covered by both the South Wales and North Wales Regional Aggregates Working Parties (RAWPs). Whereas MTAN1 develops the national policy set out originally in Minerals Planning Policy Wales (now part of Planning Policy Wales - PPW), the RTS provides the supporting detail which allows this to be implemented.

The original RTS documents for both regions were completed in 2008 and are required, by MTAN 1, to be reviewed every five years. The First Review was undertaken in 2013/2014 and this, the Second Review, commenced in 2018.

In contrast with the former guidelines for aggregate provision issued for England and Wales, prior to devolution, the RTS process has always avoided any attempt to make detailed forecasts of future demand based on econometric modelling. In the past, these had been found to be unreliable and were criticised for their lack of transparency. Instead, a series of alternative approaches have been used in Wales and each 5-yearly review of the RTS provides opportunities for further refinement.

The methodology used in the previous (First) Review, in 2014, had been based primarily on historical sales averages, combined with an assessment of the various ‘drivers’ of potential future change. For the Second Review, this has been combined with an attempt to reflect *planned* future requirements for housing construction activity, and to avoid perpetuating historical supply patterns in areas where there is scope to encourage more sustainable patterns of supply. Data used for this purpose have been the housing requirement figures established for existing, adopted, Local Development Plans (LDPs) for each individual Local Planning Authority (LPA). Given that LDP progress has varied from one authority to another, some of the earlier figures are now several years old, but all of them were valid for (or beyond) the ‘baseline’ period (2007 – 2016) covered by this Review. The Steering Group considered that these were the best available consistent source of data for this purpose, with the benefit of having been scrutinised by Inspectors at individual LDP Examinations.

A key factor in the new methodology has been recognition that these housing requirements, in all Local Authority areas in Wales, are more than double the average levels of house completions seen over the last 10 years, and that a corresponding increase in the planned provision of construction materials associated with house construction should therefore be allowed for. This is not necessarily a prediction of future demand, since the housing figures set out in adopted Development Plans will only materialise if economic conditions allow. There is, however, a clear logic in land use planning terms in linking the planned provision of aggregates with that for housing, to ensure that housing plans are not thwarted by an under-provision of aggregates.

Of course, housing accounts for only part of overall construction activity. At a national scale, however, Welsh statistics have revealed a very high degree of correlation between housing completions and aggregate sales. Other statistics (for Great Britain as a whole) show that housing accounts for approximately 30% by value of all new construction. Putting both of these observations together, the implication is that a doubling of house construction would

necessitate a doubling of that 30% element of aggregate sales. At a national level, therefore, and on the basis of being consistent in terms of planned provision for both housing and aggregates, the RTS Steering Group¹ agreed that the provision required for aggregates should be guided by a 30% uplift on historical sales figures.

A further consideration agreed by the Steering Group was that the historical sales figures should reflect, not just the 10-year average (as had been used in the First Review, and as required by the NPPF, in England), but the highest of the 10-year and 3-year averages for each individual LPA. This reflects the fact that in some parts of Wales – notably in the Cardiff City Region – there has been a marked upsurge in construction activity in recent years, and a corresponding growth in aggregate sales.

In **STAGE 1** of the RTS process, the 30% uplift is applied to this composite historical sales figure to obtain an overall **National Guideline** figure for future aggregate production. The uplift is applied only at the national level, because the relationship between construction activity and aggregate sales breaks down at more detailed levels (this being primarily because of the spatial differences between areas of supply and demand).

In **STAGE 2** of the process, the National figure is broken down into two **Regional Guideline** figures (based simply on the historical split of total land-won primary aggregate sales between North and South Wales, which has remained reasonably consistent over many years).

In **STAGE 3**, the regional figures are then apportioned between a series of seven '**sub-regions**', as shown below and, *provided that it is feasible to do so*, between each of the constituent Local Planning Authorities (LPAs). 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.

In most cases, the distribution of apportionments within each sub-region is achieved through a combination of *quantitative* and *qualitative* judgements, exercised by the RTS Steering Group and facilitated by the appointed consultant. The judgements seek to reflect the Steering Group's collective understanding of market requirements (reflecting both historical sales and the distribution of planned housing activity) together with considerations of existing landbanks, the proximity principle and environmental capacity.

In the final **STAGE 4** of the process, the total apportionments for each LPA are separated into figures for sand & gravel and crushed rock production (based on historical sales proportions in each LPA). Those figures are then multiplied by the number of years required (22 years for sand & gravel, and 25 years for crushed rock) to obtain the total provision required, in millions of tonnes. Comparison of those figures with existing landbanks and existing unworked

¹ comprising Welsh Government, the two RAWP secretaries, National Resources Wales, the Mineral Products Association, the British Aggregates Association and representatives of one local authority from each Region.

allocations then determines the extent to which any new permissions and/or allocations for future working are required within each authority.

The outcome of this exercise has been a deliberate attempt to control, and in some cases to modify, the future pattern of supply of land-won primary aggregates in Wales, in line with sustainability principles. In a small number of areas, notably where there has been no production of land-won aggregates for many years, with no permitted reserves and zero apportionments, the Steering Group accepted that there may be insufficient evidence, at present, to determine the precise levels of apportionment and resulting allocations required for individual LPAs. In such cases, more detailed analysis will be required, at the local level, through collaboration between adjoining LPAs and consultation with industry, in order to confirm realistic figures for those particular LPAs and (*in exceptional circumstances*) to consider the possibility of alternative patterns of supply within the sub-region concerned.

To this end (and more generally, to ensure that the regional and sub-regional totals recommended by the RTS are achieved), this Review introduces a requirement for all LPAs within each sub-region to produce Statements of Sub-Regional Collaboration (SSRCs), in consultation with industry, through the RAWPs, prior to the Examination of any individual LDP within that area. Specific guidelines relating to the preparation of SSRCs, including details of the circumstances under which alternative patterns of supply may be justified, are provided at Annex A of this document.

More generally, it must be emphasised that the RTS recommendations are intended to be of a **strategic** nature. The recommendations do not provide site-specific information or guidance. It is for the individual LPAs to determine how the strategic requirements identified in the new RTS should be met within their areas. This includes identifying the size and location of new allocations (where these are required by the RTS or, in some cases, by other local factors), and setting out corresponding policies within their LDPs to guide the Development Management process for future mineral extraction.

Moreover, 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 SSRC agreed with all other constituent LPAs within that sub-region, prior to Examination.

Where the local authorities involved are unable to reach agreement, or if individual local authorities do not accept the revised Regional Technical Statement, the Welsh Government will, as a last resort, consider its default powers to intervene in the Development Plan process (MTAN 1, paragraph A3).

1. The Purpose and Objectives of the RTS

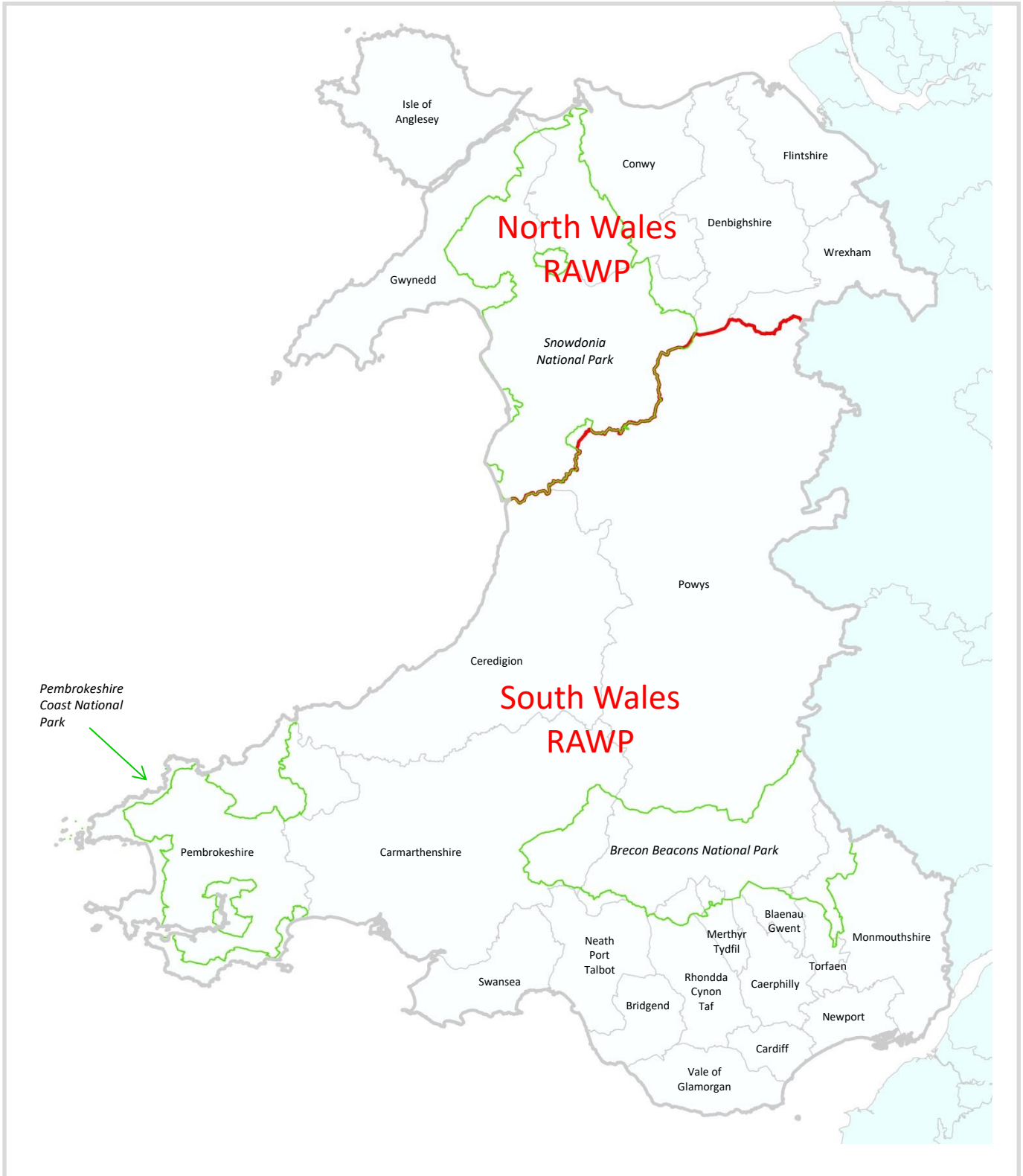
Introduction

- 1.1 Minerals Technical Advice Note 1: Aggregates (2004) (MTAN 1) requires the preparation of Regional Technical Statements (RTS) for the areas covered by both the South Wales and North Wales Regional Aggregates Working Parties (RAWPs) – as shown in Figure 1.1, below. The original RTS documents for both regions were completed in 2008 and are required, by MTAN 1, to be reviewed every five years. The First Review was undertaken in 2013/2014 and this, the Second Review, commenced in 2018.
- 1.2 The Review comprises this main document and the Regional Appendices for North Wales and South Wales, which are issued separately. The two components of the new RTS for each Region (i.e. the main document and the relevant Appendix) are intended to provide a strategy for the future supply of construction aggregates within that Region, taking account of the latest available information regarding the balance of supply and demand, and current notions of sustainability (see below). Together, the two revised RTSs aim to ensure that an adequate and steady supply of aggregates can be maintained throughout Wales (and beyond, in the case of materials that are exported), taking into account the key objectives of sustainable supply outlined in MTAN 1.

Policy Context and Sustainability Objectives

- 1.3 Since the First Review of the RTS was completed in 2014, there have been some important changes in National legislation and Policy within Wales which have a bearing on mineral development. MTAN 1 – and thus the requirement for Regional Technical Statements to be produced and periodically updated – remains extant, but the former Minerals Planning Policy Wales (MPPW) is now subsumed within Planning Policy Wales (PPW), which itself has been updated several times in response to changing legislation and other factors.
- 1.4 The most significant legislative change since 2014 has been the **Well-being of Future Generations (Wales) Act 2015**. This places a statutory duty on public bodies in Wales to consider sustainable development in their decision-making. Whilst sustainability has been at the heart of PPW since it was first published in 2002, the concept has been expanded so that it now incorporates, more explicitly, cultural heritage and well-being.
- 1.5 **Sustainable Development** (in Wales) is now defined, by the 2015 Act, as meaning: *“the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals”*.
- 1.6 This is linked to the more traditional definition by the explanation that: *“Acting in accordance with the sustainable development principle means that a body must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs”*.

Figure 1.1: The Distribution of Local Planning Authorities (LPAs) between the two Regional Aggregate Working Parties (RAWPs) in Wales



- 1.7 The 2015 Act requires public bodies to set out plans as to how they will take decisions in order to meet seven well-being goals that are set out in law. These relate to **prosperity, resilience, health, equality, community cohesion, vibrant culture** (including a thriving Welsh language) and **global responsibility**.
- 1.8 The Act also outlines five ways of working which authorities need to demonstrate they have carried out in undertaking their sustainable development duty. These require consideration to be given to **long term** visions; the **prevention** of adverse impacts; the **integration** of policies to promote balanced decision-making; **collaboration** between public bodies and the private and third sectors; and the built-in **involvement** of the public and stakeholders in the planning system through statutory consultation and engagement. The Regional Technical Statements have always reflected all five of these ways of working, with the concepts of policy integration and collaborative working being enhanced further still in this Review.
- 1.9 In 2018, the Welsh Government updated **Planning Policy Wales** to assist in the delivery of the new act through the planning system. The latest version (Edition 10) was published in December 2018. This introduced five new Key Planning Principles linked variously to the five ways of working. One of these: **Making the Best Use of Resources**, is clearly of direct relevance to mineral planning and thus to the Regional Technical Statements. This principle is explicitly linked, in PPW, to the concept of maintaining a ‘long-term’ vision with regard to climate change, decarbonisation and the circular economy. The Proximity Principle, which plays an important role in the RTS methodology, is highlighted as a means of ensuring that problems are solved locally rather than passing them on to other places or future generations, and so that the use of land and other resources are sustainable in the long term.
- 1.10 The fifth key planning principle: **Maximising Environmental Protection and Limiting Environmental Impact** is also of direct relevance. This refers explicitly to the need for respecting environmental limits (thereby supporting the notion of Environmental Capacity as used within the RTS). It also highlights the importance of the precautionary principle in ensuring that cost-effective measures to prevent possibly serious environmental damage are not postponed just because of uncertainty regarding the seriousness of potential risks. Whilst this is not explicitly part of the RTS process, it may nevertheless have a bearing on the spatial planning of future allocations.
- 1.11 Specific **minerals planning policies** are now incorporated within PPW (in paragraphs 5.14.1 to 5.14.57), rather than being in the separate Minerals Planning Policy Wales document, as had previously been the case (before 2016). Although the sequence and structure of these policies has been modified, not least to embrace certain aspects of the cultural environment now included within the definition of sustainable development, there are no significant changes in policy requirements that have a bearing on the present Review.
- 1.12 In this regard it is worth noting that one change, which had been introduced in versions 8 and 9 of PPW, has been reversed in the latest edition. This relates to the treatment of Sites of Special Scientific Interest (SSSIs) and National Nature Reserves

(NNRs). In versions 8 and 9 of PPW, these areas were included, along with National Parks and Areas of Outstanding Natural Beauty, as locations where minerals development should not take place, save in exceptional circumstances (whereas previously, in MPPW, that had not been the case). Version 10 has reversed that change, so that SSSIs and NNRs are now included (along with SPAs, SACs and Ramsar sites) within para. 5.14.37, where the requirement is for proposals to be ‘carefully examined’, rather than in para. 5.14.35, which retains the ‘exceptional circumstances’ test. Had this not been reversed, it would have had major implications on the allocation of sites for future working – significantly reducing the scope for finding such sites in areas where the available geological resources are highly constrained.

- 1.13 Overall, the new PPW changes nothing with regard to the RTS process, other than reinforcing the principles which are already enshrined within it.
- 1.14 **The Environment (Wales) Act 2016** introduced the Sustainable Management of Natural Resources (SNMR) and set out a framework to achieve this as part decision-making. The main objective is to maintain and enhance the resilience of ecosystems and the benefits they provide.
- 1.15 The Act requires the Welsh Government to prepare, publish and implement a statutory **Natural Resources Policy** (NRP) setting out its priorities in relation to the sustainable management of natural resources, while Natural Resources Wales (NRW) is required to produce a ‘**State of Natural Resources Report**’ and to prepare ‘**Area Statements**’ to inform place-based action.
- 1.16 The NRP sets out three National Priorities, linked directly to achieving goals within the Well-being of Future Generations (Wales) Act. These are: **delivering nature-based solutions; increasing renewable energy and resource efficiency; and taking a place-based approach.**
- 1.17 The first of these focuses on maintaining and enhancing the ecosystem services derived from natural resources. As well as the more obvious biodiversity-related resources, these include services associated with both mineral extraction and the restoration of former mineral workings. Though not mentioned in the NRP, these are examined in detail in reports for Natural England and Defra on an ecosystems approach to long-term mineral planning in the Mendip Hills (Thompson & Birch 2009; Thompson *et al.* 2010). Ecosystem services have an important bearing on site-specific aspects of mineral development, though probably not at the more strategic regional level being considered within the RTS.
- 1.18 Minerals are more explicitly noted in relation to the second priority (resource efficiency), both in relation to the promotion of recycled and secondary aggregates and the optimal utilisation of primary aggregates. These imperatives are already enshrined within the minerals policies of PPW, however, and are therefore fully incorporated in the methodology for producing apportionments within the RTS.

- 1.19 The third priority – taking a place-based approach – can also be very applicable to mineral development (e.g. through community involvement in planning decisions and restoration proposals). By definition, however, this again is a site-specific issue and is not something which can be addressed at the wider strategic level of the RTS.
- 1.20 It is concluded that, as with the Well-being of Future Generations (Wales) Act 2015 and the revision of PPW, the Environment (Wales) Act 2016 appears to reinforce the principles already enshrined within the RTS process, without imposing any new or different requirements.
- 1.21 In line with those requirements, ***the overarching objective in planning for aggregates provision***, as set out in paragraph 7 of MTAN1 is “*to ensure supply is managed in a sustainable way so that the best balance between environmental, economic and social considerations is struck, while making sure that the environmental and amenity impacts of any necessary extraction are kept to a level that avoids causing demonstrable harm to interests of acknowledged importance*”.
- 1.22 Subsidiary objectives in paragraph 29 of MTAN1, which relate to delivering a more sustainable pattern of supply include:
- examining very carefully existing (permitted) reserves on a national and regional basis to see if they are adequate in the short, medium and long term;
 - only granting permission for future extraction to take place in the most environmentally acceptable locations, in accord with development plans that are informed by the Regional Technical Statement which in turn is based on the environmental capacity assessment;
 - actively reducing the proportion of primary aggregates used in relation to secondary, recycled or waste materials;
 - minimising the transportation of aggregates by road;
 - seeking self-sufficiency within regions, thereby avoiding the need to transfer the environmental costs of aggregates extraction to other areas; and
 - careful and continual assessment of existing and anticipated future exports of aggregates to areas outside Wales (in consultation with those importing regions outside Wales) to determine whether that supply is the best environmental and practicable option for all.
- 1.23 These various objectives, combined with the increased emphasis on collaborative, sub-regional working embedded within this 2nd Review, are fully in line with the Sustainable Management of Natural Resources principles enshrined within the Environment (Wales) Act 2016.

The Scope and Purpose of RTS Recommendations

- 1.24 Each RTS Review provides a mechanism for encouraging the national sustainability objectives relating to minerals to be met by the individual Local Planning Authorities (LPAs) within each Region over a period of up to 25 years (for crushed rock) or 22 years, in the case of land-based sand & gravel (sufficient to cover the MTAN1 requirements for maintaining minimum landbanks of 10 years and 7 years,

respectively, throughout the full 15-year term of each LDP). In the case of Cardiff, which has a 20-year Plan Period, these durations are increased to 30 years (for crushed rock) and 27 years for sand & gravel.

- 1.25 The RTS provides specific recommendations to the constituent LPAs regarding the quantities of aggregate which need to be supplied from each area (**apportionments**) and the nature and size of any **allocations** which may need to be made in their Local Development Plan (LDP) to ensure that adequate provision is maintained throughout the relevant Plan Period. In this Review, the basic recommendations are set out within this document with further details being given in the Regional Appendices.
- 1.26 Paragraph 50 of MTAN1 specifically requires the relevant parts of the RTS strategy (principally, the RTS apportionments and allocation requirements) to be incorporated into individual LDPs. In the present Review, however, apportionment figures are also identified for sub-regional groupings of LPAs and, in a small number of cases, the requirements for individual LPAs within those areas may need to be adjusted, subject to more detailed investigation by the LPAs involved and to industry responses to future calls for sites. Further details of the sub-regional groupings and the apportionment methodology are set out in Chapter Five of this Review.
- 1.27 *In exceptional circumstances*, sub-regional analysis may result in the possibility of alternative patterns of supply being considered within a particular sub-region. In order to facilitate this, and to ensure that the regional and sub-regional totals recommended by the RTS are achieved, this Review introduces a requirement for all LPAs within each sub-region to produce Statements of Sub-Regional Collaboration (SSRCs), in consultation with industry, prior to the Examination of any individual LDP within that area. Specific guidelines relating to the preparation of SSRCs, including of the circumstances under which alternative patterns of supply may be justified, are provided at Annex A of this document.
- 1.28 It must be emphasised that the RTS recommendations are intended to be of a **strategic** nature. The recommendations do not provide site-specific information or guidance. It is for the individual LPAs to determine how the strategic requirements identified in the new RTS should be met within their areas. This includes identifying the size and locations of new allocations (where these are required by the RTS or, in some cases, by other local factors), and setting out corresponding policies within their LDPs to guide the Development Management process for future mineral extraction.
- 1.29 Moreover, 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 SSRC agreed with all other constituent LPAS within that sub-region, prior to Examination.

- 1.30 MTAN 1, paragraph A3, notes that *“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”*.
- 1.31 For each Region, Sub-region and individual LPA, the RTS recommendations are informed by the analysis of:
- available resources, permitted reserves, sales and landbanks of primary land-won aggregates;
 - the availability and supply of marine, secondary and recycled materials;
 - levels of demand upon the region for the supply of aggregates, including exports;
 - levels of imports of aggregate into the region;
 - the proximity principle, in relation to the transportation of aggregates; and
 - the environmental capacity of areas to accept the impacts of future quarrying
- 1.32 Further details of the key principles and approaches used within this analysis are set out in the next chapter.

Aims and Objectives of the RTS 2nd Review

- 1.33 The Welsh Government’s **aims** of the 2nd Review have been:
- (i) to confirm or refine the existing methodology and update the current data/information inputs of the current RTS documents; and
 - (ii) to prepare new apportionments and an updated RTS for each RAWP region
- 1.34 These are precisely the same as the aims for the 1st Review.
- 1.35 The **guiding principles** for the review (changed only very slightly from those relating to the 1st Review) were identified by Welsh Government as follows:
- (i) *The RTS will be reviewed at 5-year intervals, in line with policy, with a second review to be completed in 2019. The plan period for each RTS will be 25/22 years;*
 - (ii) *To utilise data for the latest year for which information is available as baseline information for the purposes of the review;*
 - (iii) *To have regard to recent research which may identify any issues that need to be covered in the review;*
 - (iv) *The review itself needs to be transparent, engage appropriate stakeholders but recognise that the exercise is largely technical and aimed at providing*

information and evidence to be utilised in planning processes and therefore consultation and governance should be proportionate,

- (v) *The review will result in an updated statement for each region which is clear, concise and user friendly;*
- (vi) *Recognise that WG is supportive of collaboration between authorities in negotiating how need, as represented by RTS apportionments, is met, if appropriate;*
- (vii) *The reviews will not start from scratch but will build on the current RTS documents.*

1.36 In order to consider what further adjustments might be needed to the guiding principles and/or the methodology to be used, an RTS Technical Group was convened by the South Wales and North Wales RAWPs. Following internal consultation among RAWP members, the Group's final recommendations were as follows:

- 1) The **base year** for calculation of the apportionment and allocations should be the date of the latest year for which information is available;
- 2) The RTS 2nd Review should calculate the **3-year average** annual production figure and the **10-year average** annual production figure and use the higher of the two figures as the basis for apportionment calculations;
- 3) There should not be a separate landbank for **high PSV rock** but there should be a narrative included in the RTS setting out the considerations to be undertaken if high PSV rock is part of the crushed rock landbank in a particular MPA area;
- 4) Regarding the question of whether **regional groupings of LPAs** should be used for the calculation of landbanks, the Technical Group supported this in principle but considered that identifying appropriate regional groupings should be a task undertaken by an independent Consultant as part of the RTS Review process. The Consultant should also consider whether apportionment should be for a regional area only or whether this should be broken down to each LPA area;
- 5) Regarding the treatment of **ongoing quarrying activity within National Parks**, the Group considered that the position is adequately covered in National Policy. There should therefore be no change to the way in which production within National Parks is monitored and reported. This question specifically relates to current production. It does not relate to landbanks for National Parks as they are subject to the 'exceptional circumstances' test;
- 6) Regarding the issue of **maintaining production capacity** within a particular area, the Group resolved that the consultant appointed to produce the RTS should be asked to consider this for each LPA or region and to identify where there is a danger of under provision within the lifetime of the RTS 2nd Review, even though the apportionment figure may be met arithmetically.

- 1.37 Concern was also expressed by the Technical Group about the **potential impact of major projects** on landbanks and the ability of the quarrying industry in Wales to respond to these potential spikes in demand. It therefore advised that one of the considerations to be addressed in carrying out the 2nd Review is whether the apportionment calculations for each LPA or region need to be adjusted to reflect these major ‘spikes’ in demand and, if so, how that could be done.
- 1.38 The first of these recommendations is now embedded within the Guiding Principles note above. The second, third and fifth recommendations are also regarded as settled matters and form part of the methodology for the determination of apportionments and allocations within the 2nd Review. The fourth and sixth recommendations, together with the additional concern regarding major projects, noted above, were discussed at a series of Stakeholder meetings in Stage 1 of the Review, and are incorporated in the adopted methodology.
- 1.39 Whether or not **Strategic Environmental Assessment** (SEA) should be undertaken was considered as part of the original development of the Regional Technical Statements. It was felt, however that, as the RTS documents primarily represent a collaboratively prepared evidence base and are neither required nor constitute a plan or programme for the purposes of the SEA Directive, such an assessment was not necessary. As with the original RTS documents and the First Review, therefore, at this broad level, and given the further detailed analysis and Plan-making that will be required to implement the RTS through Local Development Plans (where SEA is a formal requirement), it was not considered appropriate or required that SEA should be conducted as part of the Second Review.
- 1.40 Several of the terms used above (e.g. apportionments, allocations, landbanks, permitted reserves and resources) have very specific meanings with respect to minerals planning, which need to be understood. These are all defined in the **Glossary of Terms** at the back of this report. Similarly, a number of commonly-used abbreviations, although explained in the text where they are first introduced, are summarised in the list which follows the glossary.

2. Key Principles

The RTS Approach

- 2.1 A key principle which underpins the overall approach within the RTS and MTAN1 is the need to move away from the old, demand-led system of '**Predict and Provide**' to the more modern concept of '**Plan, Monitor and Manage**'. These terms originated in relation to the planning for housing provision but can also be applied to minerals.
- 2.2 It is important to recognise, however, that the Plan, Monitor and Manage system still depends, crucially, on an assessment of demand. At the heart of MTAN1 is the aspiration that, once a reasonable estimate of demand has been obtained, any subsequent fluctuations above that level should be accommodated by increased supplies from secondary and recycled sources (see glossary for definitions), rather than being seen as a justification for granting new planning permissions for primary aggregate extraction. Whilst that aspiration is widely supported, there is evidence to suggest that the percentage contribution available from secondary and recycled sources, having risen from around 10% of the total aggregates market in the 1990s to around 28% during the last decade (as a direct result of financial incentives and promotional work to increase acceptability) is now likely to have peaked. As a consequence of this, the future use of recycled/secondary materials is likely to depend mainly on the level of future construction output (since the availability of recycled materials is closely dependent on rates of new construction). It is therefore perhaps more reasonable to assume that secondary and recycled aggregates will continue to provide a high proportion of total aggregate production but will not be able to be relied upon to fulfil any future peaks in demand on their own: there may also need to be increased contributions from primary aggregate sources.
- 2.3 The RTS process supports this approach by investigating the likely continued availability of secondary and recycled aggregates from all available sources within each area, and factoring this in to an assessment of the residual demand for land-won primary aggregates, as informed primarily by historical sales data and the consideration of planned future construction activity. That residual level of demand is then translated into **apportionments** for each local authority, subject to the consideration of other sustainability issues including proximity and environmental capacity (see below).
- 2.4 An important tool in the ongoing management of the supply of aggregates is the monitoring of **landbanks**. A landbank, as defined in paragraph 45 of MTAN1, is the stock of planning permissions for the winning and working of minerals at *active* and *inactive* sites², at any given point in time and for a given area. Where there is an insufficient landbank of permitted reserves in a particular area to meet the identified demand, over a sustained period of time, the RTS recommends the need for **allocations** for future working to be identified in LDPs. Provided that the

² Detailed definitions of active, inactive, dormant and suspended sites are given in the **Glossary of Terms** at the back of this report, as are the full definitions of resources, permitted reserves, apportionments, landbanks, allocations and provision.

reserves at *dormant* sites have not already been included in the landbank calculations³, and where a Local Planning Authority considers that such reserves are likely to be capable of being worked within the relevant period (subject to the agreement of modern conditions) it is suggested here that these may be offset against the requirement for new allocations. The same logic applies to sites where permission has been *suspended*, following a stalled IDO or ROMP review (see **Glossary** for full explanations of these various terms).

- 2.5 Thereafter, by virtue of the Plan-led approach, additional applications for new permitted reserves are unlikely to be granted except within allocated sites or areas, unless there are compelling reasons why fluctuations in demand cannot be met from those locations or from alternative (secondary and recycled) sources. The situation is monitored annually by the RAWPs and managed, as required, through periodic (5-yearly) revisions of the Regional Technical Statements.
- 2.6 In terms of its overall approach, the RTS concept represents an important modification of the more general Managed Aggregate Supply System (MASS) which had previously operated across both England & Wales for many years. The main difference is that the Welsh system explicitly seeks to incorporate two key principles of sustainability with respect to aggregates supply: the ***proximity principle*** and the notion of ***environmental capacity***, as explained in the following sections.

The Proximity Principle

- 2.7 This relates simply to the objective of minimising unnecessary transportation of bulk materials, particularly by road, by ensuring that sources of supply (e.g. aggregate quarries) are located as closely as possible to the main centres of demand (primarily centres of population and major infrastructure projects). The minerals planning system has only limited controls on this: it cannot dictate where aggregates are supplied to, from any given source, and it cannot dictate where suitable sources exist (since minerals can only be worked where they are found). The planning system can, however, provide strong guidance in terms of where planning permissions are likely to be given for new quarries (or extensions to existing quarries) within areas of suitable geology, and it can take account of transportation factors in deciding where these ought to be. In the long term the RTS process has a key role to play in this, by gradually modifying the overall pattern of supply, where this is needed.
- 2.8 The proximity principle needs to be modified, in some cases, by recognition that certain types of ‘high specification aggregate’ (HSA) serve quite different markets and are therefore required for distribution over much greater distances. This applies especially to the skid-resistant aggregates derived from the Pennant Sandstones of South Wales and from a range of other formations within Powys and elsewhere, which are essential for road surfacing applications throughout England and Wales (Thompson, Greig & Shaw, 1993; Thompson *et al.*, 2004). Indigenous sources of HSA

³ There are differences of interpretation (of MTAN1 guidance) regarding whether or not the permitted reserves at dormant sites should be included in landbank calculations that are used for the purpose of assessing the need, or otherwise, for new allocations. As explained in the **Glossary**, for the purposes of this review, such reserves, and those at suspended sites, have been excluded.

materials within England are very limited, and many are constrained by their location within National Parks. HSA exports from Wales are therefore of major significance. Separate consideration also needs to be given to the issue of high purity limestone production for use as a metallurgical flux, for chemical production and for the manufacture of cement. Whilst these are all non-aggregate end-uses, they are frequently produced from the same geological resources as crushed rock aggregates, but the quarry locations may be determined or justified primarily by the requirements for the higher value industrial products.

- 2.9 The proximity principle is further modified by the requirement in MTAN 1 (paragraph 49) that landbanks do not need to be maintained, and that there should therefore be no future allocations, within National Parks or Areas of Outstanding Natural Beauty (AONBs). This is in line with Planning Policy Wales, which states (at para. 5.14.35) that mineral extraction should not take place in National Parks and AONBs, except in very exceptional circumstances.
- 2.10 The original Regional Technical Statements aimed to reflect the Proximity Principle by providing ‘per capita’ apportionments for future aggregate provision (i.e. proportionate to the population within a given LPA area, as a surrogate for the likely distribution of demand). Major drawbacks of this approach, however, were found to be the lack of correlation between existing population figures and either the demand for, or availability of, aggregate supplies.
- 2.11 In the 1st Review of the RTSs, general consideration was given, instead, to variations in *population density*, but account was also taken of a range of other influences, including access routes and transport distances, which neither population nor population density figures are able to reflect. That analysis was, necessarily, of a qualitative nature because of the complexities involved, and to avoid the spurious precision associated with inappropriate quantitative analysis. It allowed the Proximity Principle to be acknowledged but relied primarily on historical sales figures as indicators of demand. This recognised that the demand for supplies from a particular quarry must inevitably be influenced (very strongly) by transport distances, since these constitute a major element of the delivered price. Local sources of supply will therefore always be preferred to those from more distant locations, provided that the material supplied is fit for purpose. Equally, more remote sources would only maintain their commercial viability if they are capable of supplying aggregates of a type that are in high demand but not available from sources located nearer to the markets.
- 2.12 The main criticism of that approach has been that reliance on historical sales figures inevitably perpetuates the historical pattern of supply, giving very limited scope for this to be changed, over time, to achieve any improvement in sustainability. In the present Review, an attempt has therefore been made to use recent data on housing completions and planned future housing provision, both as part of the overall assessment of future demand, and to influence the sub-regional apportionment of future aggregates provision. This is explained more fully in Chapter 3.

Environmental Capacity

- 2.13 By comparison, the notion of environmental capacity has always been a more controversial issue. The basic principle is clear enough: i.e. that quarrying should be focused, as far as possible, on areas which have the greatest capacity to ‘absorb’ the environmental impacts that are (or may be) associated with quarrying activity, and thus to contribute to future supply with a minimum of adverse impacts. The controversy derives from the lack of consensus in terms of how ‘environmental capacity’ should be defined, and from the way in which this has influenced the allocation targets within the Regional Technical Statements.
- 2.14 In Wales, two previous research projects provided the evidence base for the system that is currently used: **EMAADS** (Establishing a Methodology for Assessing Aggregates Demand and Supply - Arup, 2004) and **IMAECA** (Implementing the Methodology for Assessing the Environmental Capacity for primary Aggregates - Enviro, 2005). These projects resulted in a set of ‘traffic light’ maps (as they are often referred to) being issued to each LPA within Wales to indicate areas of *relatively* high (green), medium (amber) and *relatively* low (red) environmental capacity. The thresholds between these categories were arbitrarily set, but the differentiation between them does at least provide a starting point for the consideration of environmental capacity and thereby enables nationally consistent *strategic* decisions to be made, by the RAWPs, with respect to future aggregates provision.
- 2.15 The colours shown on these maps reflect combined scores from the assessment of twelve different ‘national environmental indicators’ for each square kilometre. These comprised:
- (i) Settlements
 - (ii) Roads
 - (iii) Land Use
 - (iv) SSSIs
 - (v) Heritage
 - (vi) Public Enjoyment
 - (vii) Landscape
 - (viii) Local Landscape
 - (ix) Watercourses
 - (x) Spheres of Influence
 - (xi) Existing Workings
 - (xii) Cumulative Effects
- 2.16 It is important to understand that the IMAECA tool was designed to be used *only* to inform the Regional Technical Statements and explicitly *not* to be used directly in Local Development Plans, Development Management processes and decisions or planning appeal decisions.

- 2.17 The consideration of Environmental Capacity at this strategic level deliberately avoids the direct use of more detailed ‘primary’ environmental information such as the locations of individual designations (other than National Parks and AONBs). Once again, this is to avoid being site-specific and to avoid prejudging issues which need to be addressed in more detail through LDP and Development Management processes at a local level - either within individual local authorities and/or through joint working between neighbouring authorities. Joint consideration of the relationship between mineral resources and environmental designations on a sub-regional basis would potentially allow more detailed consideration to be given to these important issues at a spatial scale which extends beyond the boundaries of an individual local authority. This could tie-in well with the Area-Based Natural Resource Management Approach being promoted by Welsh Government through the **Environment (Wales) Act 2016**.
- 2.18 However, despite this information being available, and being described for each LPA within the original RTs, the environmental capacity results from the IMAECA study had no influence at all on setting the apportionment figures within those reports. That may partially have been due to concerns about not prejudging matters that should properly fall to be dealt with through the Local Development Plan process. This certainly applies to any site-specific judgements but, at a more strategic level, there is both scope and wide support for environmental capacity data to inform and potentially influence the bigger picture.

Changing the Pattern of Supply

- 2.19 Important consideration also needs to be given to existing patterns of supply. MTAN 1 suggests that these patterns are largely a historical residual and ‘...*will need to gradually change to reflect current notions of sustainability*’. That may, or may not be the case, however, since the historical supply patterns already have much to commend them: they reflect the ***spatial distribution of available resources*** (which is of fundamental importance, since minerals can only be worked where they are found) and the ***economic imperative*** of industry to establish quarries as close as possible to areas of demand (in order to minimise transport costs), subject to a range of environmental designations, planning policies and other constraints. Over many decades, quarries which have become uneconomic because of changing demand or outdated transport networks and rising costs have naturally fallen into disuse. Those which remain are generally (though not always) well-placed to serve the current markets although some remain in conflict with designations, environmental concerns or neighbouring land uses which, in many cases, post-date the mineral planning permissions involved. Where this is the case then, unless there are no sensible alternatives in terms of the availability of resources, it may not be appropriate for the historical supply pattern from a given area to be used as a proxy for future supply from that area.
- 2.20 Together, the implementation of the proximity principle and the notion of environmental capacity, as described above, may gradually induce changes to the existing patterns of supply. But this would only be justified if it is found that, once all aspects of sustainability are taken into account, alternative patterns are seen to

have clear advantages over those which currently exist. Even where changes are clearly justified, these cannot generally be immediately implemented, since (unless Prohibition Orders are issued) existing quarries will be able to continue until their existing planning permissions expire and/or until they run out of permitted reserves.

- 2.21 Nevertheless, the RTS can help to influence future changes in supply pattern, where this is found to be desirable, by adjusting the apportionments given to individual LPAs. This, in turn, will then help to focus new allocations in the areas required, and should eventually result in a shift towards a more sustainable pattern of supply. Chapter 4 of this report presents an overview of the existing supply pattern, highlighting the need for limited adjustments in certain areas, drawing on the more detailed analyses presented in the two Regional Appendices (A and B).

3. Methodology for the 2nd Review of the RTS

Introduction

- 3.1 In the original and First Review of the Regional Technical Statements, the starting point for the apportionment of future aggregates provision⁴ was to make an assessment of the likely future demand. However, in contrast with the former guidelines for aggregate provision issued for both England and Wales, prior to devolution, the RTS process has always avoided any attempt to make detailed forecasts of future demand based on econometric modelling. In the past, these had been found to be unreliable and were criticised for their lack of transparency. Instead, a series of alternative approaches have been used in Wales and each 5-yearly review of the RTS provides opportunities for further refinement.
- 3.2 The methodology used in the previous (First) Review, in 2014, had been based primarily on historical sales averages, combined with an assessment of the various ‘drivers’ of potential future change – much like the methodology for producing Local Aggregate Assessments in England, but carried out at a national scale. For the present Review, this has been combined with an attempt to reflect planned future requirements for construction activity (particularly housing)⁵, and to avoid perpetuating historical supply patterns in areas where there is scope to encourage more sustainable patterns of supply.
- 3.3 Given the importance of the Plan-led system, there is a need for joined-up thinking between planned construction activity and the planned provision of associated construction materials. This resonates strongly with the integration of policies to promote balanced decision-making: one of the five key ways of working identified in the Well-being of Future Generations (Wales) Act 2015. The concept applies irrespective of whether the planned construction (e.g. housing or major infrastructure projects) materialises. If the planned activity *does* take place, then it will not be hampered by a shortage of materials; if it does not, then there will have been an over-provision of aggregates, but that would not equate to excess production (since aggregates will only be quarried as and when the demand occurs).

Preliminary Research

- 3.4 In developing the methodology to be applied in the 2nd Review, it was first necessary to undertake some preliminary analysis of the source data. This is briefly outlined below under five headings: historical sales data, housing data, economic forecasts, availability of alternative materials and the balance between imports and exports.

⁴ This analysis relates only to the requirements for primary, land-won aggregates. As noted in the original RTS documents, targets for the production of alternative aggregates (i.e. secondary aggregates, recycled materials and marine-dredged aggregates) have traditionally been ‘top-sliced’, leaving a residual demand for land-won primary aggregates. As with the First Review, it was agreed with the Steering Group that the proportion of total aggregates supply provided from secondary and recycled aggregate sources would remain approximately constant, with the actual quantities rising and falling in relation to overall levels of economic activity.

⁵ Although planned housing construction may be no more reliable, as an indicator of future demand, than the former aggregate guidelines were, the justification for using such figures is different: it is not an attempt to predict demand, only to ensure consistency in the planning process and to give tangible recognition to the link between construction and aggregates.

Historical Sales Data

- 3.5 The Annual Reports of the South Wales and North Wales Regional Aggregate Working Parties provide an important source of data regarding annual sales and annual updates to the stock of permitted reserves of land-won primary aggregates. They also provide information on secondary aggregates and on landings of marine-dredged aggregates.
- 3.6 The published reports for South Wales currently provide data up to the end of 2016. Those for North Wales provide data up to 2015 but, for the purpose of this Review, the previously published figures have been refined and updated (to include 2016), by the RAWP secretary. The resulting annual totals for the period 2007 to 2016 are presented in Table 3.1, below. This represents the main 'baseline' period for use in the Second Review. All figures are given in millions of tonnes (mt).

Table 3.1: Annual Sales of Land-won Primary Aggregate in North Wales and South Wales, from RAWP reports.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
North Wales Crushed Rock (mt)	6.298	6.225	3.674	4.381	4.348	3.938	4.052	4.626	5.003	5.023
North Wales Land-won Sand & Gravel (mt)	1.063	0.711	0.599	0.664	0.641	0.588	0.529	0.892	0.940	0.726
NW Total (mt)	7.361	6.936	4.273	5.045	4.989	4.526	4.581	5.518	5.943	5.749
South Wales Crushed Rock (mt)	12.51	10.35	8.13	7.20	7.73	7.39	7.55	7.87	8.31	8.41
South Wales Land-won Sand & Gravel (mt)	0.24	0.03	0.14	0.12	0.11	0.27	0.28	0.20	0.27	0.16
SW Total (mt)	12.75	10.38	8.28	7.32	7.84	7.66	7.83	8.07	8.58	8.57
Wales Total (mt)	20.11	17.32	12.54	12.37	12.83	12.19	12.41	13.59	14.52	14.32
NW/SW Split (%)	37/63	40/60	34/66	41/59	39/61	37/63	37/63	40/60	41/59	40/60

SOURCE: Annual RAWP reports, updated (for North Wales) by the RAWP Secretary, for the purposes of this review⁶.

- 3.7 It is important to remember that the historical sales figures represent only the *residual demand* for land-won primary aggregates, since the overall demand over this period was also satisfied, to varying degrees, by supplies from secondary, recycled and marine aggregate sources, as well as by small amounts of imports from primary aggregate sources in England. By default, therefore, using historical sales data as part of the basis for estimating future demand assumes that the supply of secondary, recycled, marine and imported aggregates will continue as before (with different levels of contribution from each source in each of the various LPAs).

⁶ Whilst the data presented in Table 3.1 are useful in showing the year-to-year variations, the totals are slightly different from those presented in all subsequent tables in this report, which were derived from new, and more accurate figures collated by both RAWP secretaries for the specific purpose of this review.

- 3.8 In the First Review, historical sales data were represented by the average sales over the preceding 10-year baseline period. For the present Review, it was decided that consideration should also be given to average sales over the most recent 3-year period (2014 to 2016), in recognition of the fact that for some areas (notably Cardiff, and the three main 'exporting' LPAs of Flintshire, Wrexham and Powys), there has been a sharp increase in recent production. The RTS Steering Group's view was that the highest of the 10-year and 3-year averages, for each LPA, should be used in calculating a more representative National total. Table 3.2, below, presents the figures for each LPA and the derived total. The LPAs are listed simply in alphabetical. Their geographical distribution and arrangement into the North Wales and South Wales RAWP areas, are shown in Figure 1.1, above.

Table 3.2: 10-year and 3-year Total Land-Won Primary Aggregates Sales Averages (to 2016) for each LPA.

Unitary 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)
Blaenau Gwent	0.170	0.180	0.180
Brecon Beacons National Park	0.490	0.540	0.540
Bridgend	0.580	0.600	0.600
Caerphilly	0.390	0.100	0.390
Cardiff	0.830	1.060	1.060
Carmarthenshire	0.832	0.821	0.832
Ceredigion	0.300	0.240	0.300
Conwy + Snowdonia NP	0.955	0.813	0.955
Denbighshire	0.329	0.043	0.329
Flintshire	2.663	3.204	3.204
Gwynedd	0.868	0.898	0.898
Isle of Anglesey	0.236	0.255	0.255
Merthyr Tydfil	0.150	0.010	0.150
Monmouthshire	0.070	0.060	0.070
Neath Port Talbot	0.460	0.300	0.460
Newport	0.000	0.000	0.000
Pembrokeshire	0.510	0.360	0.510
Pembrokeshire Coast NP	0.330	0.270	0.330
Powys	2.470	2.650	2.650
Rhonda Cynon Taf	0.610	0.670	0.670
Swansea	0.000	0.000	0.000
Torfaen	0.000	0.000	0.000
Vale of Glamorgan	0.660	0.580	0.660
Wrexham	0.435	0.514	0.514
TOTAL, Wales			15.557

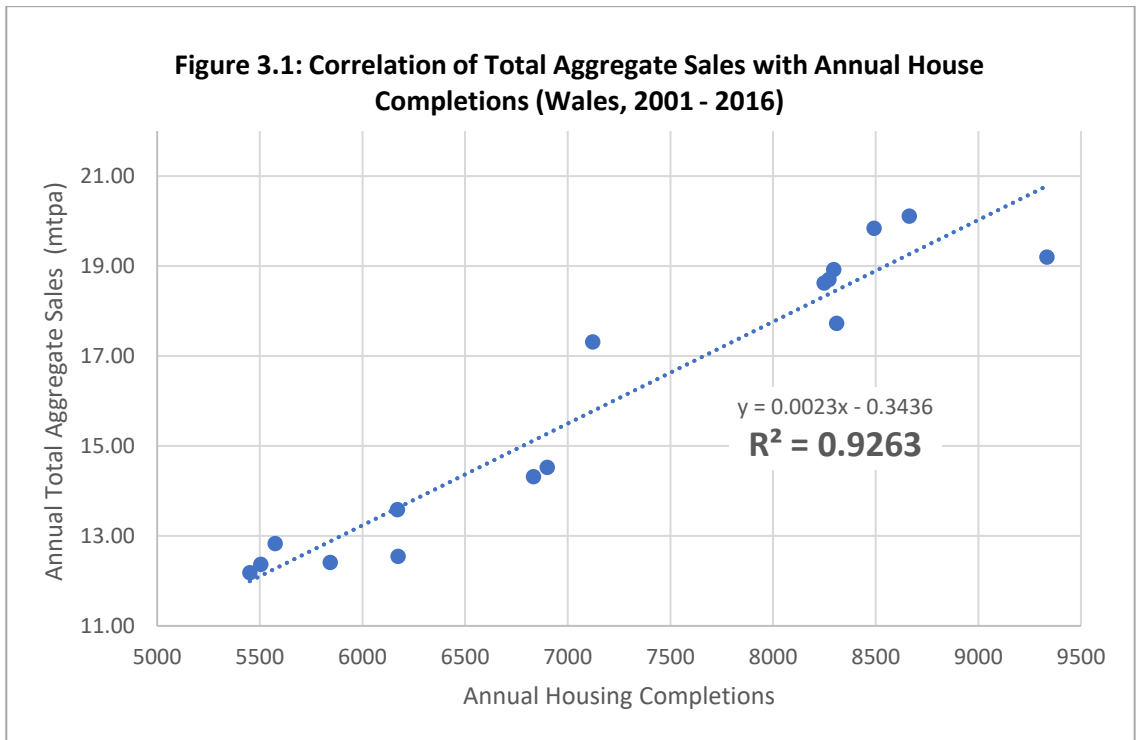
(SOURCE: RAWP Secretaries, 2018)

- 3.9 This National total of 15.557mt compares with an equivalent figure of 17.69 mt for the First Review (based on the 10-year average, only, for the period 2001 to 2010).

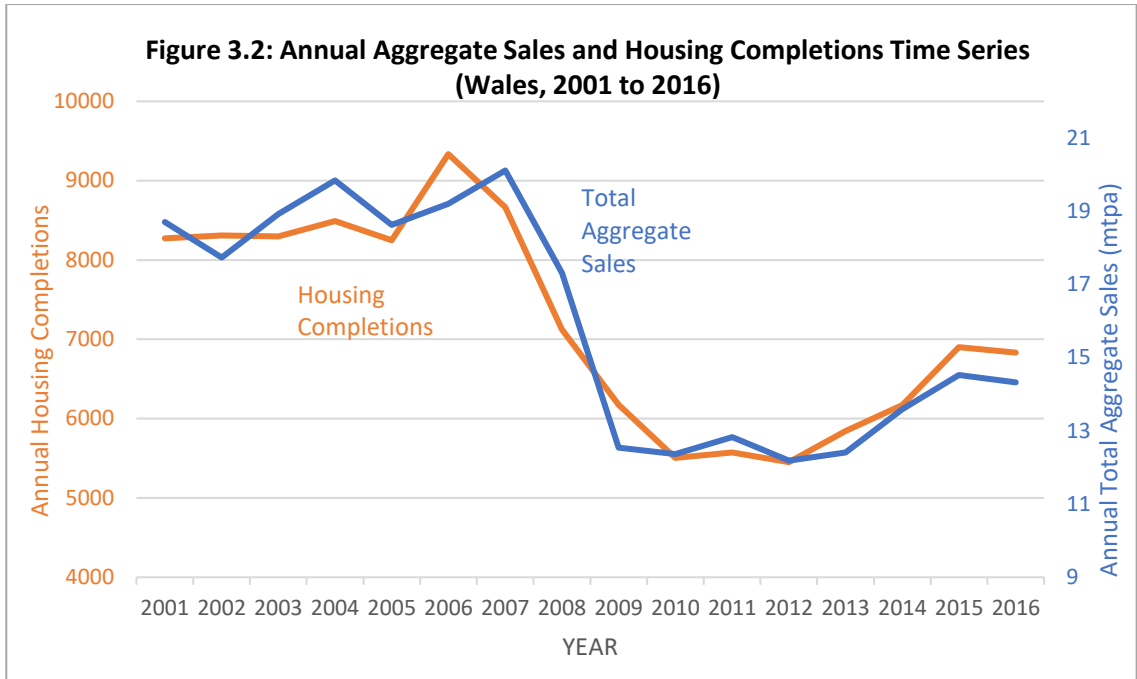
This marked reduction reflects the fact that the baseline for the present Review includes the whole of the recent economic recession, whereas the previous baseline period incorporated only part of the recession together with a preceding period of significantly higher sales.

Housing Data

- 3.10 Statistics on housing completions (and housing starts) for each LPA in Wales are reported on the Welsh Government’s ‘StatsWales’ website⁷. The data are reported in financial, rather than calendar years, so are not directly compatible with aggregate sales data, but comparisons over time can nevertheless reveal important trends. In doing so, two particular findings clearly emerged.
- 3.11 Firstly, an extremely high degree of correlation was revealed, at a national level, between annual house completions and annual sales of aggregates, with a correlation coefficient (R^2) of 0.9236. This is illustrated in Figure 3.1 below. The two time series are compared in Figure 3.2, demonstrating their very close similarity of responses to the recent sharp recession and subsequent faltering recovery.



⁷ <https://statswales.gov.wales/Catalogue/Housing/New-House-Building/newdwellingscompleted-by-area-dwellingtype-numberofbedrooms>



- 3.12 In considering the correlation shown in these diagrams, it is important to note that, whilst there is obviously a causal link between house building and aggregate consumption, the apparent strength of that correlation may be at least partly explained by the fact that both factors are governed by a separate, completely independent variable – that of economic growth.
- 3.13 It must also be recognised that housing accounts, directly, for only a proportion of aggregate sales. A projection of future housing growth (or decline), however reliable, could not be used with any confidence to predict the exact growth or decline of aggregate sales (at most it could only help to predict the proportion of those sales which are directly associated with house construction).
- 3.14 Similar analyses at regional and sub-regional levels were attempted but produced much weaker correlations – particularly in areas where a significant proportion of demand is associated with exports to England, rather than with domestic construction activity (as is the case in north-east Wales, for example, and in Powys).
- 3.15 The second observation relates to the comparison between annualised figures for future housing requirements⁸, derived from the totals set out in adopted Local Development Plans throughout Wales, and actual housing completions data over the 10-year baseline period, as recorded by the Welsh Government. This comparison is presented in Table 3.3. below, with the LPAs again listed in alphabetical order.

⁸ The data used here relates specifically to housing **requirements**, as objectively assessed for each LPA, rather than the figures for housing **provision** adopted in LDPs which are usually higher, following the inclusion of variable allowances in each LPA for ‘flexibility’. The requirement figures were agreed, at a meeting of the two RAWPs, in July 2019, to be a more reliable basis for analysis. Given that LDP progress has varied from one authority to another, some of the earlier figures are now several years old, but all of them were valid for (or beyond) the ‘baseline’ period (2007 – 2016) covered by this Review. The Steering Group considered that these were the best available, consistent source of data for this purpose, with the benefit of having been scrutinised by Inspectors at individual LDP Examinations.

Table 3.3: Comparison of Housing Requirements in Local Development Plans with average Annual Housing Completions in Wales (as of December 2018)

Unitary Authority	Plan Status	Plan period	Planned Future Housing Requirements	Annualised Future Housing Requirements	Average House Completions per year (2008 – 2017)
Blaenau Gwent	Adopted	2006-2021	3,500	233	99.1
Bridgend	Adopted	2006-2021	9,690	646	365
Caerphilly	Adopted	2006-2021	8,625	575	335.2
Cardiff	Adopted	2006-2026 ⁹	41,415	2,761	825.3
Carmarthenshire	Adopted	2006-2021	15,197	1,013	517.8
Ceredigion	Adopted	2007-2022	6,000	400	126.1
Conwy	Adopted	2007-2022	6,520	435	178.6
Snowdonia	Adopted	2016-2031	770	51	
Denbighshire	Adopted	2006-2021	7,500	500	156.2
Flintshire	in Progress	2015-2030	6,950	463	288.6
Gwynedd	Joint LDP Adopted	2011-2026	7,184	479	170.4
Isle of Anglesey					109.6
Merthyr Tydfil	Adopted	2006-2021	2,250	150	133.2
Brecon Beacons N.P.	Adopted	2007-2022	1,990	133	
Monmouthshire	Adopted	2011-2021	4,500	450	228.6
Neath Port Talbot	Adopted	2011-2026	7,800	520	274.3
Newport	Adopted	2011-2026	10,350	690	527.5
Pembrokeshire	Adopted	2006-2021	5,700	380	240
Pembrokeshire Coast NP	Adopted	2006-2021	1,599	107	
Powys	Adopted	2011-2026	4,500	300	191.7
Rhonda Cynon Taf	Adopted	2006-2021	14,385	959	373.9
Swansea	Adopted	2010-2025	15,600	1,040	519.4
Torfaen	Adopted	2006-2021	4,700	313	174.6
Vale of Glamorgan	Adopted	2011-2026	9,460	631	284.3
Wrexham	at Examination	2013-2028	7,750	517	304.2
TOTAL, Wales			203,935	13,746	6,423.6

3.16 It is evident from Table 3.3 that in every local authority, the levels of future housing requirements are substantially greater than recent levels of completion. For the country as a whole, the planned figures are more than double the average level of annual completions.

3.17 In reality, notwithstanding the fact that the housing figures have been scrutinised in terms of their 'deliverability' as part of the Local Plan process, and should therefore

⁹ Although Cardiff's adopted LDP covers the period 2006 to 2026, work on the plan actually commenced in 2011 following withdrawal of the previous LDP (which covered the period 2006 to 2021). The start date remained at 2006 because much of the evidence base for the withdrawn plan was used to inform the new plan in order to avoid unnecessary expenditure in preparing new evidence where it was not required. This effectively means the plan is a 15-year plan (as for all others), expiring in 2026.

be 'sound', the planned delivery of new houses will only be achieved if economic and other conditions allow. The figures are therefore not predictions and cannot be used as a basis for predicting future demand.

- 3.18 There is, nevertheless, a clear logic behind the notion that levels of housing requirements that are accepted for inclusion in adopted LDPs should be underpinned by a planned sufficiency of construction aggregates. As noted in para. 3.3, above, this ties-in with, and is supported by, the notion of integrating policies to promote balanced decision-making: one of the five key ways of working identified in the Well-being of Future Generations (Wales) Act 2015. **A decision was therefore made to move away from any attempt to predict future demand and to focus, instead, on making sure that future aggregates provision is reasonably matched to the planned requirements for housing construction.**

Economic Forecasts

- 3.19 Notwithstanding that decision, it is still useful to give at least some consideration to established economic forecasts, since these may have a bearing on whether or not the planned construction activity is able to be delivered.
- 3.20 In the First Review, it was found that there was a degree of correlation between past aggregate sales and the annual change (% growth or decline) in **Gross Domestic Product** (GDP), as a measure of economic activity. GDP out-turn figures are readily available (on the Eurostat website) and GDP forecasts are published regularly in the Economic and Fiscal Outlook reports from the Office of Budget Responsibility. Table 3.4, below, compares land-won aggregate sales in Wales, over each of the last 16 years (again combining data for the last review period as well as this one), against published data on the annual percentage change in GDP for the UK.
- 3.21 The resulting graphs (Figures 3.3 and 3.4) reveal the a relatively limited degree of correlation between the two datasets and a noticeable disconnect between the speed of recovery of aggregate sales following the recession, compared with that of GDP growth. This may be at least partly because the GDP figures are available only for the UK as a whole, and not specifically for Wales. It is concluded that these offer very limited insight regarding future aggregate requirements in Wales, and that GDP data should not be used in the assessment of future requirements for aggregates provision.

Availability of Alternative Aggregates

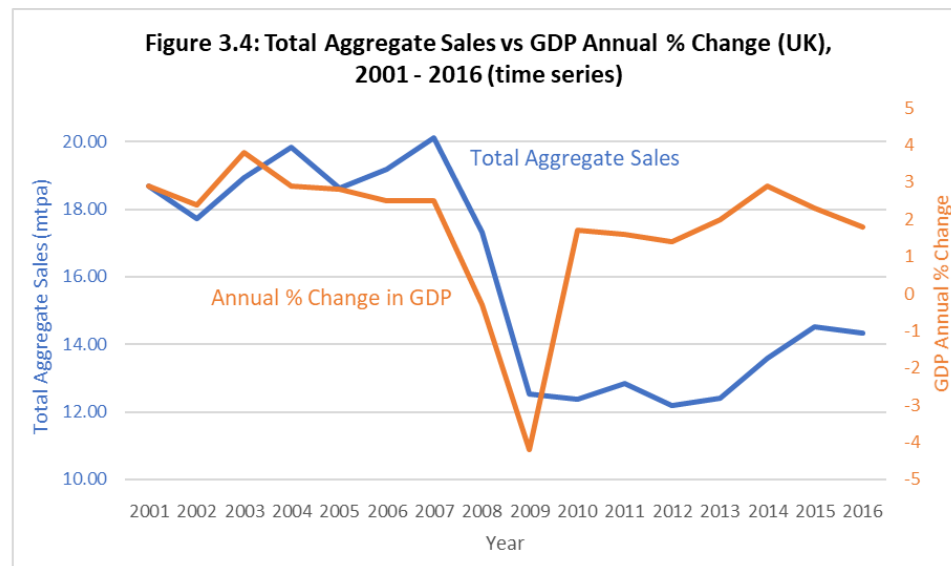
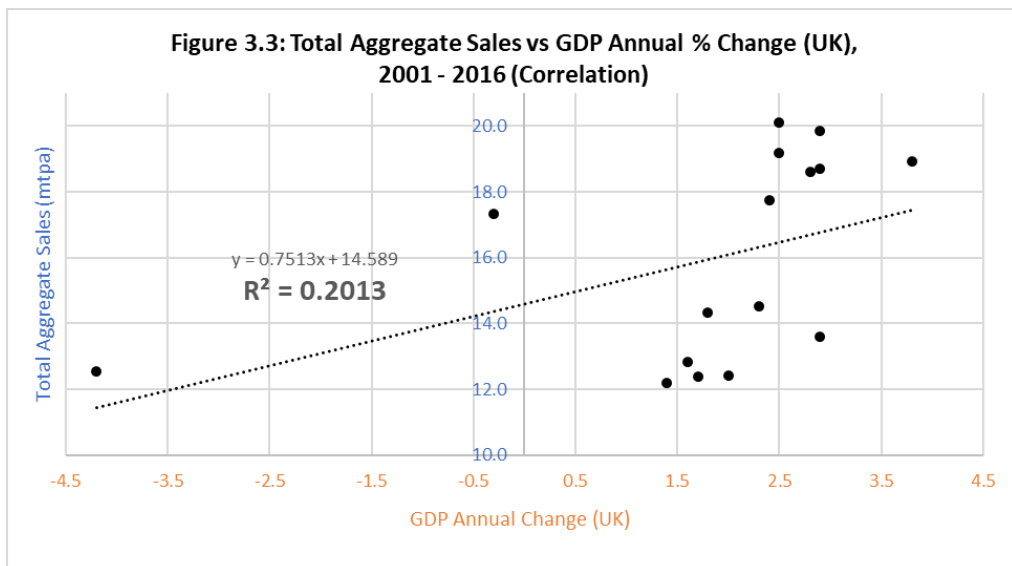
- 3.22 In considering possible trends in the demand for land-won primary aggregates, consideration needs to be given to the availability of alternative (particularly secondary and recycled but also marine) aggregate sources. Such materials are 'top sliced' in terms of policy preferences, such that only the 'residual' demand needs to be supplied from primary, land-won materials.

Table 3.4: Annual Aggregate Sales and GDP Data.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Crushed Rock * (mt)	16.97	16.18	17.46	18.30	16.95	17.75	18.81	16.58	11.8	11.58	12.08	11.33	11.6	12.5	13.31	13.43
Land-won Sand & Gravel * (mt)	1.73	1.55	1.47	1.54	1.68	1.45	1.3	0.74	0.74	0.78	0.75	0.86	0.81	1.09	1.21	0.89
Total * (mt)	18.70	17.73	18.92	19.84	18.62	19.20	20.11	17.32	12.54	12.37	12.83	12.19	12.41	13.59	14.52	14.32
GDP (UK) – Annual % change **	2.9	2.4	3.8	2.9	2.8	2.5	2.5	-0.3	-4.2	1.7	1.6	1.4	2	2.9	2.3	1.8

* SOURCE: Annual RAWP reports, updated (for North Wales) by the RAWP Secretary, for the purposes of this review.

** SOURCE: (https://ec.europa.eu/eurostat/data/database?p_p_id=NavTreeporletprod_WAR_NavTreeporletprod_INSTANCE_nPqeVbPXRmWQ&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_pos=1&p_p_col_count=2)



Secondary Aggregates

- 3.23 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 ballast¹⁰.
- 3.24 Aggregate production from metallurgical slags occurs only in 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 although volumes are thought to be declining, with a consequent increase in the demand for primary aggregates.
- 3.25 Coal-fired power station arisings, comprising pulverised fuel ash (PFA) and furnace bottom ash (FBA) are currently produced only at the Aberthaw Power Station, in South Wales. 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.
- 3.26 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. The amounts and their suitability for use as construction aggregates are highly unpredictable, however, and quantities can vary greatly over time. Many former colliery waste tips in Wales have either been landscaped as part of reclamation schemes or utilised for base fill material. Volumes still available are very limited in North Wales but more significant in parts of the South Wales coalfield. The overall potential for producing aggregate from this material is considered to be small, for a combination of local, fiscal and regulatory reasons, but could be locally significant, particularly within Torfaen and Blaenau Gwent. Here, there may be opportunities for the material to make up for the very limited existing and potential sources of primary aggregate production, although the quality of the material and the quantities available for anything other than low grade fill, have yet to be demonstrated.
- 3.27 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.
- 3.28 Crushed slate, derived either from slate waste (as a by-product of roofing material production) or quarried specifically for use as aggregate, features significantly in the overall pattern of supply with in North Wales (particularly in Gwynedd), but not in South Wales. Slate is included in the overall figures for crushed rock production

¹⁰ it might appear more logical to group these recycled materials with aggregates produced from recycled 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.

within the North Wales RAWP reports though not in the AM Surveys. Although output fell during the recent recession, the proportions have remained high, suggesting an underlying increase in the market for slate aggregate. However, given that slate production is already included in the crushed rock statistics, this trend has no implications for the overall level of future demand for primary aggregates, only for the balance between slate and other types of crushed rock.

- 3.29 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

- 3.30 Aggregates produced from the recycling of construction, demolition and excavation wastes (CD&EW) form an important contribution to the overall supply of construction aggregates. The 2008 RTSs identified 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.
- 3.31 The situation, in terms of available data, has not improved since the original RTSs were published. No new survey data is available, 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 little 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).

Marine-dredged Aggregates

- 3.32 Marine-dredged aggregates are of major importance in South Wales, with supplies being sourced from the Severn Estuary and the Bristol Channel, but are of very limited importance in North Wales. In south east Wales, marine-dredged material

accounted for 100% of all sand & gravel production over the baseline period (2007 to 2016), reflecting the complete lack of historical (or current) land-based sand & gravel extraction in that area, despite the existence of potential land-based resources.

- 3.33 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 sub-regions of either South Wales or North Wales is not likely to be affected.

Imports and Exports

- 3.34 The periodic Aggregate Mineral (AM) Surveys usefully include data on the distribution of aggregates from supply areas to destinations, and on the mode of transportation used. Such data is far from perfect, not least because it is only the initial destination that is recorded. In many cases this may be simply an intermediate processing and/or distribution depot, from which the products travel further. Nevertheless, it is the only available source of distribution data, and is therefore very important to the RTS process.
- 3.35 Table 3.5, on the following page, derived from information presented in Tables 4j and 4k of the AM Reports, reveals the extent to which aggregates produced in North Wales and South Wales are exported (either between those regions or, primarily, to England).
- 3.36 In North Wales, the main aggregate exports, by far, are those of Carboniferous Limestone which primarily are supplied to North West England. The AM Survey figures for North Wales generally show that, as overall sales fell during the recent recession – between 2005 and 2009, the proportion (as well as the totals) of exports also fell. This implies that, during periods of recession, for general-purpose limestone aggregates, there is a reduced dependence by importing regions on supplies from more distant sources, as would be expected. But the reverse is also true: as the economy has recovered from recession, since 2009, the demand for exports from North Wales has increased once again, and more quickly than the overall rate of economic growth.
- 3.37 In South Wales, the main export is of sandstone, the vast majority (almost 90%) 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). As noted earlier, these exports are of major importance because of the limited sources of unconstrained HSA materials within England. Reference to Table 3.5 shows that, although there was a reduction in sandstone exports between 2005 and 2009, the difference was much less marked than was the case for limestone exports from North Wales, especially in percentage terms. This reflects the fact that the market for skid-resistant road aggregate held up better, during the recession, than was the case for more general-purpose limestone aggregate (presumably because of the safety imperative of continuing to maintain skid resistance on major roads).

Table 3.5: Summary of Regional-scale export data from recent AM Surveys

<i>Note: all figures exclude sales for non-aggregate use</i>	AM2001 (mt)	AM2005 (mt)	AM2009 (mt)	AM2014 (mt)
North Wales (data from Table 4k of the AM reports)				
Land won Sand & Gravel Sales	1.342	1.192	0.589	0.897
S&G Exports*	0.544	0.508	0.128	0.158
Exports as % of S&G total	41%	43%	22%	18%
Limestone Sales	6.062	4.641	2.636	3.508
Limestone Exports*	3.344	2.973	1.116	2.226
Exports as % of Limestone total	55%	64%	42%	64%
Igneous Sales	1.136	1.022	0.610	0.660
Igneous Exports*	0.091	0.277	0.064	0.054
Exports as % of Igneous total	8%	27%	10%	8%
Sandstone Sales	0	0	0	0
Sandstone Exports*	0	0	0	0
Exports as % of Sandstone total	0%	0%	0%	0%
Total Crushed Rock Sales**	7.198	5.663	3.245	4.168
Total CR Exports*	3.436	3.251	1.178	2.280
North Wales CR Exports as % of CR total	48%	57%	36%	55%
South Wales (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
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

3.38 Wales has always been a net exporter of construction aggregates and imports of land-based aggregates from England are very minor, by comparison with exports. In North Wales, imports in 2014 (from Table 5k of the AM 2014 report) amounted to just 0.023mt of land-won sand & gravel, and only 0.128mt of crushed rock, most of which comprised igneous rock from neighbouring South Wales and Limestone from South West England. In South Wales in 2014 (from Table 5j), land-based imports amounted to 0.042mt of sand & gravel and 0.079mt of crushed rock, primarily limestone from South West England.

- 3.39 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.
- 3.40 Recent AM Surveys have also included information on aggregate movement between sub-regions. In Wales the sub-regions used for this purpose¹¹ comprise:
- **North-East Wales** (Conwy, Denbighshire, Flintshire and Wrexham);
 - **North-West Wales** (Isle of Anglesey, Gwynedd & the Snowdonia National Park);
 - **South-East Wales** (Swansea, Neath Port Talbot, Bridgend, Rhondda Cynon Taf, Merthyr Tydfil, Caerphilly, Blaenau Gwent, Torfaen, Monmouthshire, Newport, Cardiff and the Vale of Glamorgan); and
 - **‘the Remainder of South Wales’** (Pembrokeshire, Pembrokeshire Coast National Park, Ceredigion, Carmarthenshire, Powys and the Brecon Beacons National Park).
- 3.41 Table 3.6, below, shows the results for crushed rock, for each mineral planning authority. In each case, figures are given for sales within the same sub-region, sales to directly adjoining sub-regions within Wales, and sales to other sub-regions, including those in England.
- 3.42 Similar data is available for sand & gravel aggregates, although the quantities involved are extremely small, except in the case of Wrexham, where 51% is sold within NE Wales, 27% in NW Wales and 22% elsewhere (primarily England).

¹¹ The sub-regions used for the AM Surveys should not be confused with those used for the analysis of future apportionments in this Review, as described on page 53 and shown in Figure 5.2.

Table 3.6: Sub-Regional export data for crushed rock aggregates* from the AM 2014 Survey report (Mankelov et al, 2016), expressed as percentages of total sales.

<i>Note: all figures exclude sales for non-aggregate use</i>	Sales within sub-region	Sales to adjoining sub-regions in Wales	Sales to other sub-regions and to England
North Wales (data from Table 9k of the AM report)			
Conwy	25%	40%	35%
Denbighshire**	(44%)	(0%)	(56%)
Flintshire	33%	0%	66%
Gwynedd	77%	21%	3%
Isle of Anglesey	70%	17%	12%
Wrexham	-	-	-
South Wales (data from Table 9j of the AM report)			
Blaenau Gwent	100%		0%
Brecon Beacons National Park	2%	98%	0%
Bridgend	100%	0%	0%
Caerphilly	54%	46%	
Cardiff	39%	61%	0%
Carmarthenshire	23%	77%	0%
Ceredigion	100%	0%	0%
Monmouthshire	-	-	-
Neath Port Talbot	11%	57%	32%
Newport	-	-	-
Pembrokeshire	66%	34%	0%
Pembrokeshire Coast National Park			
Powys	26%	6%	68%
Rhondda, Cynon, Taf	80%	0%	20%
Swansea	-	-	-
Torfaen	-	-	-
Vale of Glamorgan	65%	35%	0%

* Unlike the figures in Tables 3.3 and 3.4, above, crushed rock sales exclude slate

** Denbighshire was omitted from Table 9k of the AM 2014 report, so the figures shown here are from AM 2009.

Agreed Methodology

- 3.43 The foregoing analysis indicates that there is very little clarity in terms of likely future trends in the demand for construction aggregates in Wales. As noted earlier, a decision was therefore made that the RTS should focus on matching future aggregates provision with a combination of historical sales data and the planned requirements for housing construction in Local Development Plans, rather than relying on any kind of detailed econometric forecasting.
- 3.44 Given that the relationship, such as it is, between house construction and aggregate sales is demonstrable at the national level, but not at regional or sub-regional levels, it is logical that figures for future provision should be set at the national level, and subsequently cascaded down to the regions, sub-regions and individual LPAs.

3.45 Following a detailed consideration of several options and permutations, the methodology agreed with the RTS Steering Group¹² was that this should entail four sequential stages, as set out below.

STAGE 1: National Provision

- Calculate the overall level of future aggregates provision in Wales at a national level by combining the historical sales average (taking the highest of the 10-year and 3-year averages for each LPA, for the reasons given in para. 3.8 above) with a factor which reflects the planned level of future housing construction activity, compared with that seen over the same 10-year baseline period (for details, see Chapter 5);

STAGE 2: Regional Split

- Divide the national figure between North Wales and South Wales, on the basis of the historical sales split between those regions which, as noted in paragraph 24 of MTAN1, has remained reasonably consistent over many years;

STAGE 3: Sub-Regional and LPA Apportionments

- Sub-divide the regional figures between a series of seven **sub-regions** (defined for the purpose of this Review¹³) and, *provided that it is feasible to do so*, between each of the constituent Local Planning Authorities (LPAs).
- In most cases, the distribution of apportionments within each sub-region is to be achieved through a combination of quantitative and qualitative judgements, exercised by the RTS Steering Group and facilitated by the appointed consultant. The judgements should aim to reflect the Steering Group's collective understanding of market requirements (reflecting both historical sales and the distribution of planned housing activity) together with considerations of existing landbanks, the proximity principle and environmental capacity.
- In a few areas, notably where there has been no production of land-won aggregates for many years, with no permitted reserves and zero apportionments, it might sometimes be more appropriate for the RTS apportionments to be subject to more detailed investigation by all of the LPAs within that particular sub-region and to industry responses to future calls for sites within those LPAs. In such cases, LPA apportionments will still be recommended but the possibility of alternative (more sustainable) sub-regional patterns of supply being found through sub-regional collaboration between LPAs and industry will be noted;

¹² comprising Welsh Government, the two RAWP secretaries, National Resources Wales, the Mineral Products Association, the British Aggregates Association and representatives of one local authority from each Region

¹³ 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.

STAGE 4: Sand & Gravel / Crushed Rock Split, and Allocations

- Sub-divide each LPA apportionment by aggregate type (sand & gravel or crushed rock), based on the recent historical sales split for that LPA and/or resource availability;
- Then determine the requirements for new allocations within individual LPAs by comparing the apportionment requirements over 22 years (for sand & gravel) or 25 years (for crushed rock)¹⁴ with existing landbanks.

3.46 Further details regarding the implementation of this methodology are presented in Chapter 5, below but first, to inform the qualitative element of Stage 3, it is useful to review the nature and adequacy, or otherwise, of the existing pattern of supply.

¹⁴ These derive from the minimum landbank requirements of 7 years for sand & gravel and 10 years for crushed rock, being required throughout an *entire* 15-year plan period, as set out in MTAN 1.

4. Analysis of the Existing Supply Pattern

Introduction

- 4.1 Planning Policy Wales, paragraph 5.14.1 requires that, in order to provide for society's ongoing needs there should be a steady and adequate supply of construction-related minerals and mineral products. Paragraph 5.14.2 highlights the need to balance this fundamental requirement with the protection of amenity and the environment. This goes to the heart of the RTS process and requires that, as well as balancing supply and demand, consideration is given to the adequacy or otherwise of the existing pattern of supply, from a sustainability perspective. As explained in Chapter 2, this requires at least qualitative assessment of the pattern with respect to both proximity and environmental capacity.
- 4.2 In the original (2008) RTS, proximity was only considered in terms of the 'per capita' demand analysis which, as noted earlier, is difficult to justify. There is little, if any, correlation between aggregate sales and population size. Population density, together with the location of existing urban development, were examined, qualitatively, in the First Review, to provide some indication of the geographical areas where new construction is most likely to be concentrated. Proximity to such areas was seen as one measure of the sustainability of existing quarries, and a desirable factor in the location of new ones - subject, of course, to the availability of resources in those locations and to the consideration of other practical and environmental factors. In the present review, as well as population density, the additional factor of planned housing construction is also being considered.
- 4.3 The concept of environmental capacity was considered, in the original RTSs, only in terms of providing qualitative descriptions for each LPA, based on outputs from the IMAECA analysis. It had no influence at all on the resulting apportionments or allocations (although future working within National Parks was discouraged as a more general matter of Policy - paragraphs 21 and 22 of the former MPPW; and paragraphs. 46, 49, 51, 52 & 53 of MTAN1).
- 4.4 In the course of the First Review, a determined attempt was made to use both the proximity principle and environmental capacity to better effect, in conjunction with an understanding of resource availability and historical supply patterns, in order to enhance, if possible, the spatial distribution of future supply sources. That process is continued in this Review, taking account of the additional information now available on the spatial distribution of planned future housing provision.
- 4.5 In considering such enhancement, it must be remembered that supply patterns are crucially dependent on the availability of suitable resources and on the commercial viability of working them. Minerals can only be worked where they are found. Moreover, they can only be worked on a commercial scale where quarry operators are willing to invest in their extraction, and in the procedures necessary to avoid (or minimise) potential adverse environmental impacts. In most cases, the detailed economic and commercial factors involved for individual sites cannot adequately be assessed at the strategic level represented by the RTS.

- 4.6 It must also be remembered that improved proximity might sometimes be at the expense of reduced environmental capacity; whilst improved capacity might be at the expense of increased transportation distances, with consequential increases in carbon emissions and traffic impacts. The two factors therefore need to be considered in combination.
- 4.7 Consideration also needs to be given to other factors, including the relative merits of extensions to existing quarries as opposed to new 'greenfield sites'; the need to avoid stifling competition between different operators; and the need to maintain productive capacity – both to maintain a healthy degree of competition between different operators and to ensure that the supply pattern has the necessary resilience to be able to cope with periodic spikes in demand (as, for example, may be associated with major infrastructure projects or other large-scale development initiatives).
- 4.8 These detailed issues can most effectively be dealt with at a local level, however, once the overall strategy has been established. For this reason, the following analysis begins with a consideration of the broad, national and regional picture, with more detail being provided in the sub-Regional analyses presented in Appendices A and B. The key findings are then carried through to the assessment of future apportionments and allocations, in Chapter 5.

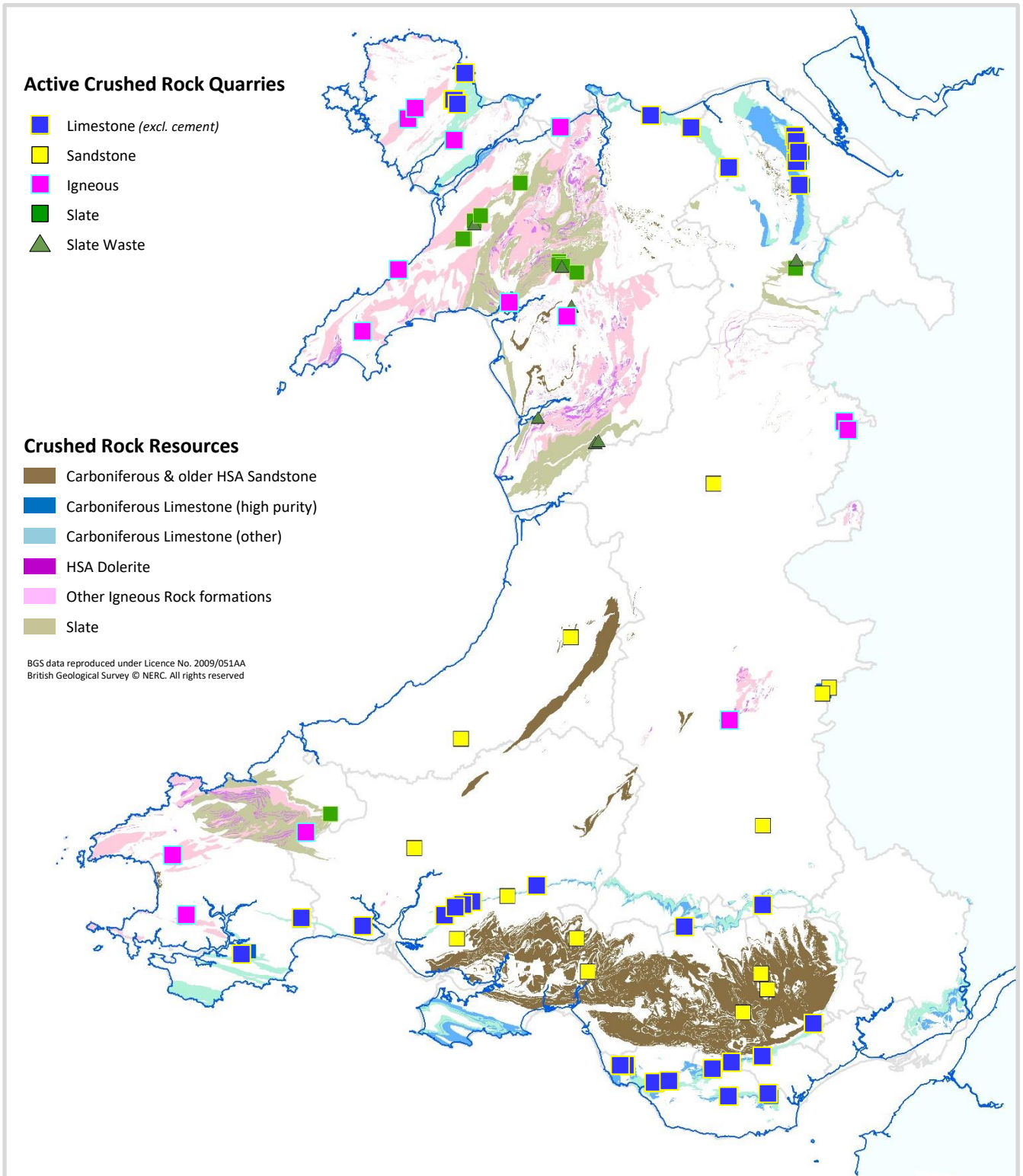
National and Regional Analysis

Distribution of Quarries and Resources

- 4.9 As noted above, the distribution of suitable geological resources is of fundamental importance in understanding the distribution of existing quarries, and in understanding the limitations involved in locating potential new ones. Once again, it is important to stress that minerals can only be worked where they are found.
- 4.10 Figure 4.1, below, shows the distribution of crushed rock quarries in Wales which were active in 2018, together with the outcrops of the key resources. The quarry locations are taken from an updated edition of the BGS 'Britpits' database¹⁵, limiting the selection to those which produce hard rock aggregates, either as a primary product or (in the case of slate waste tips) as a secondary material. Larger scale maps, which show the locations of inactive and dormant, as well as active quarries, are presented in the more detailed analysis contained within the Regional Appendices (A and B).

¹⁵ A 2018 edition of the Britpits database was supplied by the BGS at the outset of this study but was then updated by the RAWP secretaries, particularly in terms of current operational status and ownership.

Figure 4.1: Active Crushed Rock Aggregate Quarries and Resources in Wales, 2018



4.11 The resource outcrops on Figure 4.1 are taken directly from the digital dataset produced for the BGS Mineral Resources Map of Wales (Humpage & Bide, 2010), but are limited to those resources which are important for the production of crushed rock aggregates. These include all 'Category 1' resources, as identified on the BGS

maps, and some (but not all) 'Category 2' resources. They fall into seven main groups, as follows:

- Carboniferous HSA sandstones (Category 1)
- Pre-Carboniferous HSA sandstones (Category 2)
- High Purity Carboniferous Limestone (Category 1)
- Other Carboniferous Limestone (Category 2)
- HSA dolerites (Category 1)
- Other igneous rock formations (Category 2)
- Slate (Category 2)

4.12 The term 'HSA' refers to 'High Specification Aggregate', which is suitable for use as skid-resistant road surfacing aggregate as defined in the original 'Travers Morgan' report on these materials for the former Department of the Environment (Thompson, Greig & Shaw, 1993). They are characterised by a high Polished Stone Value (PSV \geq 58) in combination with a low Aggregate Abrasion Value (AAV \leq 16) and tend to command a premium price compared with other types of road aggregate. They are also transported over much greater distances in order to meet specification requirements in areas which have no comparable indigenous resources (which includes most of eastern and southern England). HSA aggregates in Wales include certain types of hard sandstone (particularly the Carboniferous 'Pennant' Sandstones of the South Wales coalfield, and some older sandstones - mainly within Powys), and certain types of dolerite (a particular variety of igneous rock) which occurs within various parts of south-west, north-west and mid-Wales.

4.13 It should be noted that some of the extensive sandstone formations within mid-Wales and North Wales that were identified as potential HSA resources within the 1993 Travers Morgan report have since been refined by the most recent and more detailed BGS resource mapping, such that only parts of those resources are now identified as potential sources of HSA material on a commercial scale.

4.14 The usual caveat should be added that not all of the outcrops, of any of the rock types or formations listed at para. 4.11, above, will necessarily be suitable for commercial quarrying. This is because all geological materials are inherently variable, from one part of their outcrop to another. Moreover, the commercial viability of extraction is also influenced by a large number of other practical issues including the local extent of the deposit, land ownership, access, and distance from market, as well as planning and environmental constraints.

4.15 Above all, it must be emphasised that Figure 4.1 (and Figure 4.2 below) displays the extent of potential **resources** and not **permitted reserves**. Resources are geological materials, including rock formations and naturally occurring sand & gravel deposits, which have the *potential* to be used for a particular purpose (in this case as construction aggregates). Reserves, in the broadest sense, 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 permitted reserves are

those which have valid planning permission for the winning and working of the materials in question.

- 4.16 Excluded from Figure 4.1 are a range of weaker sandstones and limestones, including some 'Category 2' resources, which are not currently exploited as sources of crushed rock aggregate on anything other than an extremely local scale (e.g. for use on farms etc.), and where this is most unlikely to change in future, because of their inherent unsuitability for more commercial applications. Such resources include all Devonian sandstones and all post-Carboniferous sandstones and limestones. Whilst many of these have been identified by the BGS as being worthy of safeguarding within Local Development Plans (Wrighton & Humpage, 2012), they do not represent practical alternatives to the resources listed above, in terms of their ability to meet the same commercial specifications and are therefore not considered further here.
- 4.17 Figure 4.2, below, provides a similar map of the distribution of land-based sand & gravel pits, together with the corresponding potential resources. The latter are once again taken largely from the BGS Mineral Resources Map of Wales and include a wide range of sediments which have potential as sources of natural aggregate. The same caveats apply as for the crushed rock resources noted above.
- 4.18 Figure 4.2 also shows, within NW Wales and SE Wales, more specific potential resource blocks which were identified in more detailed studies carried out for the National Assembly for Wales (Thompson et al., 2000; University of Liverpool, 2003). These are not necessarily the only potential worthwhile resources, but they are the most rigorously assessed, within the areas concerned.
- 4.19 Figure 4.3, which follows, shows the areas which are within an illustrative 20km radius of one or more currently active crushed rock quarries; and Figure 4.4 provides a similar illustration in respect of both land-based sand & gravel quarries and ports which receive marine-dredged aggregates (principally sand).
- 4.20 In most cases, the economic radius of distribution from these locations is considerably greater than 20km: typically up to 50km for 'ordinary' graded aggregate or further in the case of value-added products (e.g. ready-mixed concrete and asphalt materials) that are often produced at remote depots for onward distribution, and much further still in the case of High Specification Aggregates or High Purity limestone.
- 4.21 The diagrams merely illustrate that the existing pattern of supply within Wales already conforms reasonably well to the Proximity Principle: very few parts of the country (those shown in black on Figure 4.3) are more than 20km from a source of crushed rock aggregate and many of those which are further away fall within 20km of either a land-based sand & gravel pit or a wharf which imports marine-dredged aggregates. Elsewhere, the distances are more than 20km but rarely more than 30km, and in most cases these are remote rural areas which are unlikely to generate significant levels of demand.

Figure 4.2: Land-based Sand & Gravel Pits and Resources in Wales, 2018

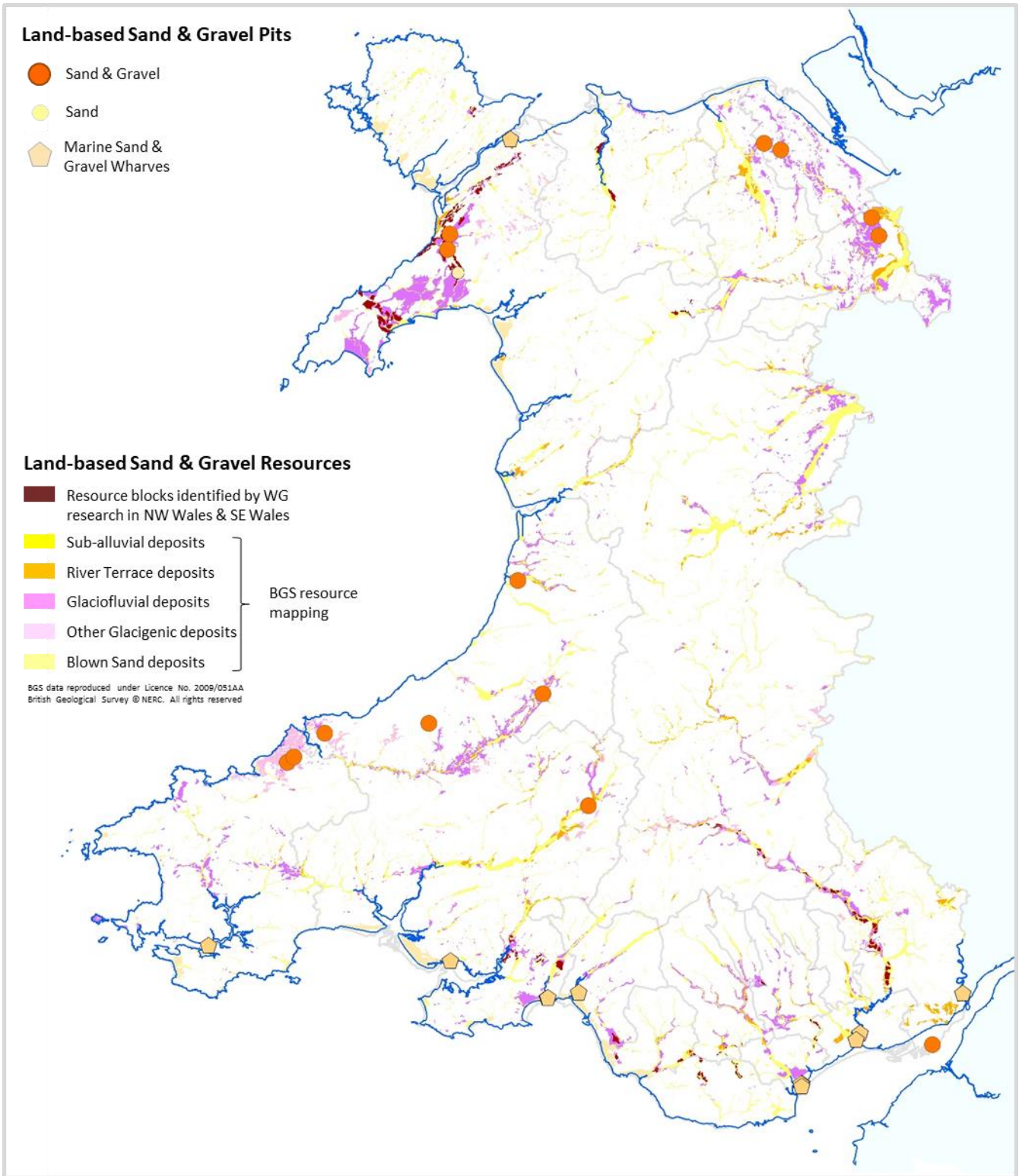


Figure 4.3: illustrative 20km radii from all active crushed rock quarries in Wales, 2018.

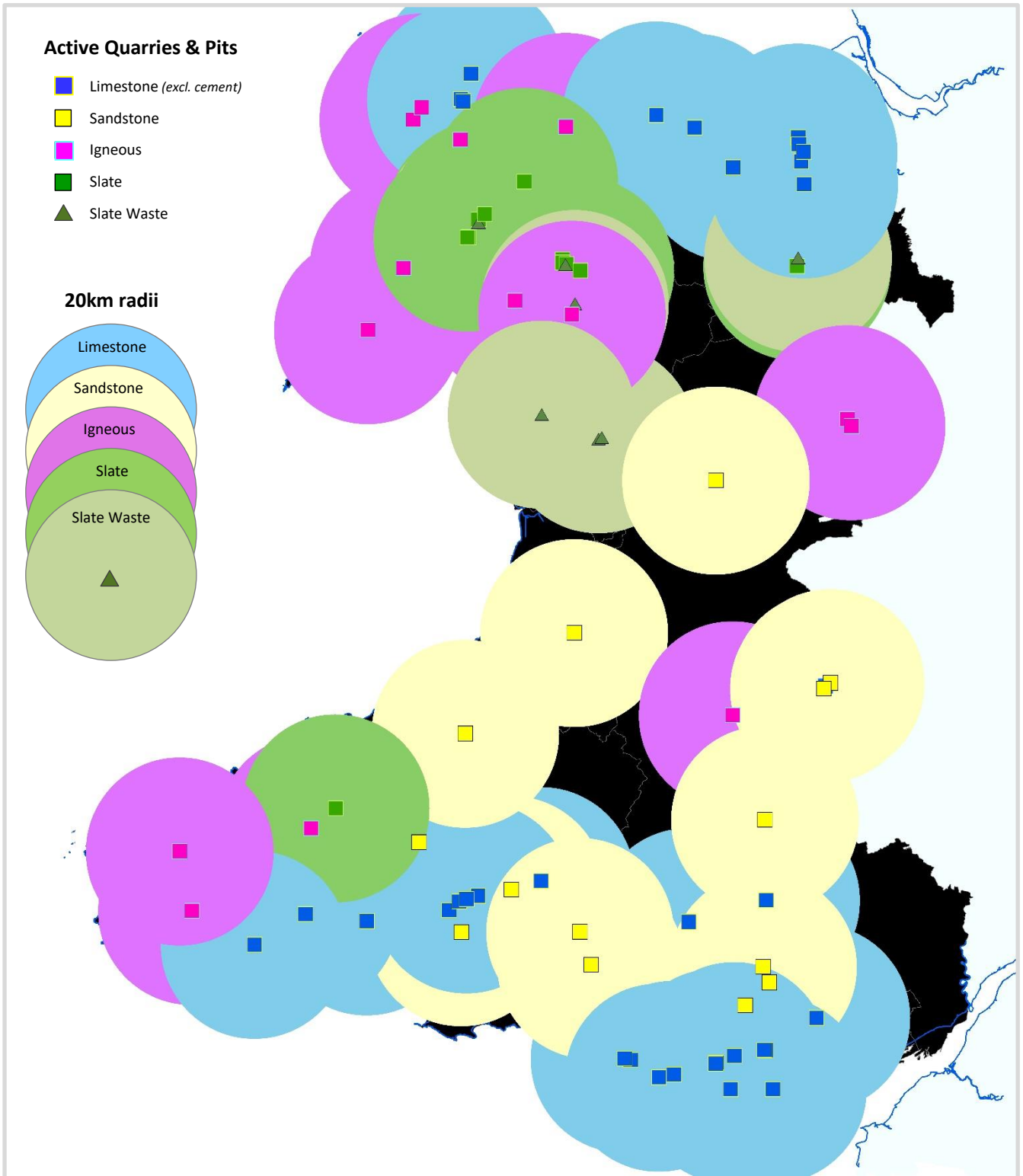
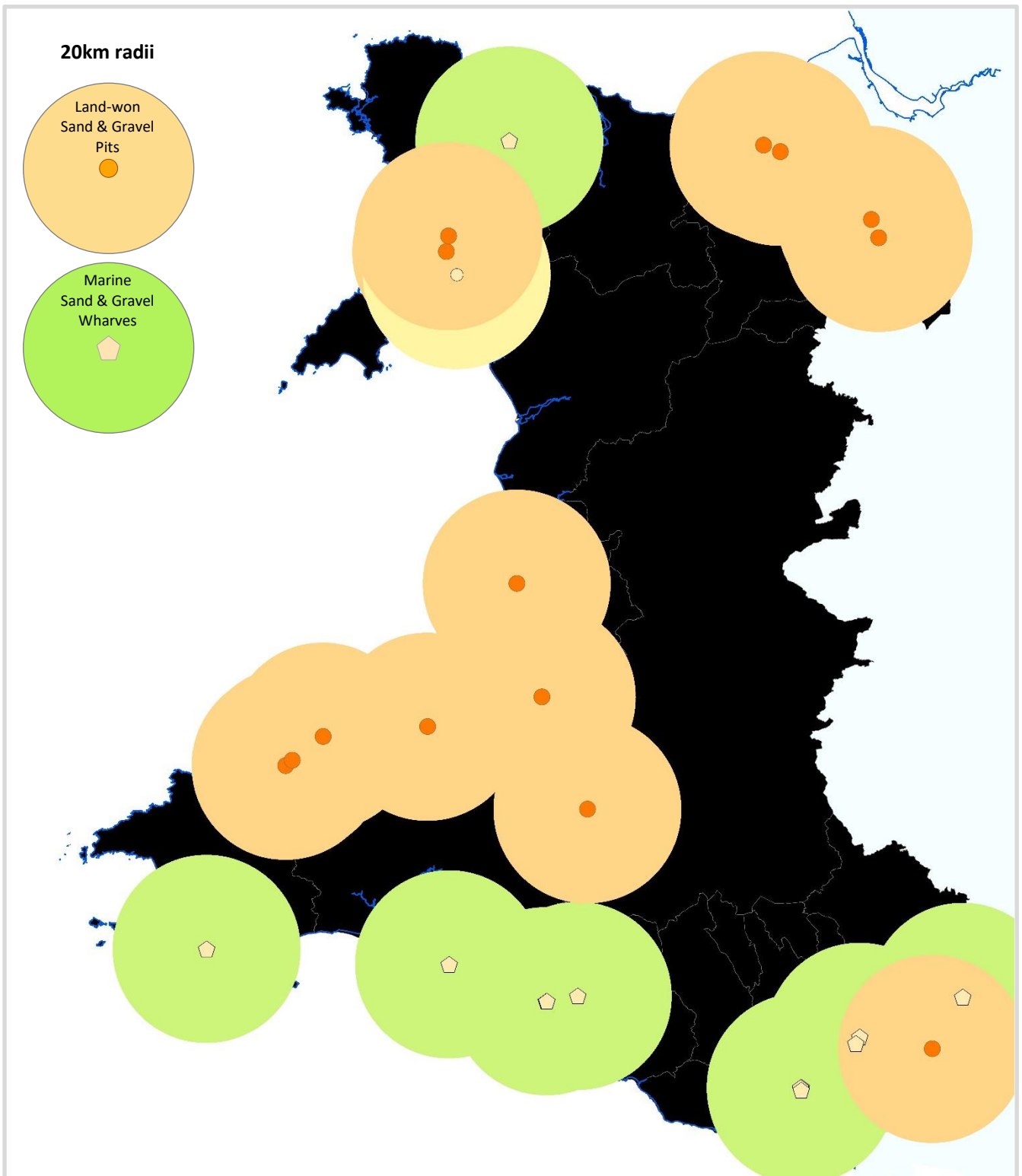


Figure 4.4: illustrative 20km radii from all active sand & gravel pits & wharves in Wales, 2018.



4.22 Figure 4.5, below, shows the distribution of crushed rock quarries in relation to the scale of crushed rock aggregate production, as measured by average historical sales figures for each LPA over the baseline period (2007-2016). The shading corresponds

to the figures given in Tables 5.4 and 5.6 in Chapter 5¹⁶. It is emphasised that this illustrates variations in production, not demand, and therefore includes both domestic consumption and exports to adjoining areas, including England. Figure 4.6 then provides a similar map for land-based sand & gravel production, displaying the data from Tables 5.3 and 5.5.

- 4.23 The focus of production for crushed rock is clearly seen, from Figure 4.5, to be in North-East Wales - particularly Flintshire (which is where most of the exporting Carboniferous Limestone quarries are located); and in 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 distorted by the much smaller size of many of the individual unitary authorities, particularly in the south-east, where the totals for each LPA are less than for the much larger county of Powys, even though overall production within SE Wales is double the total for Powys.
- 4.24 Historical crushed rock sales in South Wales have been concentrated within the Carmarthenshire, Bridgend, Vale of Glamorgan, Rhondda Cynon Taf and Cardiff LPAs (which is where most of the larger Carboniferous Limestone quarries in South Wales are located), and in the adjoining LPAs of Caerphilly and Neath Port Talbot, where additional HSA sandstone quarries are also located. Whereas much of the crushed rock production within NE Wales is supplied to the neighbouring parts of North West England, particularly Merseyside, most if not all of the limestone production in South East Wales appears to be utilised locally, within the producing areas, and within the adjoining LPAs of Swansea and Neath Port Talbot, to the west, and those of Merthyr Tydfil, Caerphilly and the 'Former Gwent' authorities to the east. Although Carboniferous Limestone resources do exist in these adjoining areas, they are either less extensive and/or more heavily constrained (see Appendix B for more detailed analysis).
- 4.25 The fact that little or none of the limestone from South Wales is exported further east, into England, is evidenced by the fact that additional Carboniferous Limestone from the Forest of Dean in Gloucestershire is currently being imported into the former Gwent area to make up for what would otherwise be an overall shortfall of supply. Although SE Wales has significant exports of crushed rock to England, most if not all of those exports are of HSA from the Pennant Sandstone formations of the South Wales Coalfield.
- 4.26 Overall, the pattern of crushed rock aggregate production outlined above relates largely to the availability of resources, the location of established supply units and the proximity of these to the main areas of construction activity and/or to major transport routes such as M4 corridor. Further analysis of the supply pattern, including the relationships between quarry locations, resources, markets, major designations and environmental capacity, is provided in paragraphs 4.30 *et seq.*, below, and in the two Regional Appendices.

¹⁶ The exception being Snowdonia National Park, which is combined with Conwy in Table 3.1, for confidentiality reasons, but which in fact had very limited production over the baseline period, from a single site.

Figure 4.5: Spatial Distribution of Crushed Rock Production within each LPA, based on Average Sales 2007 - 2016, with locations of Active Crushed Rock Aggregate Quarries (2018)

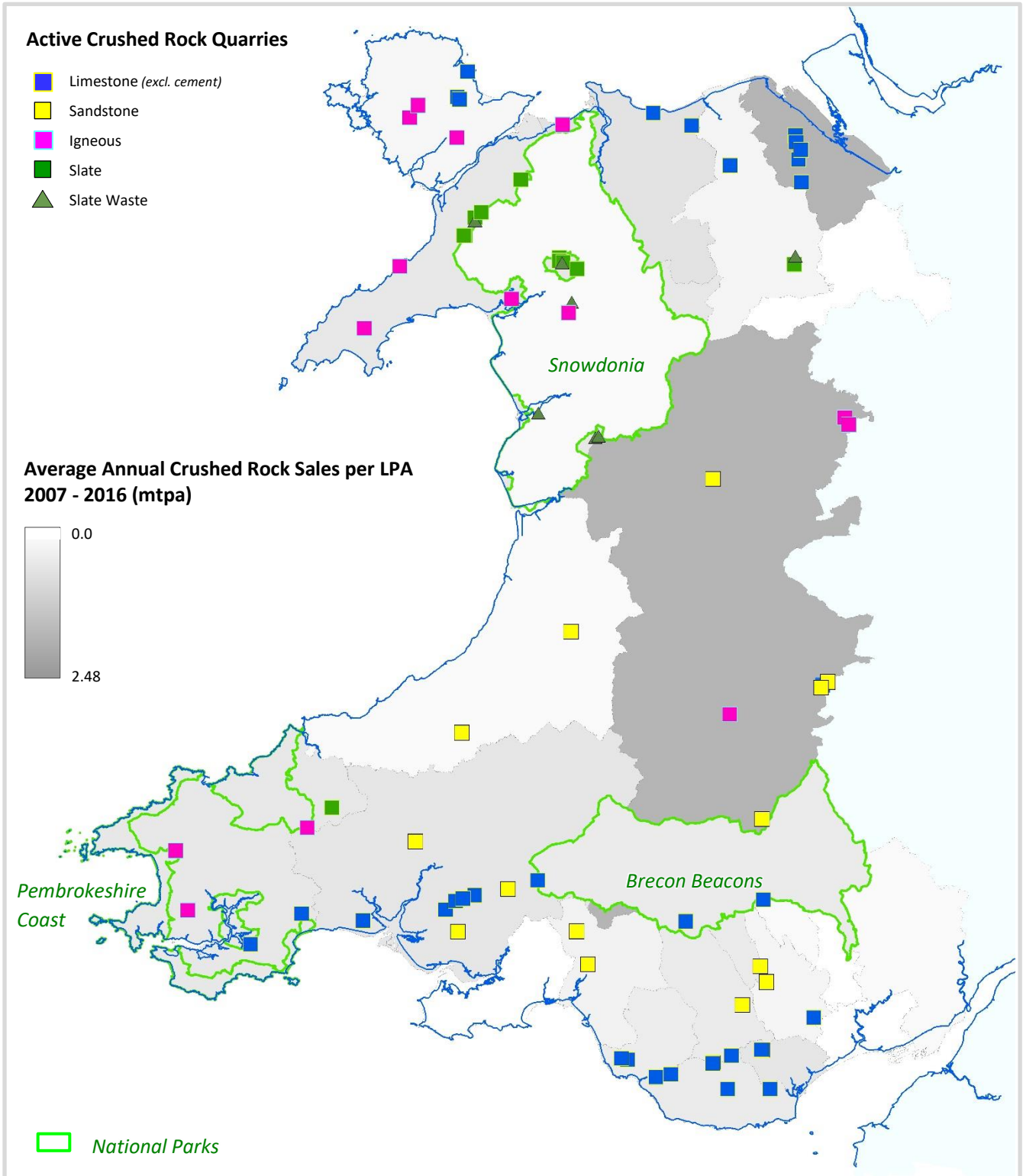
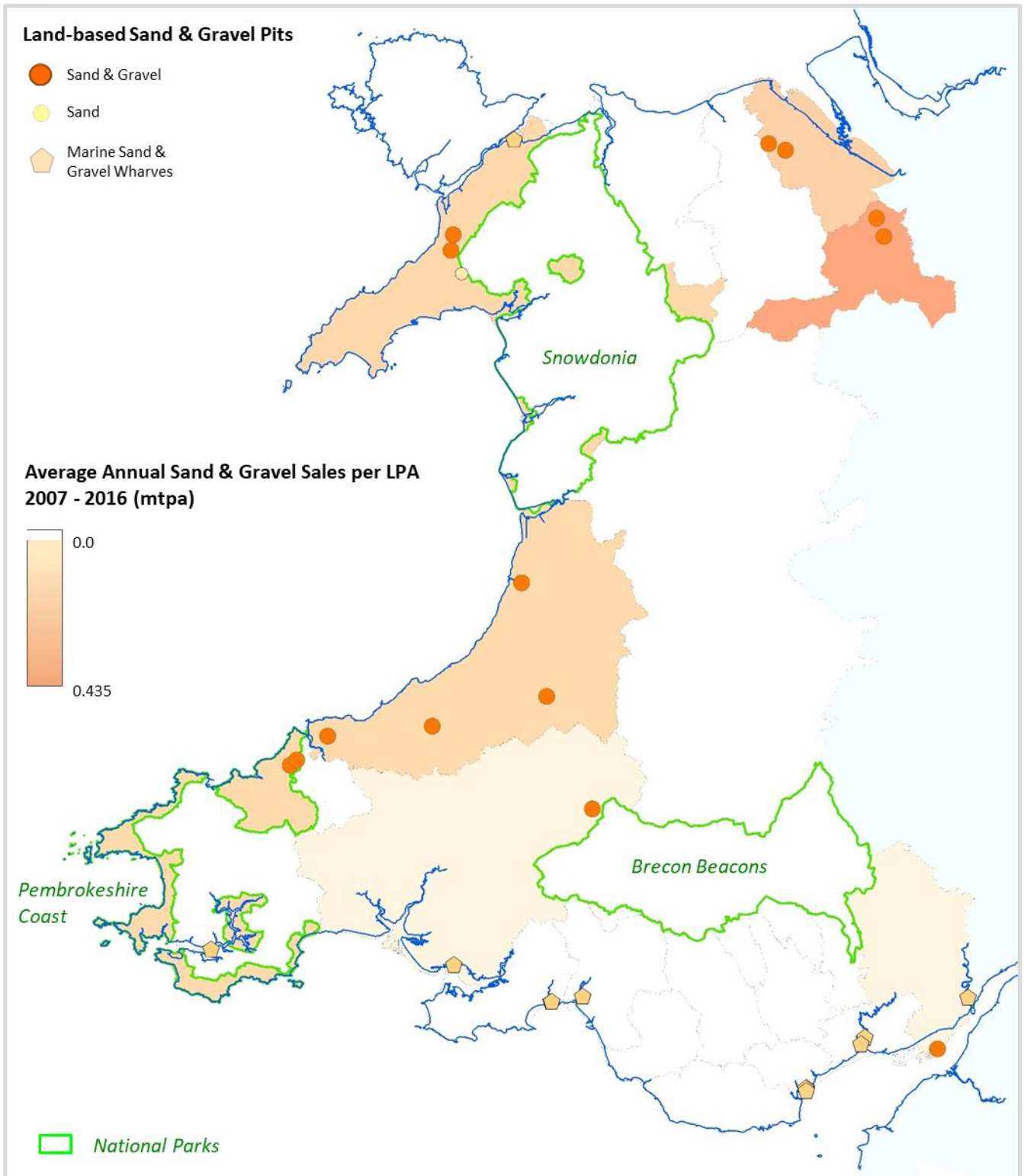


Figure 4.6: Spatial Distribution of Land-won Sand & Gravel production within each LPA, based on Average Sales 2007 - 2016, with locations of Sand & Gravel Pits (2018)

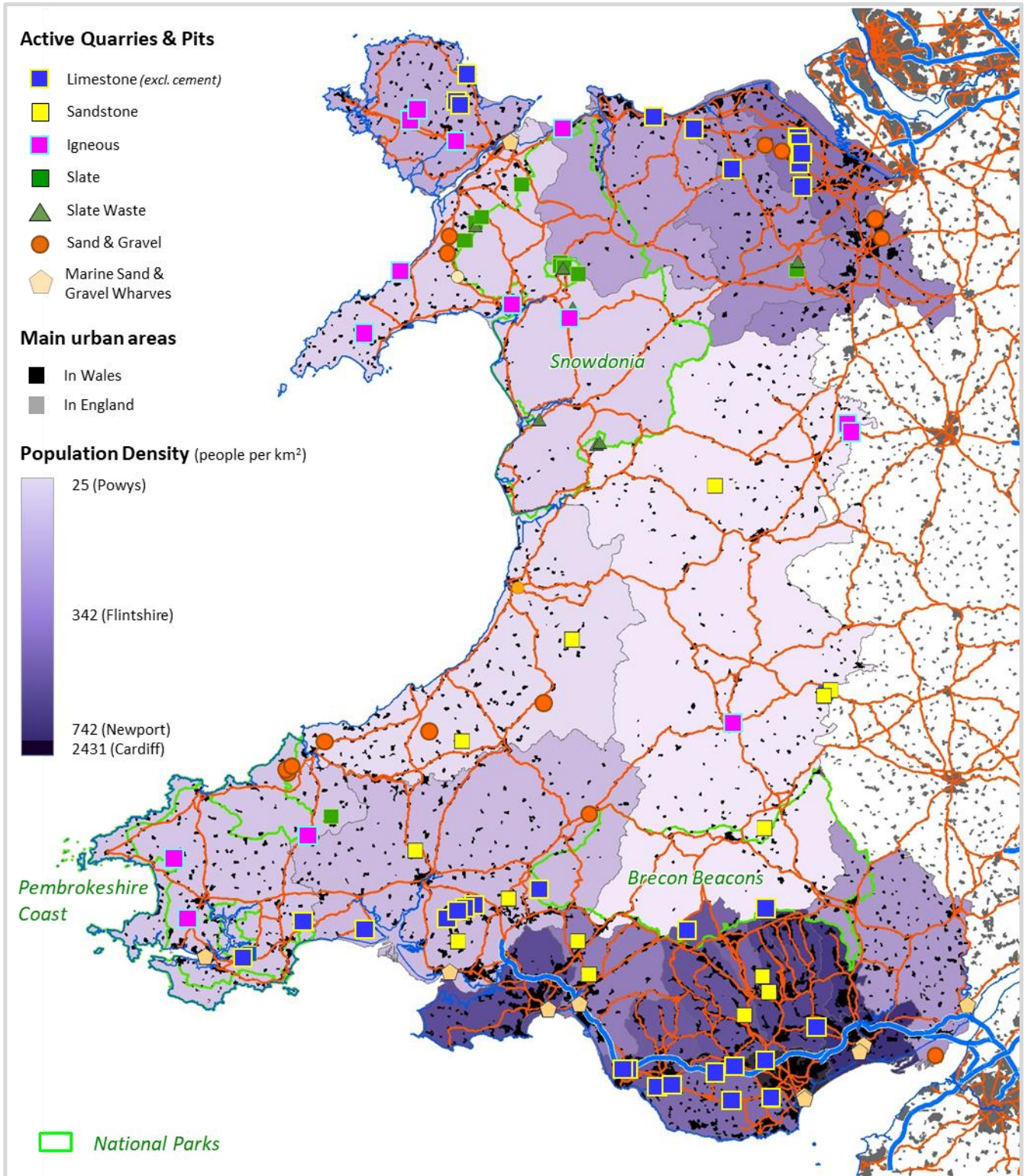


- 4.27 Looking to the future, any undue reliance on historical supply data would inevitably reinforce and perpetuate the same patterns of supply. More careful consideration is therefore needed where such reliance would unnecessarily perpetuate adverse environmental effects or unjustified inequalities in the balance of supply between neighbouring authorities (see also para. 4.27, above); or where undue reliance might otherwise be placed on the continued availability of supplies from an adjoining LPA or country (e.g. imports from Gloucestershire into SE Wales). In addition, any imposed change to the existing supply pattern may, in some cases, either necessitate working less suitable, thinner or otherwise less viable resources, where these exist, or (in some cases at least) may entail increased transportation distances, with consequential increases in carbon emissions and traffic impacts. All of these issues are explored in more detail in the sub-regional analyses within Appendices A and B.
- 4.28 In the case of sand & gravel production, as illustrated in Figure 4.6, the picture is greatly distorted by the reliance of South East Wales, in particular, on marine-dredged aggregates from the Bristol Channel and the Severn Estuary. South West Wales is less dependent on marine aggregates and has a small number of active land-based sites. Powys is too far removed from the coast to be influenced to any significant degree by marine aggregates, but still has only one very small land-based sand & gravel site currently in operation. It is reliant instead on crushed rock material, despite the apparent resources of natural sand & gravel within the upper reaches of the Severn, Wye and Usk valleys. In North Wales, there are, once again, apparently plentiful resources of natural sand & gravel in Gwynedd (as indicated in both BGS and Liverpool University mapping) but the supply pattern is dominated by one major quarry within Wrexham and (to a much smaller extent) by two further units within Wrexham and two or three others in Flintshire. Further details are given in the Regional Appendices.
- 4.29 Overall, in South Wales and much of North Wales, the relative lack of land-based sand & gravel production is influenced to a very large extent by environmental and landscape concerns, as well as by the relative ease of availability of alternative materials (marine aggregates, crushed rock and slate, including slate waste).

Comparison of the Supply Pattern with Population Density and Transport Links

- 4.30 Figure 4.7, below, shows the distribution of all currently active quarries and pits throughout Wales in relation to variations in population density by local authority area. It also shows urban areas, A-roads and motorways. Additional local roads, not shown on this map, will also be utilised close to individual quarries, distribution depots or customer locations. Together, the areas of high population density and the main urban areas provide a good indication of where construction activity, as a whole, is most likely to be concentrated, but the locations of major transport routes, such as the A55 in North Wales, and the M4 corridor in South Wales have important influences on export distribution. The map does not show railways, which are generally not used for aggregate distribution, though they are important for a few of the quarries in the South Wales coalfield area and along the North Wales coast.

Figure 4.7: LPA Population Densities (2010) and main urban areas, as approximations for the overall pattern of demand for construction aggregates, with motorways, A-roads, national landscape designations and locations of all active quarries & pits (2018)



- 4.31 In North Wales, the highest population density occurs within Flintshire and Wrexham, coinciding with the highest levels of crushed rock and sand & gravel output, respectively, within that region (see figures 5.5 and 4.6, above). The road network in these areas also provides ease of access for exports into the conurbations of North West England, including the Wirral, Liverpool and Warrington. The main apparent anomaly here is the absence of crushed rock production within Wrexham. Although Carboniferous Limestone resources do exist in the western part of this authority, they fall almost entirely within the Clwydian Range & Dee Valley AONB. It will generally not be appropriate for new allocations to be identified within such areas, unless there are no viable alternatives within neighbouring Flintshire or Denbighshire. This is discussed at greater length in Appendix A, as is the need to maintain sand & gravel supplies within North West Wales by developing further resources in Gwynedd.
- 4.32 In South Wales, there is some coincidence between the areas of high population density and urban areas, on the one hand, and the distribution of crushed rock sales and quarries, on the other, but the relationship is less clear than in the north and the need for adjustments to the future supply pattern is, in some cases, more compelling. In particular, the areas of Newport, Torfaen, Blaenau Gwent and Caerphilly have higher population densities than those of the Vale of Glamorgan, Bridgend and RCT, but it is in the latter areas where most of the Carboniferous Limestone outcrops and quarries are located. Similarly, Swansea has a high population density but no active quarries or pits, relying instead on neighbouring Carmarthenshire for most of its limestone supplies, on Neath Port Talbot for supplies of road surfacing aggregate, and on marine dredged sources landed at Swansea Wharf for building sand. As with Wrexham in North Wales, Swansea does have indigenous resources of Carboniferous Limestone but again these are almost entirely within an AONB designation – that of the Gower Peninsula.
- 4.33 As noted in the First Review, the distribution of crushed rock quarries in this area as a whole is therefore not ideally matched with the main areas of demand, suggesting that there may need to be some adjustment in terms of future apportionments, on the grounds of proximity. This, however, needs to be examined in more detail and balanced against both environmental capacity and commercial factors – not least including the availability or otherwise of workable resources within and outside national landscape designations. Further commentary on this is given in Appendix B.
- 4.34 In mid Wales, there is a marked contrast between the very low population density of Powys and the high level of demand placed upon that County, in terms of crushed rock sales (compare Fig 4.7 with Fig 4.4). This, as noted earlier, is primarily due to a number of large quarries within Powys which export High Specification Aggregates by road to markets in England. Taking that into account, together with the distribution of these important resources, these quarries are clearly well-placed in terms of proximity to the relevant markets and transport routes.

Comparison of the Supply Pattern with Planned Development

- 4.35 Consideration also needs to be given to the distribution of supply sources in relation to that of the planned distribution of new housing provision since, as explained in Chapter 3, this is likely to have an important influence on the location of future aggregate consumption. Figure 4.8, below, therefore illustrates the distribution of active quarries in relation to the annualised housing requirement set out in Local Development Plans.
- 4.36 In this case, the indicated pattern of consumption is somewhat closer to the pattern of supply, than is the case when looking at population density. In South East Wales, especially, the housing requirement figures are relatively modest in Blaenau Gwent, Torfaen and Monmouthshire, which are served by only a single quarry, but the anomaly is still seen in Swansea, which has the second highest housing requirement figures, after Cardiff.

Comparison with Environmental Capacity

- 4.37 Figure 4.9, below, compares the distribution of active quarries with the spatial variations in Environmental Capacity across most (but not all) of Wales, as indicated by the 'combined scores' from the IMAECA Geographic Information System tool developed by Enviro Consulting Ltd. (2005). As explained more fully in paragraphs 2.14 et seq., above, the tool provides values, relative to arbitrary thresholds between the three coloured categories, for each 1km square which was assessed by the IMAECA project. The areas assessed were identified on the basis of whether or not aggregate resources were present within all or part of each square. Areas which were considered not to contain such resources were not assessed, which is why many parts of the country are left blank.
- 4.38 It should be noted that, whilst the GIS tool allows separate results to be shown for different resource categories, those categories do not entirely match with the current BGS mineral resource maps and the resource outlines are therefore quite different. It is therefore more useful to look at the overall picture, as shown in Figure 4.9 (and, at a slightly larger scale but at the same level of detail, in the various maps which accompany the sub-Regional analysis in Appendices A and B).
- 4.39 It must be emphasised that the IMAECA results are intended only to provide a very broad indication of the capacity of different areas to accept the environmental impacts of additional quarrying activity. They are necessarily generalised and are specifically *not* intended to take the place of conventional 'sieve-mapping' within individual Local Authorities, where more detailed constraint maps can be used and site-specific issues can be examined to determine the relative pros and cons of different factors.

Figure 4.8: Annualised Planned (LDP) Housing Requirements in LPAs and National Parks, as partial indicators of the pattern of demand for construction aggregates, with motorways, A-roads, and locations of all active quarries & pits (2018)

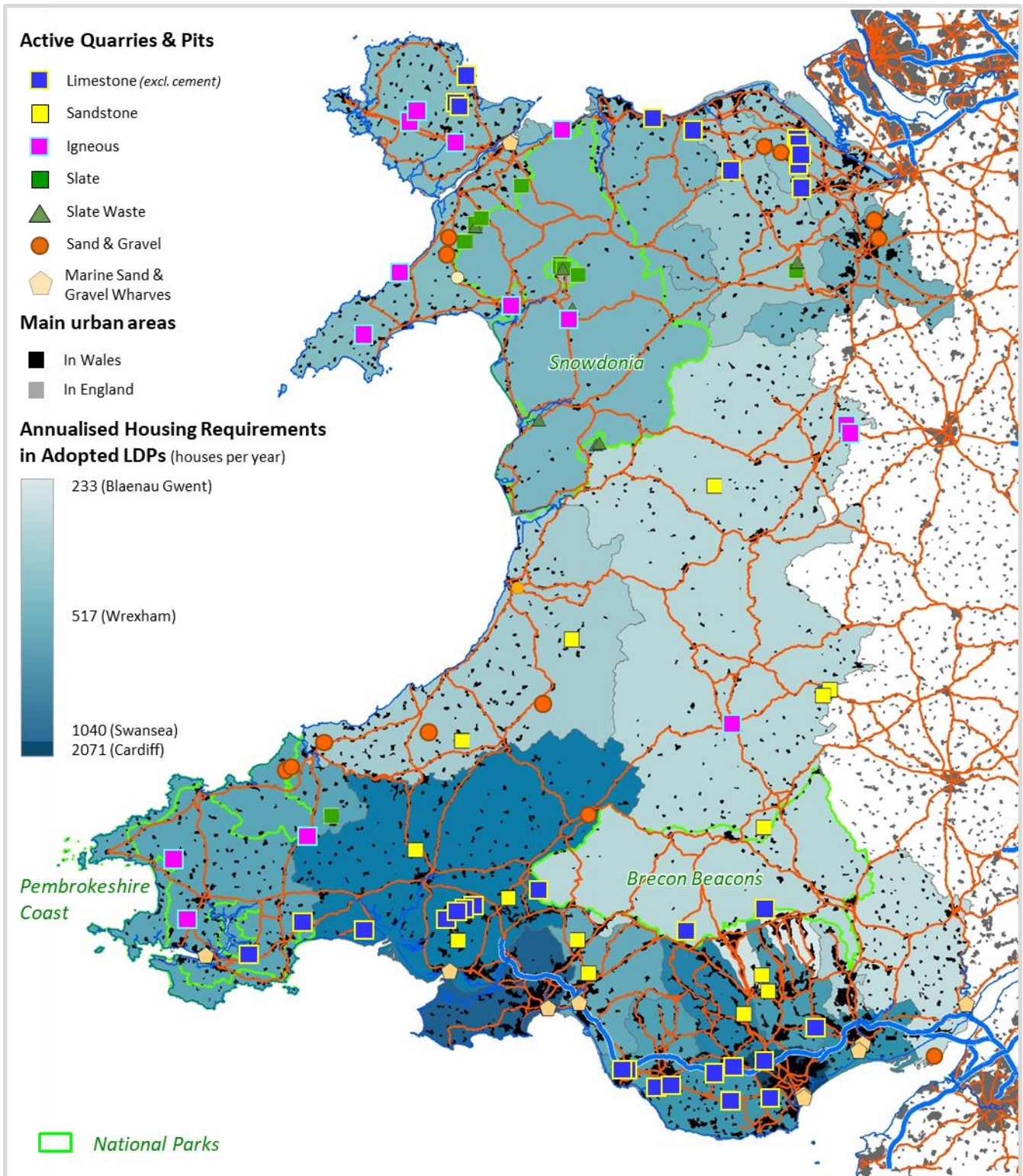
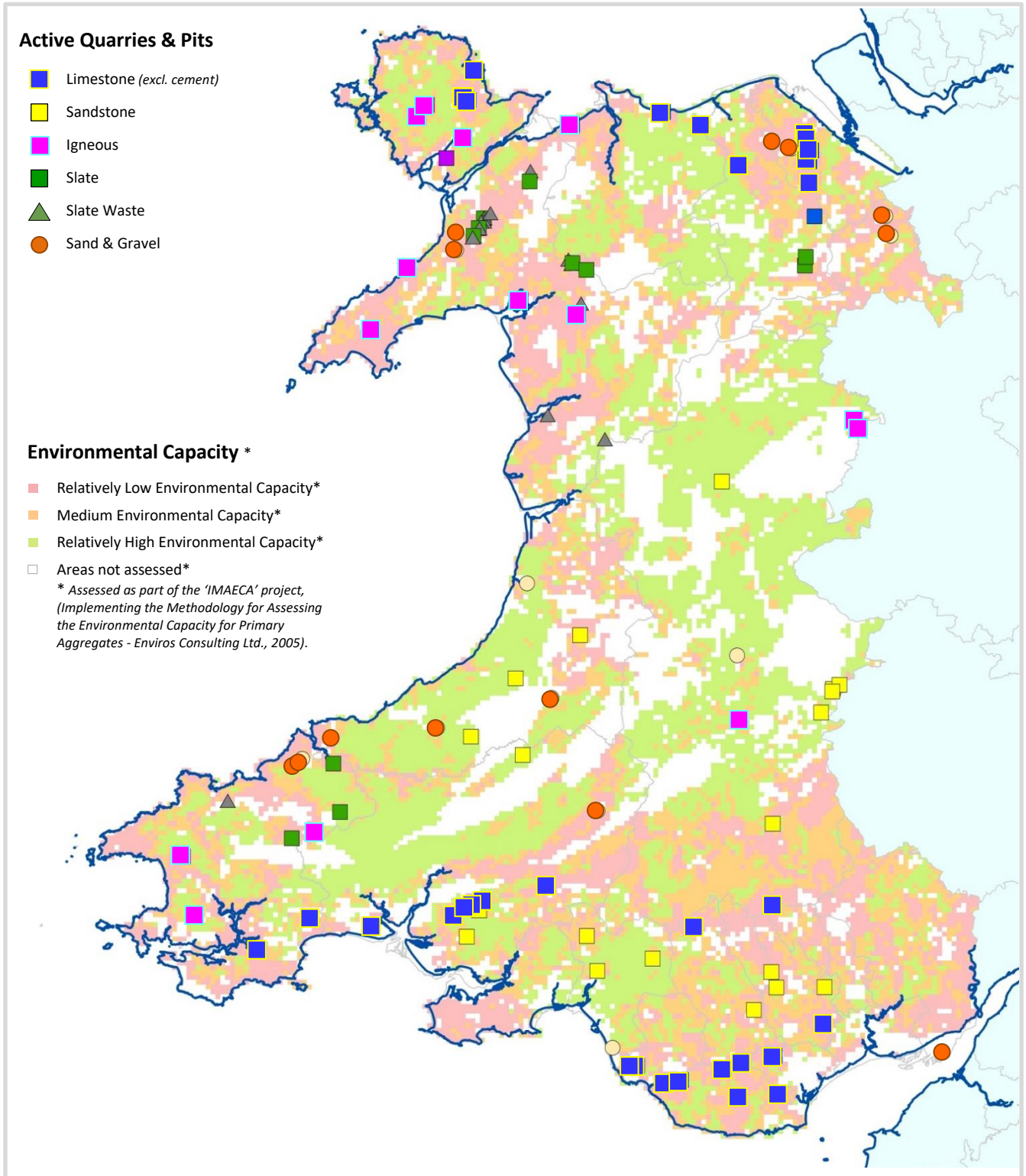


Figure 4.9: Environmental Capacity Assessment (combined scores for each km²), as assessed by the IMAECA project, with locations of all active quarries & pits (2018)



4.40 The IMAECA results have also been criticised for the fact that the presence of an existing quarry is treated, in the IMAECA analysis, as a factor which reduces the capacity for further quarrying in that area. Whilst there might be some justification for this, in terms of seeking to minimise cumulative impacts, it conflicts with the

widely-held notion that well-designed extensions to existing quarries are likely to be more acceptable, at least in terms of public perception, than the introduction of quarrying to previously undisturbed 'greenfield' sites.

- 4.41 Bearing all of that in mind, the IMAECA results nevertheless provide a useful starting point for comparing environmental capacity issues with other factors (including resource availability, proximity and commercial viability) in areas where the historical supply pattern is thought to be in need of improvement, from a sustainability point of view. This is examined further in the Regional Appendices (A and B), the key findings of which are summarised at the end of this chapter.

Sub-Regional Analysis of Supply Patterns

- 4.42 More detailed, sub-regional analyses of the inter-relationships between each of the various factors outlined above were taken into account during Stage 3 of the apportionment process, as summarised in Chapter 5, below. They are described more fully in the Regional Appendices for North Wales (Appendix A) and South Wales (Appendix B).

5. Assessment of Apportionments and Allocations

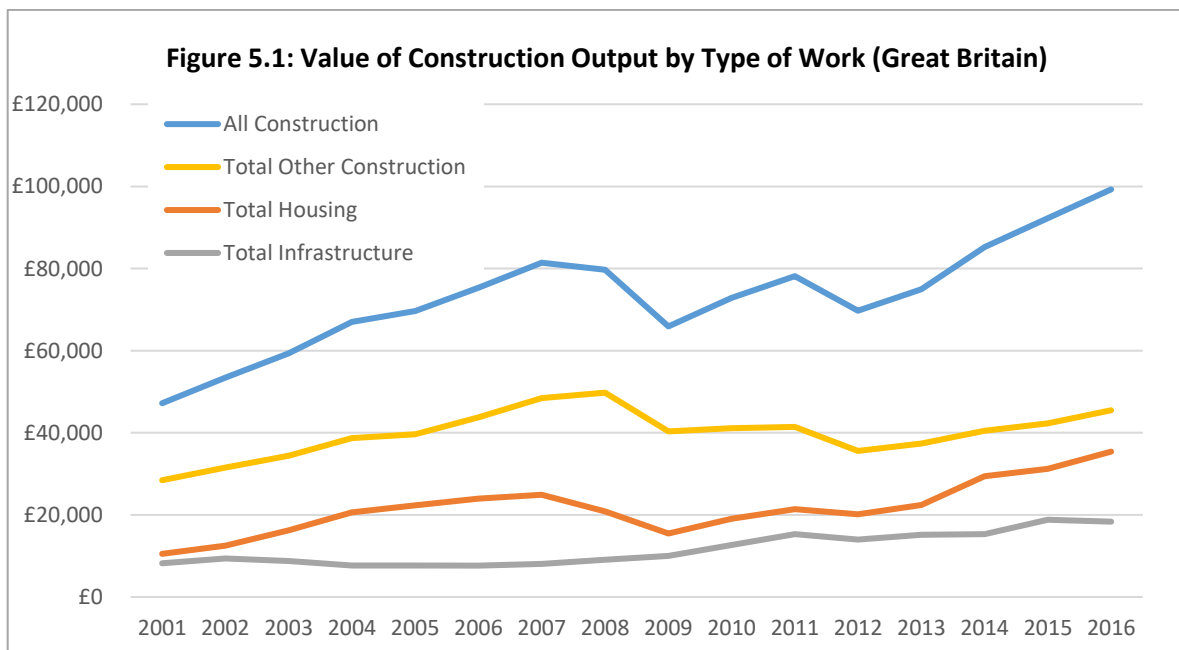
5.1 The foregoing review of the existing supply pattern feeds into the overall methodology for determining apportionments and allocations for future working, as set out in Chapter 3. This Chapter implements the four sequential stages of that methodology.

STAGE 1: Setting the National Level for Future Aggregates Provision

5.2 The agreed methodology begins by establishing the overall (national) level of future provision for all land-won primary aggregates in Wales. This is required to be assessed by combining historical sales data (using the highest of 10-year and 3-year averages, as explained in para. 3.8, above, and totalling 15.557mt) with a factor which reflects the planned level of future construction activity, compared with that seen over the same 10-year baseline period.

5.3 Housing is an important element of such activity and one for which quantified requirements and levels of provision are made in local development plans, in a way which can readily be related to aggregate consumption. Clearly, however, housing accounts for only part of the overall level of aggregate consumption. Before deciding on how best to use the housing figures, it is therefore useful to consider the overall breakdown of construction activity. Statistical information on this is not readily available for Wales, but a useful insight can be gained by using data for the whole of Great Britain, which is published annually by the Office of National Statistics (ONS).

5.4 Figure 5.1 and Table 5.1, below, derived from the ONS Construction Statistics Annual 2017, show how housing accounts for just under 30% on average of all new construction work, in terms of value, varying over time from 22% to 36%.



SOURCE: Combined public & private sector data from Table 2.4c in the ONS Construction Statistics Annual, 2017.
<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/datasets/constructionstatisticsannualtables>

Table 5.1: Percentage value of construction output by type of work, Great Britain. (SOURCE: as for Figure 5.1)

YEAR	2001	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Housing %	22%	23%	27%	31%	32%	32%	31%	26%	24%	26%	27%	29%	30%	34%	34%	36%
Infrastructure %	17%	18%	15%	11%	11%	10%	10%	11%	15%	17%	20%	20%	20%	18%	20%	18%
'Other' %	60%	59%	58%	58%	57%	58%	59%	62%	61%	56%	53%	51%	50%	48%	46%	46%

- 5.5 Major infrastructure projects can have a very substantial effect on the demand for construction aggregates within particular areas or regions. Whilst this needs to be reflected in the planning for future aggregates provision, the difficulty lies in the fact that such projects are rarely planned to a reliable delivery timescale and are susceptible to major political and investment decisions which are beyond the scope of the planning system (as demonstrated, for example, in the case of the proposed Swansea Tidal Lagoon, the Wylfa Newydd nuclear power station and the M4 Newport relief road). There is also considerable difficulty in quantifying the requirements for individual projects in terms of the need for construction aggregate. Overall, infrastructure accounts for between 10% and 20% of total construction value, averaging just under 16%. Its influence on overall demand is therefore likely to be much less than that of housing, and far more difficult to quantify.
- 5.6 The majority (more than half, on average) of total spending is associated with 'other' types of construction activity. These include schools & universities, offices, entertainment, hospitals, factories, warehouses and a variety of miscellaneous work. Whilst all of these will influence the overall demand for construction materials, in many cases the materials used are likely to be dominated by steel and glass, rather than aggregates. Moreover, whilst much of the building work is recognised in Local Development Plans, in terms of allocations for employment, hospitals, schools, etc., there is no mechanism for quantifying the aggregate requirements involved or for comparing planned activity with historical data.
- 5.7 In recognition of these various observations, and taking account of the close correlation between house building and aggregates provision; the fact that housing accounts for around 30% of all construction activity (at a GB level); and the fact that provision for house building is set to double (at a national level); it would seem justified to allow for a doubling of that 30% element of the overall supply. In other words, in order to ensure that adequate provision is made for the future supply of aggregates to support planned housing construction, the national level of overall provision should be set at 130% of the historical sales figure. The latter, as noted above, has been calculated as 15.557 mtpa. Applying a 30% uplift to this figure thus gives a **headline, national figure for future primary, land-won aggregates provision is calculated to be 20.224 mtpa.**
- 5.8 This figure is only marginally higher than the actual recorded sales total of 20.11mt for the year 2007 at the start of the baseline period, immediately prior to the economic recession, so is demonstrably not an unreasonable figure.

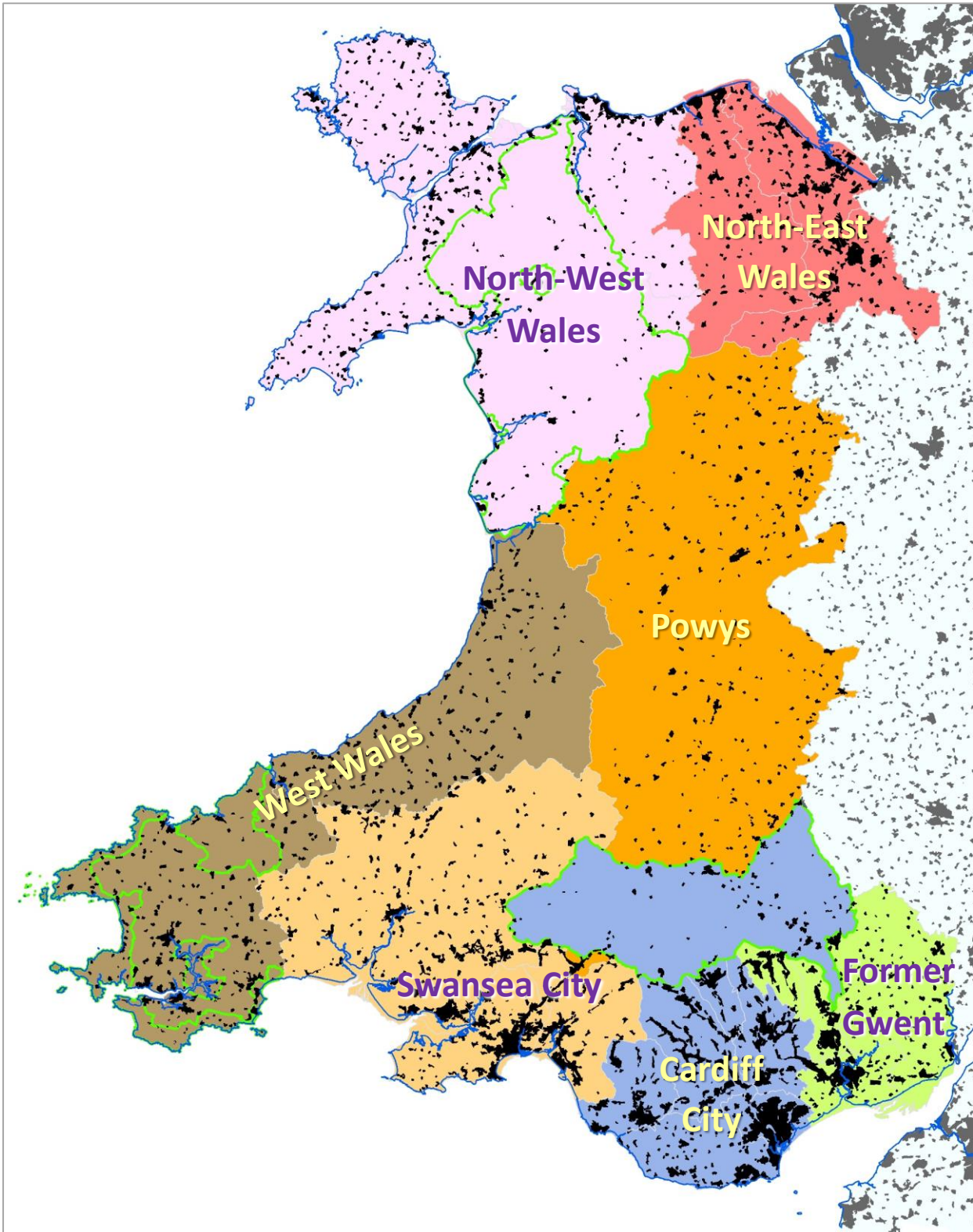
STAGE 2: Calculation of the Regional Split between North Wales and South Wales

- 5.9 Table 3.1, in Chapter 3, shows how the regional split of primary aggregate sales between North Wales and South Wales has varied only slightly over the baseline period, ranging from 34/66% at one extreme to 41/59% at the other. Over the period as a whole, the average split (calculated from the more detailed and updated figures in Tables 5.2 to 5.5, below) has been **38.26% / 61.74%**
- 5.10 Applying this ratio to the national total from para. 5.7 above gives the following headline apportionments for each of the two regions:
- **North Wales primary land-won aggregates: 7.738 mtpa**
 - **South Wales primary land-won aggregates: 12.486 mtpa**

STAGE 3: Calculation of Sub-Regional and LPA Apportionments

- 5.11 Stage 3 of the apportionment process requires that the regional figures are apportioned between a series of seven **sub-regions**, created for the purpose of the RTS and, *provided that it is feasible to do so*, between each of the constituent Local Planning Authorities (LPAs).
- 5.12 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.
- 5.13 The sub-regions, as listed below, are illustrated in Figure 5.2, which also shows (in black), the main urban areas and (in shades of grey) the neighbouring authorities in England.
- **North West Wales** (comprising Anglesey, Gwynedd, Conwy and the Snowdonia National Park), and
 - **North East Wales** (comprising Denbighshire, Flintshire & Wrexham);
 - **Powys**;
 - **West Wales** (Pembrokeshire, Pembrokeshire Coast National Park and Ceredigion);
 - **Swansea City-Sub-Region** (Swansea, Neath Port Talbot and Carmarthenshire);
 - **Cardiff City Sub-Region** (Cardiff, RCT, Merthyr Tydfil, Caerphilly, Bridgend, the Vale of Glamorgan and the Brecon Beacons National Park); and
 - **'Former Gwent'** (Blaenau Gwent, Torfaen, Newport and Monmouthshire).

Figure 5.2: Sub-Regional Groupings of Local Planning Authorities in Wales, as determined for the purposes of land-won primary aggregate apportionment



5.14 The sub-regional groupings, thus defined, provide the basis for dividing the Regional Apportionment figures (from para 5.10, above), between the various groups of LPAs and, where feasible, between individual LPAs. The methodology for doing this, as

agreed by the RTS Steering Group, was based on a combination of quantitative calculations and qualitative judgements, as described below.

- 5.15 Dealing first with the **quantitative data**, it was agreed that the pattern of apportionments should reflect, not only the pattern of historical sales (as had been used in the First Review) but also, where necessary, the pattern of house construction achieved over the baseline period¹⁷. This would have the added benefit of introducing changes to the supply pattern so that it becomes more aligned with the spatial pattern of observed (and likely future) demand, thereby addressing some of the inequalities that are reflected in the existing (historical) pattern of supply.
- 5.16 Two sets of ‘theoretical’ figures were therefore produced, one relating to historical sales (“Option A”) and one relating to the housing figures (“Option B”). The term ‘theoretical’ is used here to indicate that these are the figures that would result from using only one or the other of the two datasets.
- 5.17 The historical sales data for Option A are derived from Table 3.2, above, using the highest of the 10-year and 3-year averages, for each LPA. In Tables 5.2 and 5.3 below, those figures are then expressed as percentages of the Regional totals and applied to the appropriate Regional figures from Stage 2, above, to obtain the Option A figures shown on the left hand side of the tables.
- 5.18 For Option B, the housing completions data for each LPA, taken from Table 3.3, were initially expressed as percentages of the Regional housing completion totals, in a similar way to the analysis of sales data for Option A. However, applying those percentages to the Regional apportionments from Stage 2 resulted in theoretical LPA figures which were felt to be too far removed from the ‘reality’ of the historical supply pattern. Instead, the process was therefore taken down to the sub-regional level: the housing figures were expressed as percentages of the sub-regional housing totals and applied to the sub-regional apportionment totals obtained from Option A, to give the Option B figures shown in columns 5 to 7 of Tables 5.2 and 5.3. For the purpose of this exercise (only), the two sub-regions in south-east Wales (i.e. Cardiff and Former Gwent) were combined. This was to address the fact that Former Gwent, as a whole, was considered, by the Steering Group, to have been making a relatively limited contribution to the overall supply pattern for many years.
- 5.19 Option A has the advantage of reflecting the existing distribution of supply sources (quarries) and is therefore realistic in terms of ‘deliverability’ but carries the disadvantage of perpetuating the historical supply pattern and the various inequalities contained therein. It represents the preferred option in areas where the historical supply pattern appears to provide a sensible balance between the availability of resources and the location of demand, but requires modification elsewhere.

¹⁷ Whilst future housing requirement figures have been used to influence the overall quantum of future supply, in Stage 1 of the Methodology, for Stage 3 it was considered that the housing completion figures, over the baseline period covered by this review, would provide a more reliable metric for the demonstrable spatial pattern of this element of demand.

Table 5.2: Assessed Sub-Regional and LPA Apportionments, North Wales.

Local Planning Authority	OPTION A			OPTION B			Preferred Annualised Apportionments (mtpa) <small>[By default = Option A, but modified in some cases (red figures) to allow for Option B or qualitative observations as noted in column to right]</small>	Qualitative Observations
	highest of 10-yr and 3yr Ave. Aggregate Sales (total) (mtpa)	% share of Regional total	Resulting Annualised Apportionments for all Land-Won Primary Aggregates ¹ (mtpa)	Annualised House Completions over the baseline period (2007 – 2016)	% share of Sub-Regional total	Resulting Annualised Apportionments for all Land-Won Primary Aggregates ² (mtpa)		
N. WALES TOTAL (from Stage 2)	7.738							
NE Wales Sub-Region	4.047	65.75%	5.088	749.0	100.00%	5.088	5.088	The existing supply pattern here (Option A) provides an appropriate balance between market forces (including substantial exports) and the availability of unconstrained resources. Flintshire has much higher aggregate sales than Denbighshire, despite similar housing requirements. This reflects local market distortion by exports to NW England. The slight modification shown within the preferred apportionment figures is to make the best use of existing landbanks and thereby reduce future allocation requirements overall. Wrexham supplies only sand & gravel as its limestone resources are largely constrained by the AONB. The existing supply pattern in NW Wales is well balanced with the distribution of planned housing provision and is unaffected by exports. Option A should therefore be used. Supplies are sourced primarily from outside the National Park and AONBs and are well distributed between the main producing areas of Conwy and Gwynedd, with more limited supplies from Anglesey to local markets.
Denbighshire	0.329	5.35%	0.414	156.2	20.85%	1.061	0.860	
Flintshire	3.204	52.06%	4.028	288.6	38.53%	1.960	3.582	
Wrexham	0.514	8.35%	0.646	304.2	40.61%	2.066	0.646	
NW Wales Sub-Region	2.108	34.25%	2.650	969	100.00%	2.650	2.650	
Conwy + Snowdonia NP	0.955	15.52%	1.201	178.6	39.26%	1.041	1.201	
Gwynedd	0.898	14.59%	1.129	170.4	36.60%	0.970	1.129	
Isle of Anglesey	0.255	4.14%	0.321	109.6	24.14%	0.640	0.321	

Notes:

1. The annualised apportionments for Option A were obtained by applying the percentages in column 3 (representing each LPA's share of Regional historic sales totals) by the Regional Apportionment total from Stage 2 (as shown at the top of the table).
2. The annualised apportionments for Option B were obtained by applying the percentages in column 6 (representing each LPA's share of sub-regional housing requirement totals) by the corresponding Sub-regional Apportionment totals from column 4.

Table 5.3: Assessed Sub-Regional and LPA Apportionments, South Wales.

Local Planning Authority <i>(see Table 5.2 for footnotes)</i>	OPTION A			OPTION B			Preferred Annualised Apportionments (mtpa) <small>[By default = Option A, but modified in some cases (red figures) to allow for Option B or qualitative observations as noted in column to right]</small>	Qualitative Observations
	highest of 10-yr and 3yr Ave. Aggregate Sales (total) (mtpa)	% share of Regional total	Resulting Annualised Apportionments for all Land-Won Primary Aggregates ¹ (mtpa)	Annualised House Completions over the baseline period (2007 – 2016)	% share of Sub-Regional total	Resulting Annualised Apportionments for all Land-Won Primary Aggregates ² (mtpa)		
S. WALES TOTAL (from Stage 2)	12.486							
West Wales Sub-Region	1.140	12.13%	1.514	366.1	100.00%	1.514	1.514	Some adjustment is required to increase the provision from Ceredigion whilst reducing that from the Pembrokeshire Coast National Park but leaving the total unchanged. Ceredigion currently supplies aggregates in proportion to its share of planned housing at a regional level, but not at the sub-regional level. Provision from this LPA should therefore be increased (to an average of Options A and B), with a corresponding reduction from the National Park.
Ceredigion	0.300	3.19%	0.398	126.1	34.44%	0.521	0.460	
Pembrokeshire	0.510	5.42%	0.677	240	65.56%	0.992	0.677	
Pembrokeshire Coast NP	0.330	3.51%	0.438				0.377	
Swansea Sub-Region	1.292	13.74%	1.716	1,311.5	100.00%	1.716	1.716	The Option A figure for Carmarthenshire should be retained, with the remainder of production (mostly HSA - high PSV sandstone) being divided between Swansea and NPT. Option B addresses the current zero apportionment for Swansea, but realistic opportunities for resource development in Swansea relate only to high PSV sandstone which, at present, is supplied primarily from NPT. Limestone is supplied only from Carmarthenshire, which therefore needs to retain its apportionment from Option A in full, with the balance of apportionments (for sandstone) being shared between Swansea and NPT. The figures shown here for those two LPAs assume an equal split between them. If a different balance is preferred, this would need to be agreed by those LPAs as part of their Statement of Sub-Regional Collaboration.
Carmarthenshire	0.832	8.85%	1.105	517.8	39.48%	0.677	1.105	
Swansea	0.000	0.00%	0.000	519.4	39.60%	0.680	0.305	
Neath Port Talbot	0.460	4.89%	0.611	274.3	20.91%	0.359	0.305	
Powys Sub-Region	2.650	28.19%	3.519	191.7	100.00%	3.519	3.519	Option A provides the most reliable reflection of future demand for Powys, being dominated, as it is, by exports of HSA (high PSV) Aggregates to England. That option is therefore preferred without modification
Powys	2.650	28.19%	3.519	191.7	100.00%	3.519	3.519	

Continued ...

REGIONAL TECHNICAL STATEMENT FOR NORTH WALES AND SOUTH WALES: 2nd REVIEW.

.....Table 5.3 continued	OPTION A			OPTION B			Preferred Annualised Apportionments (mtpa) <small>[By default = Option A, but modified in some cases (red figures) to allow for Option B or qualitative observations as noted in column to right]</small>	Qualitative Observations	
Local Planning Authority <small>(see Table 5.2 for footnotes)</small>	highest of 10-yr and 3yr Ave. Aggregate Sales (total) (mtpa)	% share of Regional total	Resulting Annualised Apportionments for all Land-Won Primary Aggregates ¹ (mtpa)	Annualised House Completions over the baseline period (2007 – 2016)	% share of Sub-Regional total <small>(or of combined SE Wales total, for Cardiff & Former Gwent)</small>	Resulting Annualised Apportionments for all Land-Won Primary Aggregates ² (mtpa)			
Cardiff City Sub-Region	4.070	43.29%	5.405	2,316.9	66.48%	3.814	4.609	ALL of the apportionments within the combined SE Wales area (i.e. the Cardiff sub-region and Former Gwent) need to be adjusted to reflect the fact that Former Gwent, <u>as a whole</u> , has not been supplying its fair share of aggregates for many years (this being largely but not only due to the lack of production in both Torfaen and Newport). Option B addresses this issue by calculating requirements based on % shares of planned housing demand in both sub-regions combined. However, those figures, on their own, do not take account of resource availability. The preferred figures are therefore the average of Options A and B. In the case of BBNP and Merthyr, where that calculation provides only a combined figure (= 0.567mtpa), it is suggested that Merthyr should retain the Option A figure of 0.199mtpa, with the balance of 0.368mtpa being assigned to the National Park.	
Brecon Beacons NP	0.540	5.74%	0.717	133.2	3.82%	0.219	0.368		
Merthyr Tydfil	0.150	1.60%	0.199				0.199		
Bridgend	0.600	6.38%	0.797	365	10.47%	0.601	0.699		
Rhondda Cynon Taf	0.670	7.13%	0.890	373.9	10.73%	0.615	0.753		
Vale of Glamorgan	0.660	7.02%	0.876	284.3	8.16%	0.468	0.672		
Caerphilly	0.390	4.15%	0.518	335.2	9.62%	0.552	0.535		
Cardiff	1.060	11.27%	1.408	825.3	23.68%	1.359	1.383		
Former Gwent Sub-Region	0.250	2.66%	0.332	1,168.2	33.52%	1.923	1.128		The figures shown for the Former Gwent LPAs are simply averages of Options A and B. Torfaen and Newport currently have zero apportionments and the feasibility of being able to make future provision in those areas needs to be examined in greater detail by those Authorities. If the balance of supply needs to depart from these figures (but without reducing the sub-regional total), this would need to be agreed by all four LPAs as part of their Statement of Sub-Regional Collaboration.
Blaenau Gwent	0.180	1.91%	0.239	99.1	2.84%	0.163	0.201		
Monmouthshire	0.070	0.74%	0.093	228.6	6.56%	0.376	0.235		
Newport	0.000	0.00%	0.000	527.5	15.14%	0.868	0.434		
Torfaen	0.000	0.00%	0.000	313	8.98%	0.515	0.258		

- 5.20 Option B, based purely on the distribution of planned housing activity, theoretically provides a way of changing the pattern of supply to one that is more equitable, and in line with the distribution of a very significant element of demand (i.e. house building and associated other construction), but takes no account of the spatial pattern of geological resources or existing quarries. On its own, this would be wholly inappropriate as a future supply strategy as it would not be deliverable within the timescale required, since it requires supplies to be provided from areas with no existing quarries. It does, however, provide a useful indication of the ‘direction of travel’ that may be needed in order to improve the existing pattern of supply from a sustainability perspective.
- 5.21 In practice, where the supply pattern was considered to be in need of adjustment to achieve an improved balance, the two sets of figures were combined (by taking the average of Options A and B, for each LPA). In each of the tables, the **preferred option** (usually either option A or the average of A and B) are shown in the eighth column. In a few cases, however, further adjustments were required on the basis of more nuanced **qualitative judgements**, as described in the right-hand column of the tables.
- 5.22 Decisions regarding which option to select for each LPA, and qualitative judgements regarding other factors which needed to be taken into account, were made by the RTS Steering Group through a process of round-table discussion. Importantly, the analysis and discussions were focused on each of the self-contained sub-regional areas in turn, so as to achieve a preferred balance of supply within each of those areas, whilst not disturbing the broader-scale pattern of supply within each Region as a whole. The only exception to this was in South-East Wales where, as noted earlier, the two sub-regions (Cardiff and Former Gwent) were combined for the quantitative stage of analysis.
- 5.23 The summaries given in the right hand column of Tables 5.2 and 5.3 describe the main reasoning for selecting the preferred distribution of apportionments within each sub-region. Fuller explanations, including details of the consideration given to the distribution of resources, practicalities of mineral extraction, major constraints (National Parks and AONBs), environmental capacity and the proximity principle, are given within the Regional Appendices.

STAGE 4: Sand & Gravel / Crushed Rock Split and Allocations for Future Working

- 5.24 The final stage of the RTS process relates to the separation of each LPA’s apportionment figure by aggregate type (i.e. natural sand & gravel, and crushed rock), and then comparison of the total requirements for each of those, over the relevant Plan periods, with the current stock of permitted reserves, in order to determine whether or not new allocations are required to meet any shortfalls. Tables 5.4 to 5.7 below present the data and calculations involved.

Table 5.4: Calculation of Allocations Required for Land-won Sand & Gravel Aggregates – North Wales

Local Planning Authority	Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt)	Historic proportion supplied from sand & gravel sources ²	New Annualised Apportionment for sand & gravel ³ (mt)	Total Apportionment Required over 22 years	Existing permitted reserves at end of 2016 in mt ^{4,5}	Existing landbank ⁶ (years)	Surplus or Shortfall (-) of Existing Permitted Reserves (mt)	Minimum Allocation needed to meet Required Provision ⁷ (mt)	Additional reserves at Dormant sites, 2016 ⁴ (mt)
Denbighshire	0.860	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Flintshire	3.582	6.23%	0.223	4.912	1.369	6.1	-3.543	3.543	0.5
Wrexham	0.646	100.00%	0.646	14.217	12.652	19.6	-1.565	1.565	0
Conwy + Snowdonia NP	1.201	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Gwynedd	1.129	15.44%	0.174	3.834	1.175	6.7	-2.659	2.659	0
Isle of Anglesey	0.321	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Sub-totals, North Wales	7.738	13.40%	1.044	22.963	15.196		-7.767	7.767	0.5

NOTES:

1 Taken from Tables 5.2 (North Wales) or Table 5.3 (South Wales)

2 Based on RAWP data over the 10-year baseline period (2007 – 2016)

3 Assumes that the historic proportion is maintained, with the exception of the Pembrokeshire Coast National Park where a slight adjustment has been made to avoid the need for allocations.

4 Data provided by the RAWP secretary for December 2016

5 Permitted reserves exclude those at dormant sites.

6 Landbanks = stock of permitted reserves at active and inactive sites, expressed in terms of the annualised apportionment

7 Allocations required = calculated shortfall, if any.

8. The sand & gravel allocations needed for Ceredigion could potentially be provided, in part, from resources in 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 December 2016, or by allocations that have already been identified in LDPs. Further details are given in the Regional Appendices.

Table 5.5: Calculation of Allocations Required for Land-won Sand & Gravel Aggregates – South Wales.

Local Planning Authority <small>*see Table 5.4 for footnotes</small>	Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt)	Historic proportion supplied from sand & gravel sources ²	New Annualised Apportionment for sand & gravel ³ (mt)	Total Apportionment Required over 22 years	Existing permitted reserves at end of 2016 in mt ^{4,5}	Existing landbank ⁶ (years)	Surplus or Shortfall (-) of Existing Permitted Reserves (mt)	Minimum Allocation needed to meet Required Provision ⁷ (mt)	Additional reserves at Dormant sites, 2016 ⁴ (mt)
Ceredigion	0.460	36.67%	0.188	4.136	0.510	2.7	-3.626	3.626	0
Pembrokeshire	0.677	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Pembrokeshire Coast NP	0.377	36.36%	0.118	2.600	2.600	22	0.000	0.000	0
Carmarthenshire	1.105	0.24%	0.003	0.058	0.100	37.7	0.042	See note 8 below Table 5.4	0.35
Swansea	0.305	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Neath Port Talbot	0.305	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Powys	3.519	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Brecon Beacons NP	0.368	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Merthyr Tydfil	0.199	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Bridgend	0.699	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Rhondda Cynon Taf	0.753	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Vale of Glamorgan	0.672	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Caerphilly	0.535	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Cardiff	1.383	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Blaenau Gwent	0.201	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Monmouthshire	0.235	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Newport	0.434	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Torfaen	0.258	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Sub-totals, South Wales	12.485	2.96%	0.309	6.784	3.21			3.626	0.35
TOTALS Wales	20.224	6.95%	1.353	29.758	18.406			11.394	0.85

Table 5.6: Calculation of Allocations Required for Crushed Rock Aggregates – North Wales.

Local Planning Authority	Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt)	Historic proportion supplied from crushed rock sources ²	New Annualised Apportionment for crushed rock ³ (mt)	Total Apportionment Required over 25 years	Existing permitted reserves at end of 2016 in mt ^{4,5}	Existing landbank ⁶ (years)	Surplus or Shortfall (-) of Existing Permitted Reserves (mt)	Minimum Allocation needed to meet Required Provision ⁷ (mt)	Additional reserves at Dormant sites, 2016 ⁴ (mt)
Denbighshire	0.860	100.00%	0.860	21.500	21.710	25.2	0.210	0.000	0
Flintshire	3.582	93.77%	3.359	83.968	48.040	14.3	-35.928	35.928	1.41
Wrexham	0.646	0.00%	0.000	0.000	0.000	n/a	0.000	0.000	0
Conwy + Snowdonia NP	1.201	100.00%	1.201	30.016	62.500	52.1	32.484	0.000	0.25
Gwynedd	1.129	84.56%	0.955	23.867	28.540	29.9	4.673	0.000	0
Isle of Anglesey	0.321	100.00%	0.321	8.015	14.400	44.9	6.385	0.000	0
Sub-totals, North Wales	7.738	86.60%	6.695	167.366	175.19			35.928	1.66

NOTES:

1 Taken from Tables 5.2 (North Wales) or Table 5.3 (South Wales)

2 Based on RAWP data over the 10-year baseline period (2007 – 2016)

3 Assumes that the historic proportion is maintained, with the exception of the Pembrokeshire Coast National Park where a slight adjustment has been made to avoid the need for allocations.

4 Data provided by the RAWP secretary for December 2016

5 Permitted reserves exclude those at dormant sites.

6 Landbanks = stock of permitted reserves at active and inactive sites, expressed in terms of the annualised apportionment

7 Allocations required = calculated shortfall, if any.

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. Further details are given in the Regional Appendices.

Table 5.7: Calculation of Allocations Required for Crushed Rock Aggregates – South Wales.

Local Planning Authority <small>*see Table 5.6 for footnotes</small>	Overall 'Preferred' Apportionment (S&G & CR) ¹ (mt)	Historic proportion supplied from crushed rock sources ²	New Annualised Apportionment for crushed rock ³ (mt)	Total Apportionment Required over 25 years	Existing permitted reserves at end of 2016 in mt ^{4,5}	Existing landbank ⁶ (years)	Surplus or Shortfall (-) of Existing Permitted Reserves (mt)	Minimum Allocation needed to meet Required Provision ⁷ (mt)	Additional reserves at Dormant sites, 2016 ⁴ (mt)
Ceredigion	0.460	63.33%	0.272	6.798	5.370	19.7	-1.428	1.428	0
Pembrokeshire	0.677	100.00%	0.677	16.932	16.720	24.7	-0.212	0.212	0
Pembrokeshire Coast NP	0.377	63.64%	0.259	6.475	10.370	40.0	3.895	0.000	0
Carmarthenshire	1.105	99.76%	1.102	27.556	59.900	54.3	32.344	0.000	13.82
Swansea	0.305	n/a	0.305	7.636	0.000	0.0	-7.636	7.636	0
Neath Port Talbot	0.305	100.00%	0.305	7.636	16.480	54.0	8.844	0.000	0
Powys	3.519	100.00%	3.519	87.981	139.240	39.6	51.259	0.000	0
Brecon Beacons NP	0.368	100.00%	0.368	9.200	120.100	211.8	105.925	0.000	0.36
Merthyr Tydfil	0.199	100.00%	0.199	4.975					
Bridgend	0.699	100.00%	0.699	17.471	27.270	39.0	9.799	0.000	0.15
Rhondda Cynon Taf	0.753	100.00%	0.753	18.816	9.830	13.1	-8.986	8.986	0
Vale of Glamorgan	0.672	100.00%	0.672	16.806	18.730	27.9	1.924	0.000	13
Caerphilly	0.535	100.00%	0.535	13.371	31.280	58.5	17.909	0.000	5.21
Cardiff	1.383	100.00%	1.383	34.578	27.800	20.1	-6.778	6.778	0
Blaenau Gwent	0.201	100.00%	0.201	5.027	1.320	6.6	-3.707	3.707	0
Monmouthshire	0.235	100.00%	0.235	5.866	11.250	47.9	5.384	0.000	0
Newport	0.434	n/a	0.434	10.854	0.000	0.0	-10.854	10.854	0
Torfaen	0.258	n/a	0.258	6.441	0.000	0.0	-6.441	6.441	0
Sub-totals, South Wales	12.485	97.04%	12.176	304.420	495.66			46.043	32.54
TOTALS Wales	20.224	93.05%	18.872	471.786	670.850			81.971	34.20

- 5.25 The requirements, as set out in paragraph 49 of MTAN1, are that a minimum 10-year landbank of crushed rock and a minimum 7-year landbank for sand and gravel should be maintained throughout the entire plan period of each LDP. In effect, this means having a minimum landbank for sand & gravel of 22 years, at the start of a 15-year Plan period, and a minimum crushed rock landbank of 25 years. In each case, the landbank is required, by MTAN 1 to be based on an average of the most recent 3 years' production figures. That was modified, in the RTS First Review, to be based on an average of 10-years production figures, since that was adopted as the main guide for future levels of demand. For the present review, a further modification is needed, such that the landbank is expressed in terms of the annualised apportionment figure recommended for each LPA. In all cases, these are higher than the 10-year or 3-year historical sales averages, and the landbanks are therefore correspondingly reduced, increasing the likelihood for new allocations being required. It must be emphasised, however, that at the start of any given Plan period, the overall provision (total apportionment) can be represented by a combination of existing landbanks of permitted reserves and (where necessary) new allocations (subject to the minimum landbank figures being available).

Sand & Gravel / Crushed Rock Aggregates Split

- 5.26 In order to carry out the required calculations, it was necessary first to distinguish between natural sand & gravel and crushed rock requirements. To do this, it has been assumed that the new apportionments will be divided between the two aggregate types in the same ratio as shown by the historical sales data, over the 10-year baseline period. One exception to this has been The Pembrokeshire Coast National Park where the apportionment has been reduced slightly, so as not to exceed the remaining landbank of permitted reserves. This has been to avoid the necessity of requiring new allocations to be identified within the National Park¹⁸ and has been achieved by a corresponding slight increase in the apportionment for Ceredigion, and with corresponding changes to the crushed rock apportionments in order to maintain the overall apportionments for each area.
- 5.27 Theoretically, there may sometimes be opportunities to achieve the overall requirements with a different balance of aggregate types – for example where there is a surplus of permitted crushed rock reserves but a shortage of sand & gravel. In practice, however, this combination of circumstances occurs in only one LPA – Gwynedd. Even in that area, the substitution may not be appropriate, depending on the particular end-uses involved. The reverse situation, where there are surpluses of permitted sand & gravel reserves, is found only in Carmarthenshire. In that case, however, there is a much larger surplus of crushed rock, so no necessity for substitution to occur.

Surpluses, Shortfalls and Allocations

- 5.28 For **land-won sand & gravel**, Tables 5.4 and 5.5 reveal that new allocations to meet RTS requirements over the next 22 years will be required within Flintshire, Wrexham, Gwynedd and Ceredigion. Current landbanks, expressed in terms of the

¹⁸ MTAN 1 (para 52) seeks to avoid new allocations within National Parks, save in exceptional circumstances.

new annualised apportionments, are already less than the minimum level of 7 years in three of these areas, demonstrating the urgency for granting new permissions, as well as longer-term allocations for future working. In the fourth area (Wrexham), the landbank is currently adequate, at just under 20 years, but a further allocation is needed to meet the RTS requirement over the full plan period.

- 5.29 Only one LPA in the whole of Wales (Carmarthenshire) currently has a surplus of existing permitted reserves of sand & gravel. The remaining LPAs have neither a surplus nor deficit for sand & gravel provision but, in most cases, this is simply because they currently have no production and no apportionment. An exception to this is the Pembrokeshire Coast National Park which (as a consequence of ensuring that it's apportionment will not exceed the current landbank) has just sufficient reserves to cover the 22-year period required. In future years, the requirement which has hitherto fallen on the National Park will need to be supplied by other adjoining areas. In South East Wales, the zero requirements for land-won sand & gravel production are critically dependent upon the continued availability of marine-dredged aggregates. If that source of supply were to be disrupted, there would be an urgent need to reconsider the apportionments to all of the authorities in that area.
- 5.30 For **crushed rock**, Tables 5.6 and 5.7 reveal that many parts of Wales already have substantial permitted reserves of crushed rock, with landbanks in excess of the required minimum of 25 years. However, shortfalls of permitted reserves, with corresponding requirements for new allocations and/or new permissions, are identified in nine separate LDP areas.
- 5.31 Three of these (Swansea, Newport and Torfaen) correspond to the areas which previously had zero apportionments, and where new sources of supply now need to be found, either within those areas or, if it cannot be avoided, in neighbouring parts of the same sub-regions (subject to the preparation of Statements of Sub-Regional Collaboration with the other LPAs, in accordance with the guidelines set out in Annex A of this document). In the case of Swansea, the reserves requirement (specifically for HSA (high PSV) sandstone) could *theoretically* be subsumed within the surplus available in adjoining Neath Port Talbot, though that would defeat the objective of seeking a more equitable sub-regional balance. For Newport and Torfaen, part of their combined requirement of almost 17.3 million tonnes could *theoretically* be offset by the surplus of almost 5.4 million tonnes in Monmouthshire¹⁹, although that would still leave a considerable deficit and again would defeat the objective of seeking a more equitable balance. The word 'theoretically' is italicised in these observations because it is not the intention of the RTS to encourage the 'trading' of apportionments between LPAs, other than in *exceptional circumstances*, as set out in the Guidelines at Annex A.
- 5.32 The six other LPAs with shortfalls of permitted crushed rock reserves are Flintshire, Ceredigion, Pembrokeshire, Rhondda Cynon Taf, Cardiff and Blaenau Gwent. In the case of RCT and the Cardiff, the combined shortfall of more than 15.7 mt is dwarfed

¹⁹ The surplus reserves in Monmouthshire are bound up in a single site which has been inactive for many years and are constrained, in part, by the need for dewatering the Carboniferous Limestone aquifer, which would be subject to abstraction licensing requirements.

by the net surplus of almost 120 mt within the Cardiff City sub-region as a whole, though most of that lies within the Brecon Beacons National Park and the RTS seeks to reduce, rather than increase, the dependency on that area for future supply. The shortfall in RCT is matched by the slightly larger surplus in Bridgend, whilst that in Cardiff is more than matched by the surplus in Caerphilly. Once again, however, to rely on those reserves instead of finding new allocations as indicated in Table 5.7 would defeat the objective of seeking a more sustainable long-term pattern of supply in the area and is therefore not encouraged.

- 5.33 The remaining LPA facing a shortfall of permitted crushed rock reserves – Blaenau Gwent – falls within the same ‘Former Gwent’ sub-region as Torfaen, Newport and Monmouthshire which, even combined, have a net shortfall of more than 15.6 mt.

Types and Size of Allocations

- 5.34 A key requirement, in terms of identifying allocations for future working within an LDP, is to be able to demonstrate that adequate provision has been made for supplying *at least* the minimum quantity identified for the authority in the RTS (or in a SSRC where a different figure has been agreed through sub-regional collaboration). This, in turn, means that the quantity of workable mineral within the allocation needs to be known, as far as possible. In most cases, this is only likely to be feasible within Specific Sites. Preferred Areas will generally not have sufficient information to be able to do this, though it may sometimes be possible for reasonable estimates to be made.
- 5.35 In each case, where sufficiently detailed information exists, it is therefore recommended that the allocations should take the form of **Specific Sites**, as defined in Paragraph 5.14.19 of Planning Policy Wales (PPW) i.e. *“where mineral resources of commercial significance exist, and where any planning applications which come forward for those sites are likely to be acceptable in planning terms”*. In terms of size, Specific Sites should aim, not simply to deliver the bare minimum identified as an allocation requirement in the RTS (or SSRC) but may need to be larger: they will need to be of sufficient size to be commercially viable.
- 5.36 Where Specific Sites cannot be defined, allocations should normally at least take the form of **Preferred Areas** (*“areas of known resources with some commercial potential, and where planning permission might reasonably be anticipated”*), within which operators should be encouraged to bring forward more specific proposals. Inevitably, for a given minimum size of allocation, such areas will need to be significantly larger than individual sites, in recognition of the fact that only part of the area may eventually be brought forward.
- 5.37 **Areas of Search** (*“...broad areas that are believed to contain mineral resources of commercial significance but whose extent is uncertain...”*) will usually have only minimal information on the suitability and commercial viability of the resources for commercial development and, as noted in PPW, it will not usually be appropriate to only rely on these for the purposes of making allocations. There will be some situations, however, where there is insufficient knowledge about potential resources to identify anything other than Areas of Search. Where this is the case, it

is recommended that the Area(s) so identified should provide the potential for the release of new permitted reserves which are far greater than the minimum allocation recommended, in order to allow for the uncertainties involved.

- 5.38 In some cases, it may be better, in terms of deliverability, to rely on specific sites (whether existing permissions or new allocations) in neighbouring authorities (additional to those LPAs' own requirements), where such reliance has been agreed through collaborative working and formalised within an agreed SSRC (see para. 1.27, above), in preference to relying upon the uncertainty associated with broad Areas of Search.

Treatment of Dormant Sites

- 5.39 As noted in Chapter 2 (para. 2.4), where an LPA considers that the permitted reserves at dormant sites are likely to be capable of being worked in the relevant period (subject to Environmental Impact Assessment and the agreement of modern conditions) it may be possible for those reserves to be offset against the requirement for new allocations. This would only work, however, if the sites in question meet the same expectations as for other allocations, i.e. that they comply with the definition of Specific Sites or at least Preferred Areas, as given in PPW.

Compliance with and Departures from RTS Recommendations

- 5.40 The outcome of this strategic exercise has been a deliberate attempt to control, and in some cases to modify, the future pattern of supply of land-won primary aggregates in Wales, in line with sustainability principles. In a small number of areas, notably where there has been no production of land-won aggregates for many years, with no permitted reserves and zero apportionments, the Steering Group accepted that there may be insufficient evidence, at present, to determine the precise levels of apportionment and resulting allocations required for individual LPAs. In such cases, more detailed analysis will be required, at the local level, through collaboration between adjoining LPAs and consultation with industry, in order to confirm realistic figures for those particular LPAs and (*in exceptional circumstances*) to consider the possibility of alternative patterns of supply within the sub-region concerned.
- 5.41 To this end (and more generally, to ensure that the regional and sub-regional totals recommended by the RTS are achieved), this Review has introduced a requirement for all LPAs within each sub-region to produce Statements of Sub-Regional Collaboration (SSRCs), in consultation with industry, through the RAWPs, prior to the Examination of any individual LDP within that area. Specific guidelines relating to the preparation of SSRCs, including details of the exceptional circumstances tests, are provided at Annex A of this document.
- 5.42 Finally, it should be noted that the recommendations made in this Chapter are based on currently available information regarding permitted reserves, production, proximity and environmental capacity. As noted in 'Box 1' of the original RTS documents, and repeated in the First Review, the suggested apportionments and allocations do 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, *inter alia*, 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.

5.43 For such reasons, and as already noted in Chapter 1 (para. 1.29), 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 SSRC agreed with neighbouring LPAs for that area, prior to Examination.

5.44 Where the local authorities involved are unable to reach agreement, or if individual local authorities do not accept the revised Regional Technical Statement, the Welsh Government will, as a last resort, consider its default powers to intervene in the Development Plan process (MTAN 1, paragraph A3).

6. Consultation Process

- 6.1 This First Review of the RTS documents for North Wales and South Wales has been undertaken as a collaborative exercise with several stages of consultation and technical peer review.
- 6.2 At the outset of the project, initial consultation meetings were held with a range of stakeholders to ensure that the Review was properly focused and that key sources of information were made available for consideration. The organisations and/or representative individuals consulted were as follows:
- Hugh Towns, Secretary of the South Wales Regional Aggregates Working Party
 - Gary Nancarrow, Secretary of the North Wales Regional Aggregates Working Party
 - Nick Horsley and others, representing the Mineral Products Association (MPA)
 - Trefor Evans representing the British Aggregates Association (BAA)
 - Ian Gorton and others, representing Natural Resources Wales (NRW)
- 6.3 The findings of this early stage of consultation are detailed in the Interim Report, issued on 18th January 2019 (pdf copies available on request from the author).
- 6.4 Initial drafts of the revised RTS were then produced in stages between May and August 2019. At each stage, consultation was held with a Project Steering Group made up of the RTS sub-committees of the two Regional Aggregate Working Parties (including mineral operators, mineral planning authorities and Natural Resources Wales). This consultation entailed issuing drafts for comment, Steering Group meetings chaired by Joanne Smith of the Welsh Government, and the preparation of revised drafts incorporating responses to all Steering Group comments received, including the receipt of new technical data. Each successive draft superseded previous versions.
- 6.5 The second draft was issued to the entire membership of both RAWPs and comments on that version were received at a joint North Wales and South Wales RAWP meeting in July 2019.
- 6.6 Following discussion at that meeting, and written comments received from members, a third draft was produced. English and Welsh versions were then issued for wider (public) consultation and drawn to the attention of all Local Planning Authorities in Wales, by the Welsh Government's Chief Planner. Those versions were made available via the Websites of both RAWPs for an eight-week consultation period, between 30th September and 25th November, 2019. Within that period, two consultation events were held, on 11th November at Bridgend in South Wales and on 15th November at Llandudno Junction in North Wales. At each event, the RTS review process was clearly explained and the findings, including recommendations to individual LPAs, were presented for discussion and comment. This was the main opportunity for interested parties to scrutinise the documents and to be satisfied that they were acceptable and fit for purpose, taking account of local and sub-regional perspectives.

- 6.7 Following consultation, additional meetings were held with a number of LPAs in South Wales, and with representatives of the Mineral Products Association, to discuss particular concerns relating to sub-regional collaboration and to finalise guidance on this (which had been called for during consultation). A consultation report, which included the Steering Group's recommended responses to the various issues raised by consultees, was produced in June 2020.
- 6.8 A further revision of the RTS (this document and the two Regional Appendices) was then carried out to reflect the recommendations of the consultation report and to incorporate the finalised version of the guidance, (Annex A).
- 6.9 The final edition will be translated into Welsh and issued for endorsement by individual LPAs, after which it will be endorsed for publication by the Welsh Government.
- 6.10 As with previous editions of the RTS, in the interests of sustainability, it is not intended that printed copies will be issued.

References

Arup, (2003): ***Establishing a Methodology for Assessing Aggregates Demand and Supply (EMAADS)***. Report for the Welsh Assembly Government.

Cuesta Consulting Limited (2009): ***Former Gwent Aggregates Safeguarding Study***. Report to Torfaen Borough Council; Blaenau Gwent Borough Council; Newport City Council; and Monmouthshire County Council. (20pp).

Enviros Consulting Ltd., (2005): ***Implementing the Methodology for Assessing the Environmental Capacity for Primary Aggregates (IMAECA)***. Report for the Welsh Assembly Government.

Harris, K., Higgs, J., Poole, J. & Thompson, A. (2008): ***Evaluation of the Regional Aggregate Working Parties (RAWPs) in Wales***. Report to the Welsh Assembly Government. Capita Symonds Limited, East Grinstead. (48pp + appendices).

Humpage, A.J. & Bide, T.P. (2010): ***The Mineral Resource Maps of Wales***. BGS Open Report OR/10/032 (49pp).

Independent Advisory Group (2012): ***Towards a Welsh Planning Act: Ensuring the Planning System Delivers***. Report to the Welsh Government (125pp + List of Recommendations and Appendices).

Land Use Consultants (2012): ***Delivery of Planning Services in Statutory Designated Landscapes in Wales***. Report to the Planning Division of the Welsh Government. (64pp + Appendices)

Mankelov J M, Bide T P, Sen M A, Raycraft E and Cameron D G. (2016): ***Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales***. British Geological Survey Commissioned Report, OR/16/005. 160pp

North Wales RAWP (2008): ***Regional Technical Statement for the area covered by the North Wales Regional Aggregates Working Party***.

Owen, K., Grantham, J., Bate, R. & Mankelov, J. (2011): ***Proposed toolkit for developing aggregate apportionment options*** (ASRP 2/8). Final report to the Minerals Industry Research Organisation. Land Use Consultants, 195pp

South Wales RAWP (2008): ***Regional Technical Statement for the area covered by the South Wales Regional Aggregates Working Party***. October 2008. (178pp).

Thompson, A., Greig, J.R., and Shaw, J. (1993): ***High Specification Aggregates for Road Surfacing Materials: Technical Report***. Department of the Environment. Travers Morgan Limited, East Grinstead. (270pp).

Thompson, A., Hine, P.D., Marsay, A. and Clayton.J. (2000): ***Appraisal of Land Based Sand and Gravel Resources in South-East Wales***. National Assembly for Wales Research Report. Symonds Group Ltd., East Grinstead. (65pp plus Appendices).

Thompson, A., Knapman, D. & Pethick, J. (2002): ***Comparative Impact Assessment of Land & Marine Sand & Gravel in South East Wales***. Report to the Welsh Assembly Government. Symonds Group Limited, East Grinstead. (68pp + Appendices)

Thompson, A., Burrows, A, Flavin, D. and Walsh, I., (2004): ***The Sustainable Use of High Specification Aggregates in England***: Report to the Office of the Deputy Prime Minister and the Minerals Industry Research Organisation.

Thompson, A., and Birch, J. (2009): ***An Ecosystems Approach to Long Term Minerals Planning in the Mendip Hills, Phase 1: Initial Feasibility Study***. Report to Somerset County Council and Natural England, March 2009. Cuesta Consulting Limited, Uckfield, East Sussex. (47pp)

Thompson, A., Knapman, D., Harris, K., Birch, J. and Jarvis, D. (2010): ***An Ecosystems Approach to Long Term Minerals Planning in the Mendip Hills. Phase II Final Report***. Report to Defra and the Minerals Industry Research Organisation. Published by Capita Symonds Ltd., East Grinstead. (40pp + appendices).

UK Minerals Forum (2009): ***Carbon and proximity in minerals working group report*** (9pp).

University of Liverpool (Geomorphology and Engineering Geology Group), (2003): ***The Sand and Gravel Resources of North West Wales***. Report for the National Assembly for Wales. (76pp + Appendices)

WRAP (2005): ***Quality Protocol for the Production of Aggregates from Inert Waste*** (revised edition, September 2005). The Waste and Resources Action Programme, Banbury.

Wrighton, C.E. & Humpage, A.J. (2012): ***Aggregates Safeguarding Maps of Wales***. BGS Commissioned Report CR/12/039N. (20pp).

Annex A: Guidance Note on Sub-Regional Collaboration

This Second Review of the Regional Technical Statements for Aggregates Provision in Wales (RTS) introduces a new requirement for all LPAs to agree **Statements of Sub-Regional Collaboration** (SSRCs) in respect of their contributions to the future provision of land-won primary aggregates. In response to suggestions received during the public consultation of the 2nd Review, the following Guidance has been prepared on behalf of the Welsh Government and the two Regional Aggregate Working Parties, in consultation with the project Steering Group.

SSRCs are required to be prepared, collaboratively, by all constituent LPAs within each RTS sub-region (as defined by the RTS 2nd Review) as part of the evidence base needed to support each Local Development Plan (LDP) or Strategic Development Plan (SDP). The timescale for preparing SSRCs will therefore need to be geared towards the timescale for the earliest LDP (or SDP) submission within that sub-region. Once agreed, an SSRC will remain in place until it becomes superseded by the requirements of future reviews of the RTS, or new information comes forward which justifies a change.

By default, each SSRC will simply confirm that all constituent LPAs within a particular RTS sub-region accept the individual apportionments for aggregates for their individual Authority areas, as set out in the latest Review of the RTS, and that (*as a minimum*) the RTS requirements for that sub-region as a whole will therefore be met.

In exceptional circumstances, an SSRC may identify an alternative pattern of supply which achieves the RTS requirements for that particular sub-region in a different way. Such circumstances may arise either where one or more LPAs within the sub-region are unable to meet the minimum requirements of their apportionments identified in the RTS or where an alternative, achievable and more sustainable pattern of supply is identified through collaboration between the LPAs involved.

The following considerations will apply, in such circumstances:

1. **Inability to meet RTS apportionments:** In order to demonstrate an inability to meet RTS apportionments, an LPA would need to show either that it has no (or insufficient) workable aggregate resources of the type required by the RTS and/or that there is no interest from the minerals industry in developing such resources within the area. It will *not* be sufficient simply to demonstrate that the area has no existing quarries or no recent production, or that alternative resources and/or permitted reserves exist within another LPA.
2. **An alternative pattern of supply:** Where an alternative pattern of supply is proposed this will entail transferring some or all of the RTS apportionment from one LPA to one or more other LPAs within the same sub-region, so as to make corresponding increases in provision within those authorities, as required by MTAN 1. The receiving authorities

will need to increase their apportionments²⁰ (and, where necessary, allocations²¹), to ensure that *as a minimum*, the overall requirements for ongoing supply within that sub-region, as set out in the RTS, are met (both numerically and in terms of aggregate type²²). It will not normally be appropriate to merely transfer apportionments to an LPA with sufficient existing reserves to arithmetically absorb the apportionment, without reference to the additional consideration of productive capacity²³.

Where any adjustments are made, the details and justifications will need to be set out clearly in the SSRC and will be subject to Examination as part of the LDP or SDP process.

The LPAs involved should demonstrate, as far as possible, that the SSRC has been produced in consultation with relevant stakeholders, including the Regional Aggregate Working Party (RAWP), as part of the LDP process. The RAWP would not have any powers of approval over SSRCs but would simply provide a forum for discussion of proposed arrangements and, where necessary, could raise objections.

Where there is clear evidence that the sub-region as a whole cannot meet its collective apportionment, SSRCs may be extended to include one or more other LPAs in directly adjoining parts of a neighbouring sub-region. This may be appropriate, for example, for LPAs which become part of a single SDP sub-region, even though they are in different RTS sub-regions. However, the considerations, as outlined above, would still apply.

²⁰ This will not apply to National Park Authorities, where the apportionments stated within the RTS shall not be increased.

²¹ Where an apportionment (or part thereof) is transferred from one LPA to another, the receiving authority will need to calculate its resulting total apportionment, over 25 years (for crushed rock) or 22 years (for sand & gravel) and compare those figures with existing landbanks. Where this results in a shortfall of permitted reserves, corresponding allocations for future working will need to be identified within that authority's area to make up the deficit.

²² Where alternative sources of supply are to be considered, the alternative must either be of the same type or, at least, one that is fully capable of meeting the same end-use specifications. For this reason, and to avoid the inappropriate use of specialist aggregate types, it should be noted that High Specification Aggregates such as those with a high Polished Stone Value (PSV) are not interchangeable with other aggregate types.

²³ Whether or not adequate productive capacity is maintained within a given area will, in part, be the responsibility of industry. All that is expected of LPAs in such cases is that they facilitate such capacity through planning permissions and realistic allocations for future working in accordance with Planning Policy Wales and MTAN 1.

Glossary

The following terms are frequently used in relation to aggregate supply and apportionment. The terms are listed in topic groupings rather than alphabetically.

Term	Definition, in relation to the supply of aggregates
TOPIC: Aggregate Materials	
Aggregate	Crushed rock, natural sand and gravel or artificial granular material that is used in construction, often in conjunction with a suitable binding agent such as bitumen or cement.
Primary Aggregates	Aggregates sourced directly from naturally occurring geological materials as a primary product (as distinct from secondary aggregates, including excavation wastes, produced as a by-product from the extraction or processing of geological materials for other primary purposes).
Secondary Aggregates	These are usually by-products of other industrial processes, or the arisings from non-aggregates extractive operations, that have been processed to meet the specification requirements for construction aggregate materials. They can be sub-divided into manufactured and natural materials, depending on their source. Examples of manufactured secondary aggregates are pulverised fuel ash (PFA) and metallurgical (iron and steel) slags. Natural secondary aggregates include china clay sand, ball clay sand, aggregate produced from slate waste or colliery spoil and excavation wastes (as defined below). All of these are exempt from the aggregates levy, giving them a deliberate cost advantage over primary materials, in an attempt to encourage their greater use.
Construction, Demolition and Excavation Wastes (CD&EW)	A term referring to wastes (see below) arising from the construction or demolition of buildings and/or civil engineering infrastructure, or from excavations associated with land levelling, foundations or other civil engineering works. Aggregates may be derived from some of these various waste streams, either as recycled materials or from excavation wastes (both of which are defined separately below).
Waste	Any substance or object which the holder discards or intends, or is required, to discard. In CD&EW surveys, materials arising from construction or demolition works, or from associated excavations, which are beneficially used <i>in an unprocessed form</i> on the site on which they arise are generally not regarded as waste, because they are not generally regulated as waste.
Road planings	A particular example of CD&EW materials, comprising aggregate and bituminous or cement binder materials that have been 'planed' from the surface of a worn out road prior to resurfacing with new or recycled materials.
Recycled Materials suitable for use as Aggregate	These are materials, usually arising from construction or demolition projects, which have previously been used for construction purposes, and which are capable of being recycled or re-used as construction aggregates for a second or further time. In the Finance Act 2001, all materials previously used in construction are exempt from the aggregates levy, giving them a deliberate cost advantage over primary aggregates in an attempt to encourage their greater utilisation.
Excavation Waste suitable for use as Aggregate	These are materials that may be suitable, with or without processing, for use as secondary aggregates, arising from excavation works: <ul style="list-style-type: none"> a) on the site of any building or proposed building, where the excavation is undertaken exclusively for the purposes of laying foundations, pipes or cables; b) on the site of any river, canal, watercourse or navigational channel, where the excavation is undertaken exclusively for the purpose of creating, restoring, improving or maintaining that feature; c) along the line or proposed line of any highway or proposed highway, where the excavation is undertaken for the purpose of constructing, improving or maintaining the highway and not wholly or mainly for the purpose of extracting aggregate. Each of these categories, as defined more precisely in the Finance Act 2001, is exempt from the aggregates levy, giving these materials a deliberate cost advantage over primary materials in an attempt to encourage their greater utilisation.
Mineral Wastes	Mineral wastes are identified in MTAN1 as a further category of material with potential for use as aggregate. The term is specifically used to encompass aggregates from slate waste, colliery spoil, and crushed rock fines (i.e. the "dust" generated from crushing and screening operations in hard rock primary aggregate quarries). It may also include aggregates produced from the excavation and processing wastes at building stone (dimensional stone) quarries. Aggregates produced from slate waste and colliery spoil are classed as secondary materials (see above) and are exempt from the aggregates levy. The same is not true of crushed rock fines, or of the residue from building stone production, both of which remain classed as primary aggregates and are not exempt.

TOPIC: Supply and Demand	
Production	The overall rate at which products are generated, in tonnes (or millions of tonnes) per year, <i>whether or not they are sold</i> . In quarrying, production includes any unsaleable materials that may be produced, including overburden, interburden and processing waste, which may or may not be useable.
Sales	The rate at which products are sold, in tonnes (or millions of tonnes) per year. In quarrying, for the reasons outlined above, this will usually be less than the rate of production.
Consumption	The rate at which products are used, within a specified market area, measured in tonnes (or millions of tonnes) per year.
Demand	The need or desire for a product, backed by an ability to pay. Demand is measured over a given time period, and is affected by budgets, prices, preferences and the availability and price of alternative products. Demand for aggregates may be expressed in terms of the rate at which it is expected to be used within a particular market area (which is rarely known), or the rate at which it is expected to be supplied from a given source area, and is measured in tonnes (or millions of tonnes) per year.
Supply	The amount of a product which is supplied. Supply of aggregates is normally expressed in relation to a particular source area and is measured in tonnes (or millions of tonnes) per year.
Distribution	The pattern of market destinations served by the sales from a particular quarry or group of quarries.
Proximity Principle	The general concept of minimising the transportation of aggregates (and other bulk materials) by road, in accordance with para. 26 of MTAN1, in order to reduce associated impacts on the environment.

TOPIC: Resources, Reserves and Landbanks	
Resources (of primary aggregate)	Geological materials, including rocks and naturally occurring sand & gravel, which have the potential to be used as aggregates. The presence of a resource does not imply an acceptance of mineral working.
Permitted Reserves (of primary aggregate)	Primary aggregate resources which have the benefit of planning permission for the winning and working of minerals.
Landbank (of primary aggregate reserves)	In general, a landbank is a stock of planning permissions for the winning and working of minerals within a specified area, expressed both in millions of tonnes and in terms of the number of years' supply which they represent. The latter is usually calculated on the basis of recent rates of production.
Current Landbank (of permitted primary aggregate reserves)	In MTAN1 (paragraph 45), this is defined as <i>"the sum of all permitted reserves at active and inactive sites at a given time and for a given area"</i> , and is required to be based on <i>"the latest 3 years production figures"</i> (production, in this case, usually being represented by sales). For the purposes of the RTS, and in the interests of adopting a more practical approach to the strategic planning of aggregates provision in Wales, two deliberate departures from this definition were agreed by the Steering Group at the time of the First Review. Firstly, although 'inactive sites' technically include those which are dormant or suspended, the current landbank has been taken to exclude those sites (but see also 'Dormant Reserves' below). Secondly, in recognition of the prolonged economic recession, the agreed method of calculating the landbank has been to use the average of the latest 10 (rather than 3) years' sales figures.
Dormant Reserves	The permitted reserves of primary aggregates at Dormant sites (see below). MTAN1 (paragraph 47) requires these to be <i>"clearly shown in the landbank calculations as a separate category"</i> . For the purposes of this review, such reserves and those at sites where permission has been suspended (see below) have therefore been excluded from the main landbank calculations used to determine future allocation requirements, though in some cases they might be able taken into account by local authorities to offset any requirement for new allocations, subject to more detailed local knowledge.
Future Landbank (of primary aggregate reserves)*	In MTAN1 (paragraph 45), the Future (or 'Extended') Landbank is defined as <i>"land specifically allocated for the working of aggregates"</i> (but see footnote below*)
Apportionment	The rate for which the mineral planning system requires provision to be made, in Development Plans, for the supply of aggregates from a given area or region. This may be expressed either in terms of millions of tonnes over a specified period, and/or as an averaged 'annualised apportionment' in millions of tonnes per year.
Allocation	The identification, within a Local Development Plan, of an area of land for future mineral working. In Wales, the size (in terms of tonnage) of allocations required in specific LDPs are defined in the Regional Technical Statements, but only for areas in which the cumulative apportionments over the period covered by the RTS are in excess of the available landbank of permitted reserves, at the time of the baseline date used in the assessment (in this case 31/12/16).
Provision	The total amount of aggregate required to be supplied from a particular local authority over a period of time, such as the duration of its Local Development Plan. The overall provision may comprise both a landbank of permitted reserves and allocations for future working.
* The term 'Future Landbank' is somewhat confusing, since a landbank is a stock of planning permissions and (by definition), allocations do not have this status. Allocations may thus form part of the overall 'provision' within a Local Development Plan, but cannot form part of the landbank.	

TOPIC: Quarry Status	
Active Site	Active sites in Wales are explicitly defined by the Town and Country Planning (Fees for Applications and Deemed Applications) (Amendment No.2) (Wales) Regulations 2006 as sites where “ a) <i>development to which the relevant mineral permission or landfill permission relates is being carried out to any substantial extent; or b</i>) <i>other works to which a condition attached to such permission are being carried out to any substantial extent</i> ”. “Substantial extent” is not defined, but relevant guidance is provided in Minerals Planning Guidance Note 14 (MPG14): Environment Act 1995:- Review of Mineral Planning Permissions.
Inactive Site	Defined by the Town and Country Planning (Fees for Applications and Deemed Applications) (Amendment No.2) (Wales) Regulations 2006 as one “ <i>which is not an active site</i> ”, as defined above. Inactive sites thus include, but are not limited to, those which are classified under the Environment Act 1995 as being dormant and those where planning permission has been suspended (see below).
Dormant Site	As defined in the Environment Act 1995, this refers specifically to quarries with mineral permissions granted between 30 th June 1948 and 22 nd February 1982 (i.e. “Phase I” and “Phase II” sites, as defined in the Act) where no minerals development was carried out to any substantial extent in, on, or under the site at any time in the period beginning on 22 February 1982 and ending with 6 June 1995. These sites still have valid planning permissions but, since 1 st November 1995 it has not been lawful to recommence or carry on working a dormant site until full modern planning conditions have been approved by the Local Planning Authority (LPA), through the process of an initial ROMP review (see below). In some areas there are additional, ‘dormant IDO’ sites, as defined within the Planning and Compensation Act, 1991. These are sites which were originally granted consent under ‘Interim Development Orders’ (IDOs), in the period between 22 July 1943 and 1 July 1948, and which were subsequently registered under the 1991 Act (thus retaining valid planning permission), but where no substantial work was carried out between 1 May 1989 and 30 th April 1991. For these sites, a scheme of operation and restoration conditions is required to be submitted to the relevant LPA together with an acceptable Environmental Assessment, before they can lawfully be reactivated.
ROMP	The acronym for ‘Review of Old Mineral Permissions’ carried out in accordance with the Environment Act 1995. Sites which obtained planning permission between 1948 and 1982, whether active, inactive or dormant, were required by this Act to be subject to an Initial Review in order that modern planning conditions can be agreed. In addition, all sites (including reactivated ISO permissions) are required to be subject to subsequent Periodic Reviews at intervals of not less than 15 years. ROMP applications cannot be refused, since valid planning permissions already exist. However, court judgments, guidance and regulations have since clarified that both the ROMP process, and the approval of new conditions at IDO sites, amount to obtaining new development consents and are therefore subject to Environmental Impact Assessment.
Stalled ROMP / Suspended Permission	Where a ROMP review has begun but has not been completed (e.g. because an Environmental Statement has not been submitted), the ROMP process is said to have ‘stalled’. In accordance with the Town and Country Planning (Environmental Impact Assessment) (Undetermined Reviews of Old Mineral Permissions) (Wales) Regulations 2009, planning permission then becomes ‘suspended’ - i.e. it ceases to authorise any minerals development. As with dormant sites, suspended permissions cannot lawfully be operated until the process (including Environmental Impact Assessment) has been completed and modern conditions agreed.

Abbreviations

The following abbreviations are commonly used throughout the RTS.

AAV	Aggregate Abrasion Value
AM survey	Aggregate Minerals survey
AONB	Area of Outstanding Natural Beauty
BAA	British Aggregates Association
BGS	British Geological Survey
BMAPA	British Marine Aggregate Producers Association
CD&EW	Construction, Demolition and Excavation Waste
CPRW	Council for the Protection of Rural Wales
EA	Environmental Assessment
EC	European Commission
EIA	Environmental Impact Assessment
EMAADS	<i>Establishing a Methodology for Assessing Aggregates Demand and Supply</i> (project title)
ES	Environmental Statement
EU	European Union
FBA	Furnace Bottom Ash
GDP	Gross Domestic Product
GIS	Geographic Information System
HMRC	Her Majesty's Revenue & Customs
HSA	High Specification Aggregate
IDO	Interim Development Order
IMADP	Interim Marine Aggregates Dredging Policy
IMAECA	<i>Implementing the Methodology for Assessing the Environmental Capacity for primary Aggregates</i> (project title)
ISO	International Organisation for Standardisation
LDP	Local Development Plan
LPA	Local Planning Authority
MASS	Managed Aggregate Supply System
MHCLG	Ministry of Housing, Communities and Local Government
MPA	Mineral Products Association
MPPW	Minerals Planning Policy Wales
mt	Million tonnes
mtpa	Million tonnes per annum
MTAN	Minerals Technical Advice Note
NPA	National Park Authority
NRW	Natural Resources Wales
OBR	Office of Budget Responsibility
PFA	Pulverised Fuel Ash
POS	Planning Officers Society
PPW	Planning Policy Wales
PSV	Polished Stone Value
RAWP	Regional Aggregate Working Party
ROMP	Review of Old Mineral Permissions
RTS	Regional Technical Statement
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SSSI	Site of Special Scientific Interest
WG	Welsh Government

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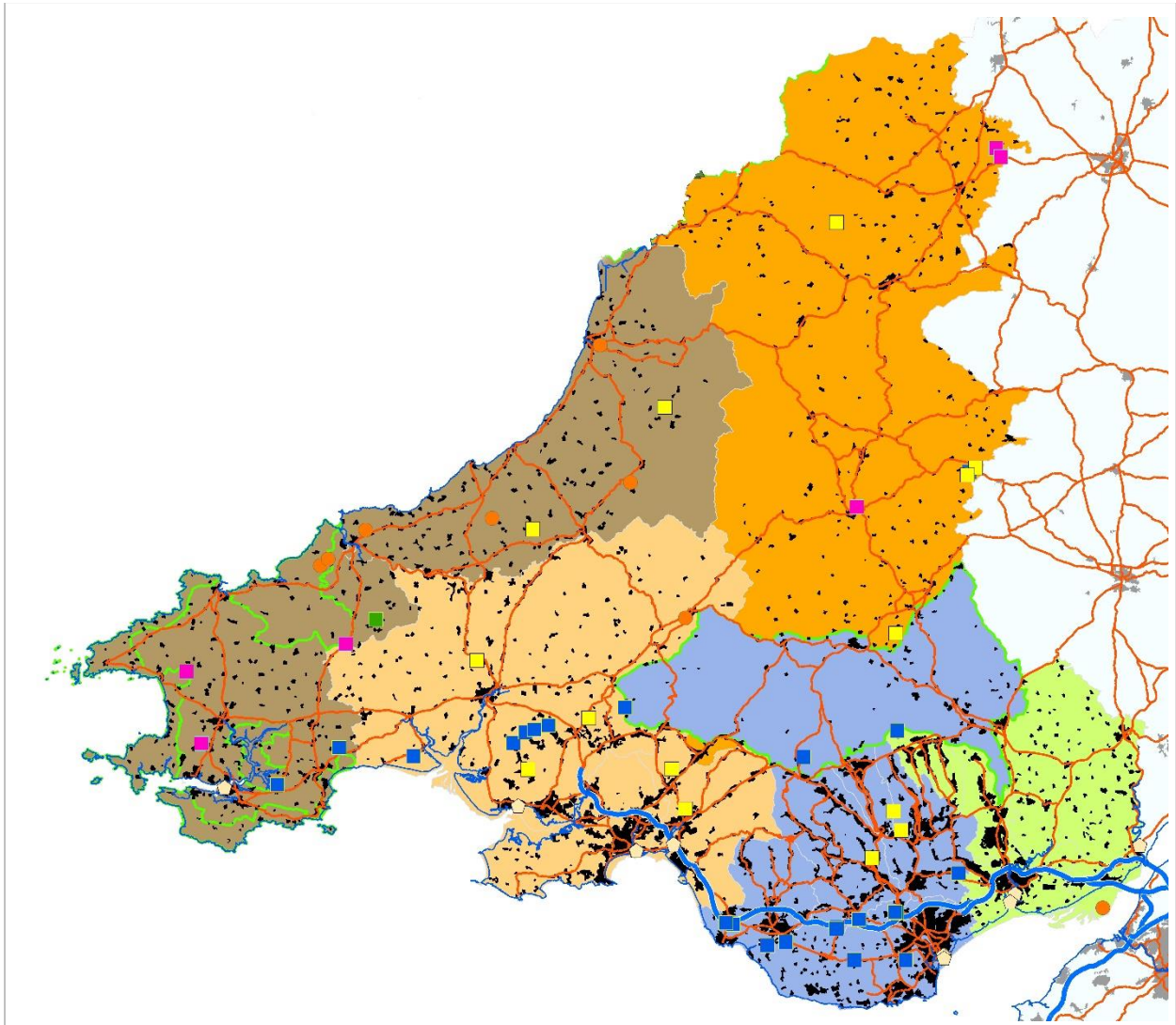
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- **Brecon Beacons National Park Authority:** Donna Bowhay

* It is noted with deep sadness that Trefor passed away in April 2020

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

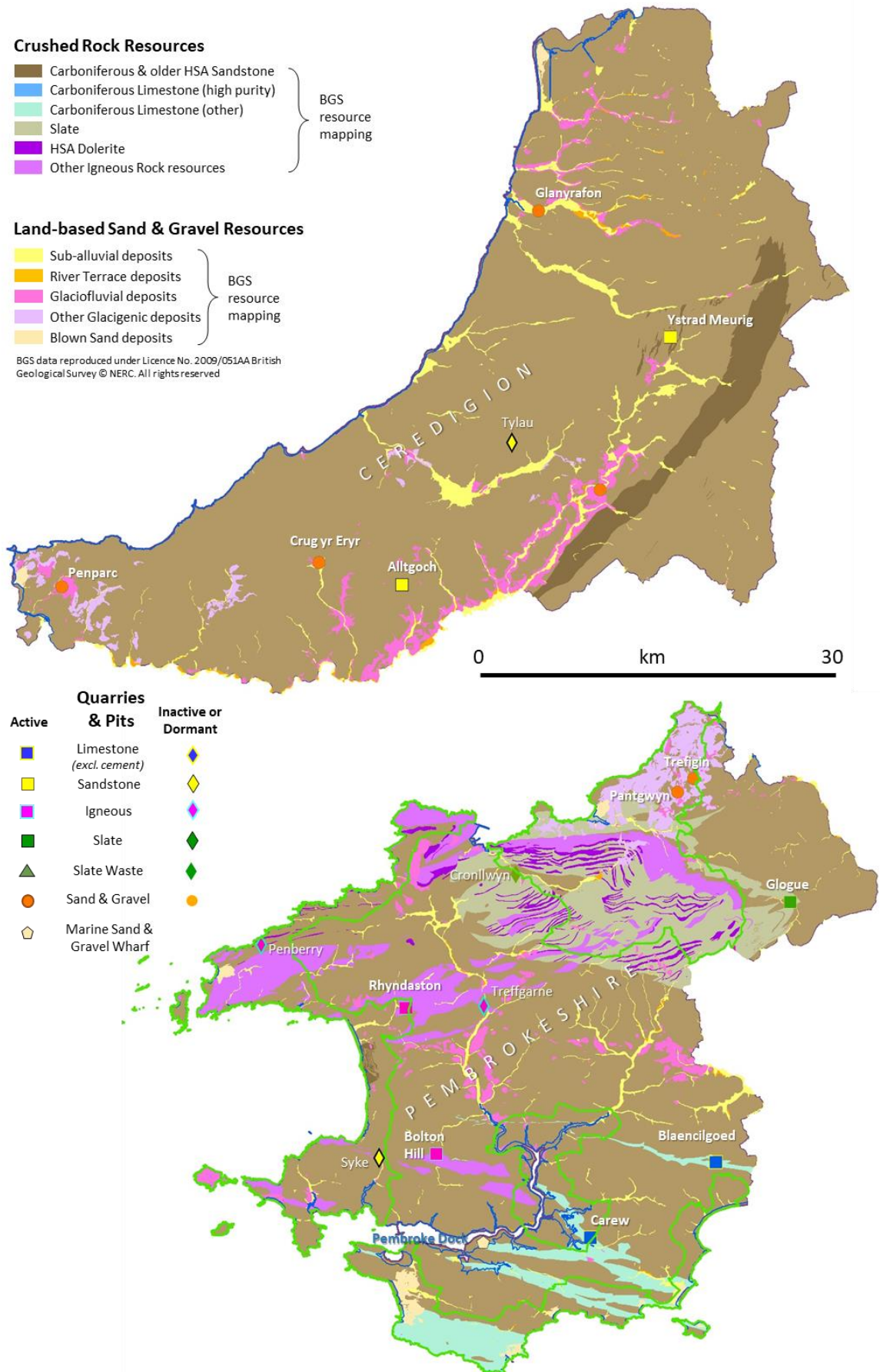
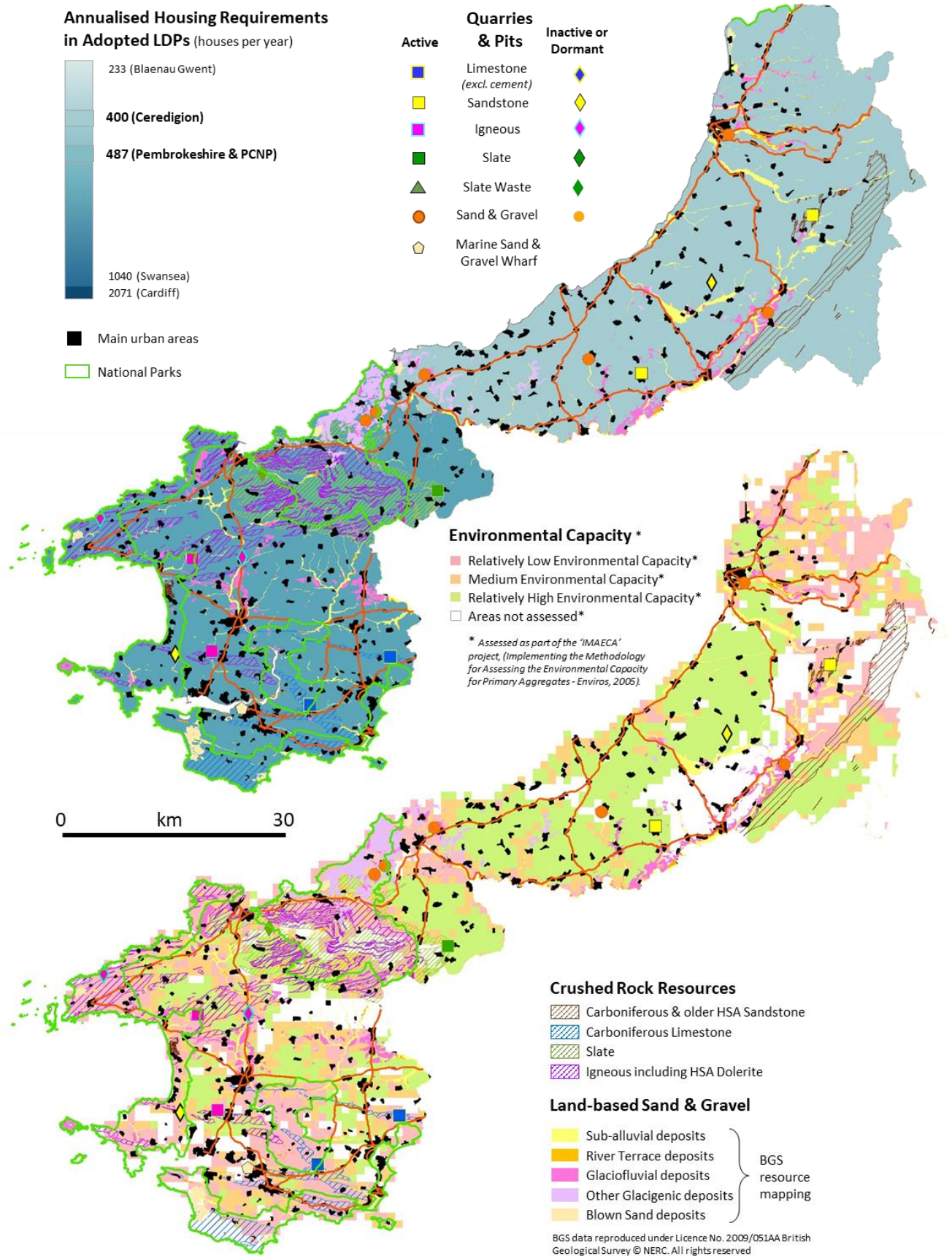


Figure B3: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the West Wales Sub-Region



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

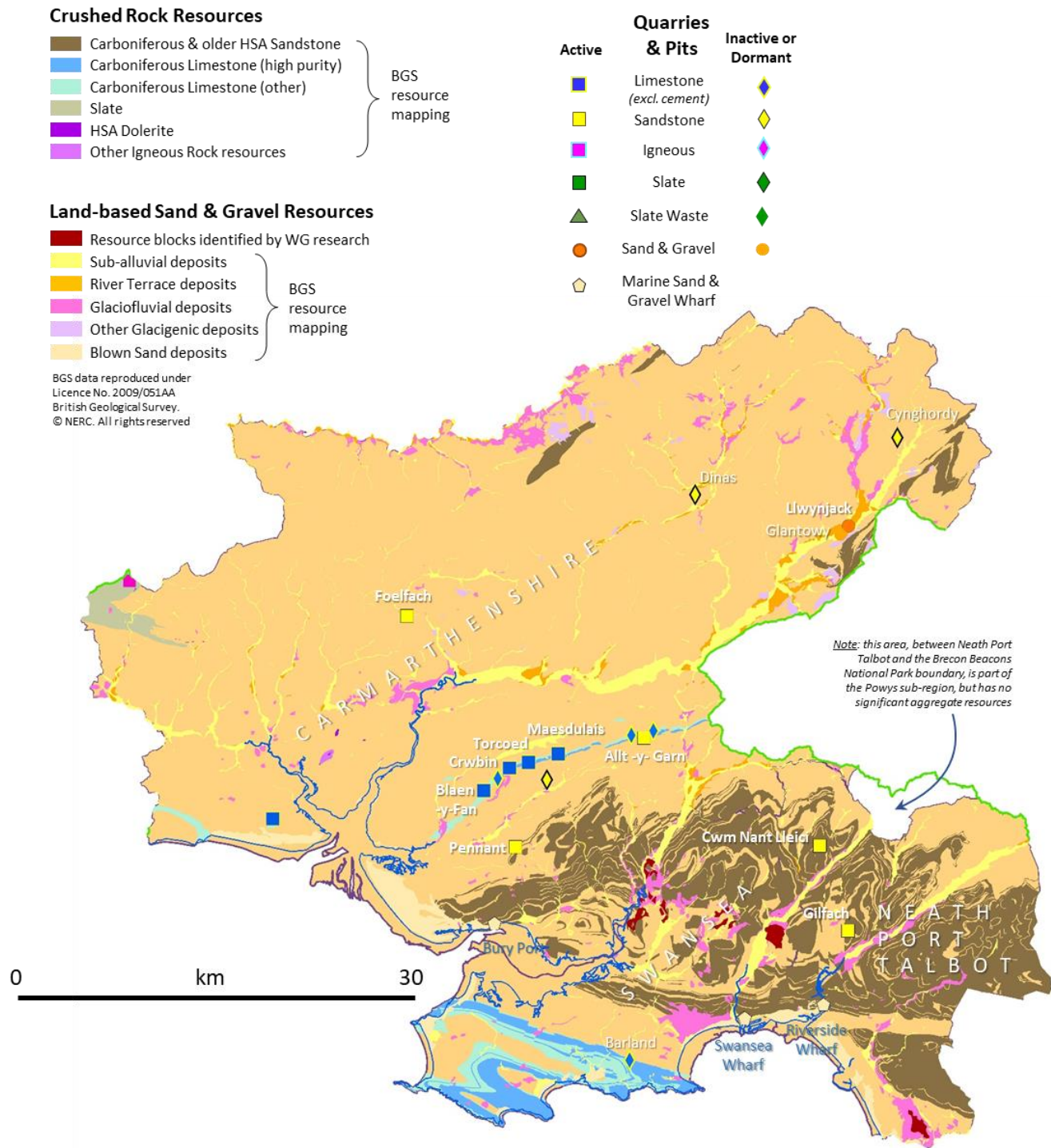
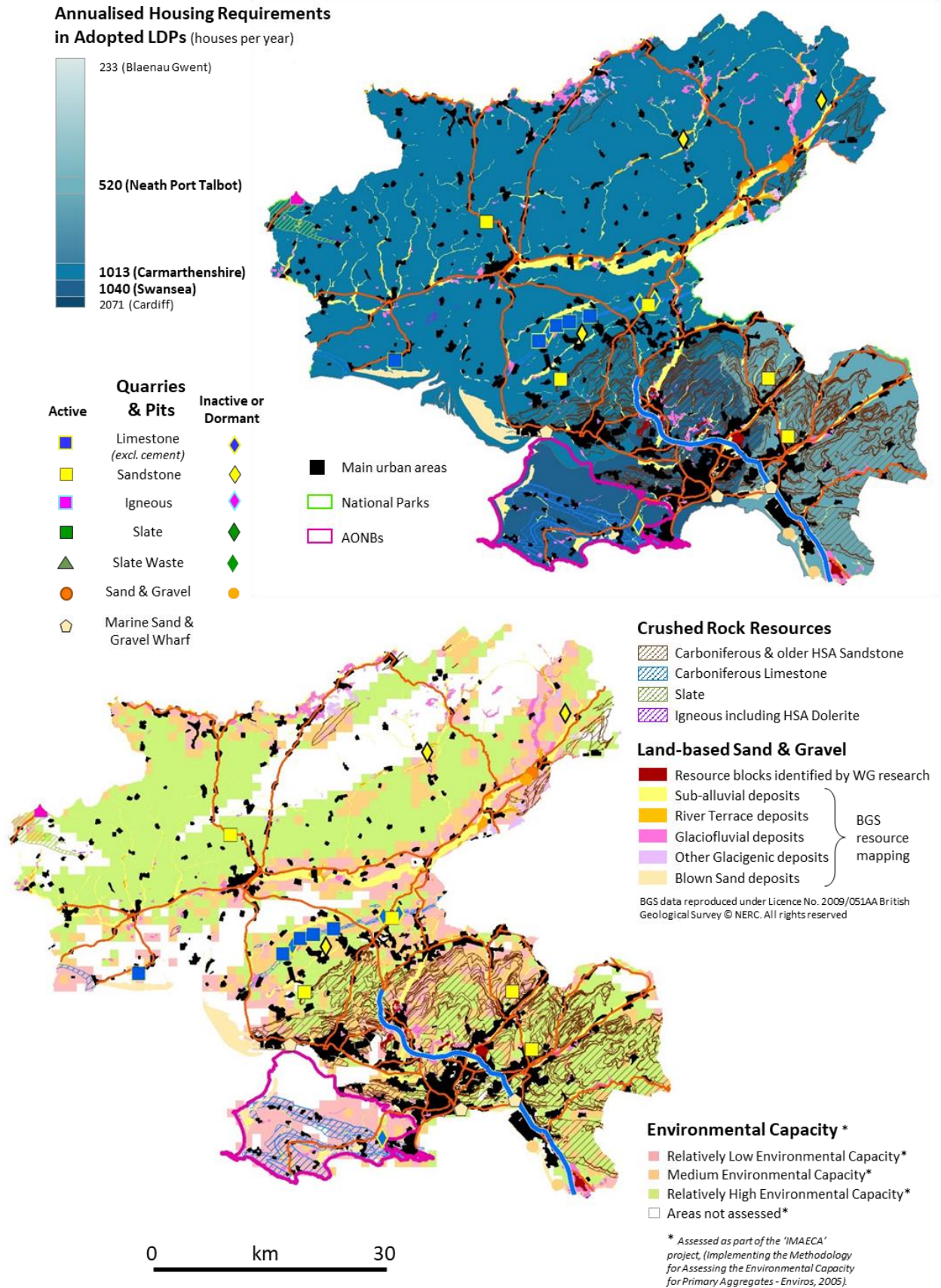


Figure B5: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the Swansea City Sub-Region



- 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

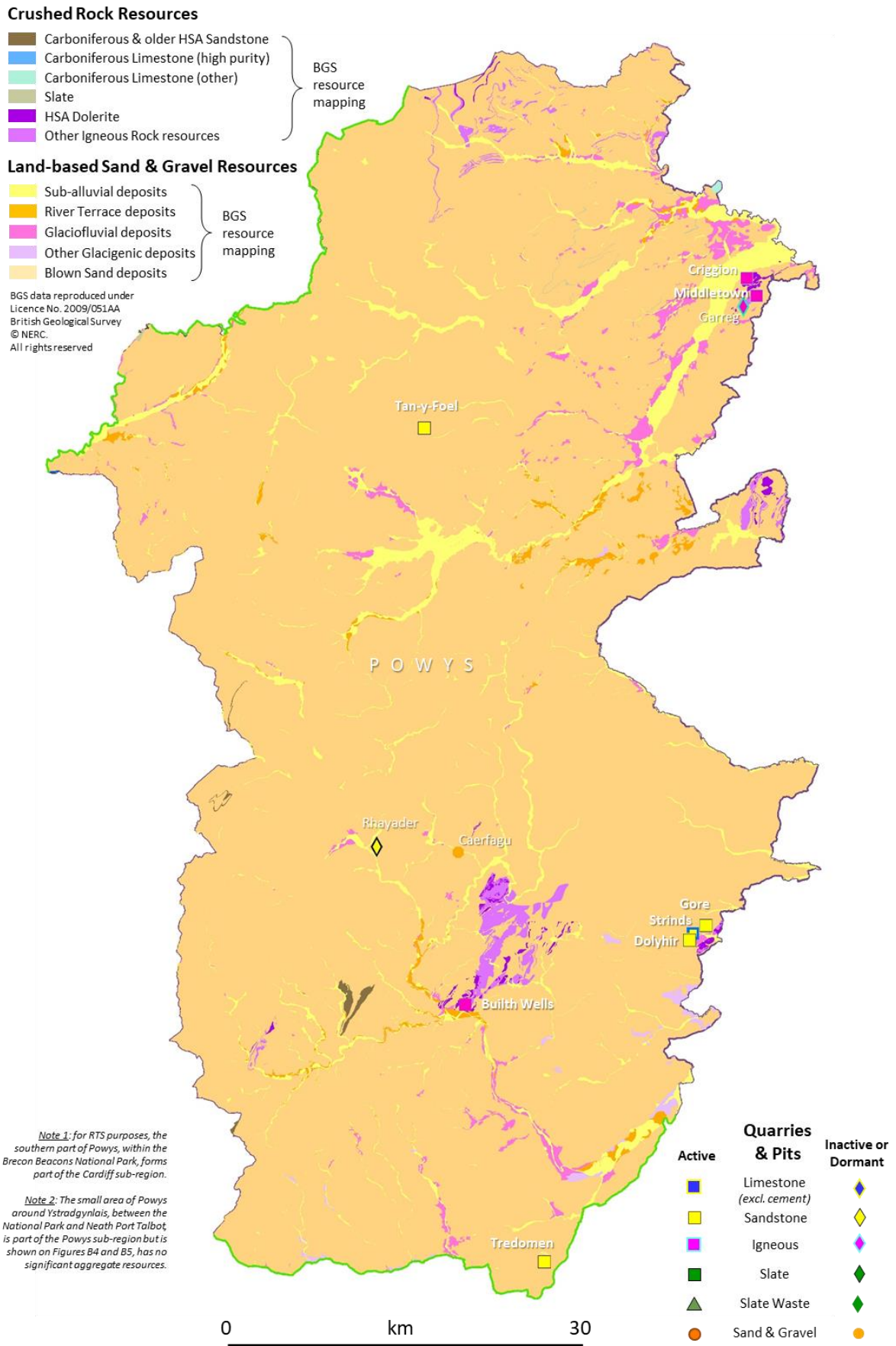
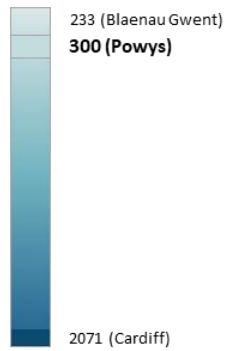


Figure B7: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the Powys Sub-Region

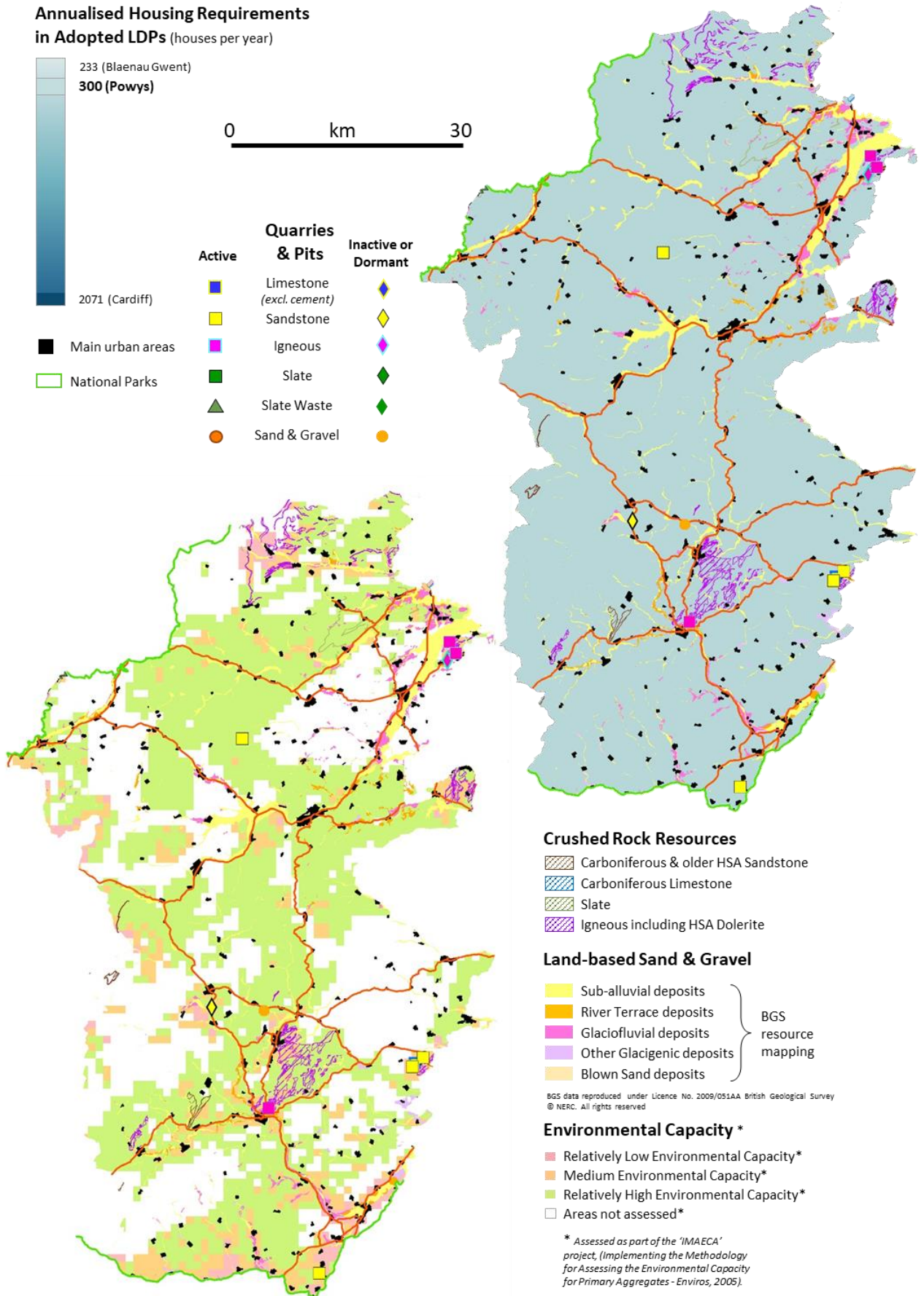
Annualised Housing Requirements in Adopted LDPs (houses per year)



0 km 30

- | Active | | Quarries & Pits | Inactive or Dormant |
|--|--------------------------|--|---------------------|
| ■ | Limestone (excl. cement) | ◆ | |
| ■ | Sandstone | ◆ | |
| ■ | Igneous | ◆ | |
| ■ | Slate | ◆ | |
| ▲ | Slate Waste | ◆ | |
| ● | Sand & Gravel | ● | |

- Main urban areas
- National Parks



- Crushed Rock Resources**
- Carboniferous & older HSA Sandstone
 - Carboniferous Limestone
 - Slate
 - Igneous including HSA Dolerite

- Land-based Sand & Gravel**
- Sub-alluvial deposits
 - River Terrace deposits
 - Glaciofluvial deposits
 - Other Glacigenic deposits
 - Blown Sand deposits
- } BGS resource mapping

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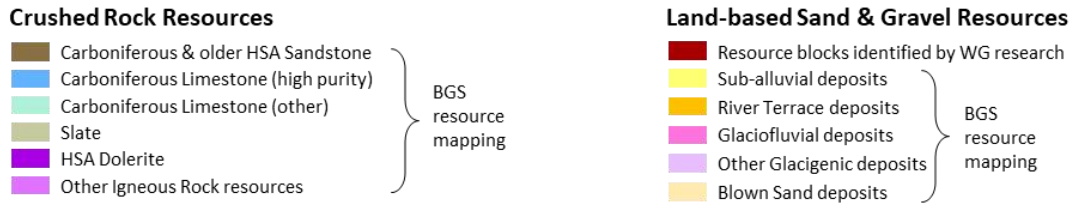
- Environmental Capacity***
- Relatively Low Environmental Capacity*
 - Medium Environmental Capacity*
 - Relatively High Environmental Capacity*
 - Areas not assessed*

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

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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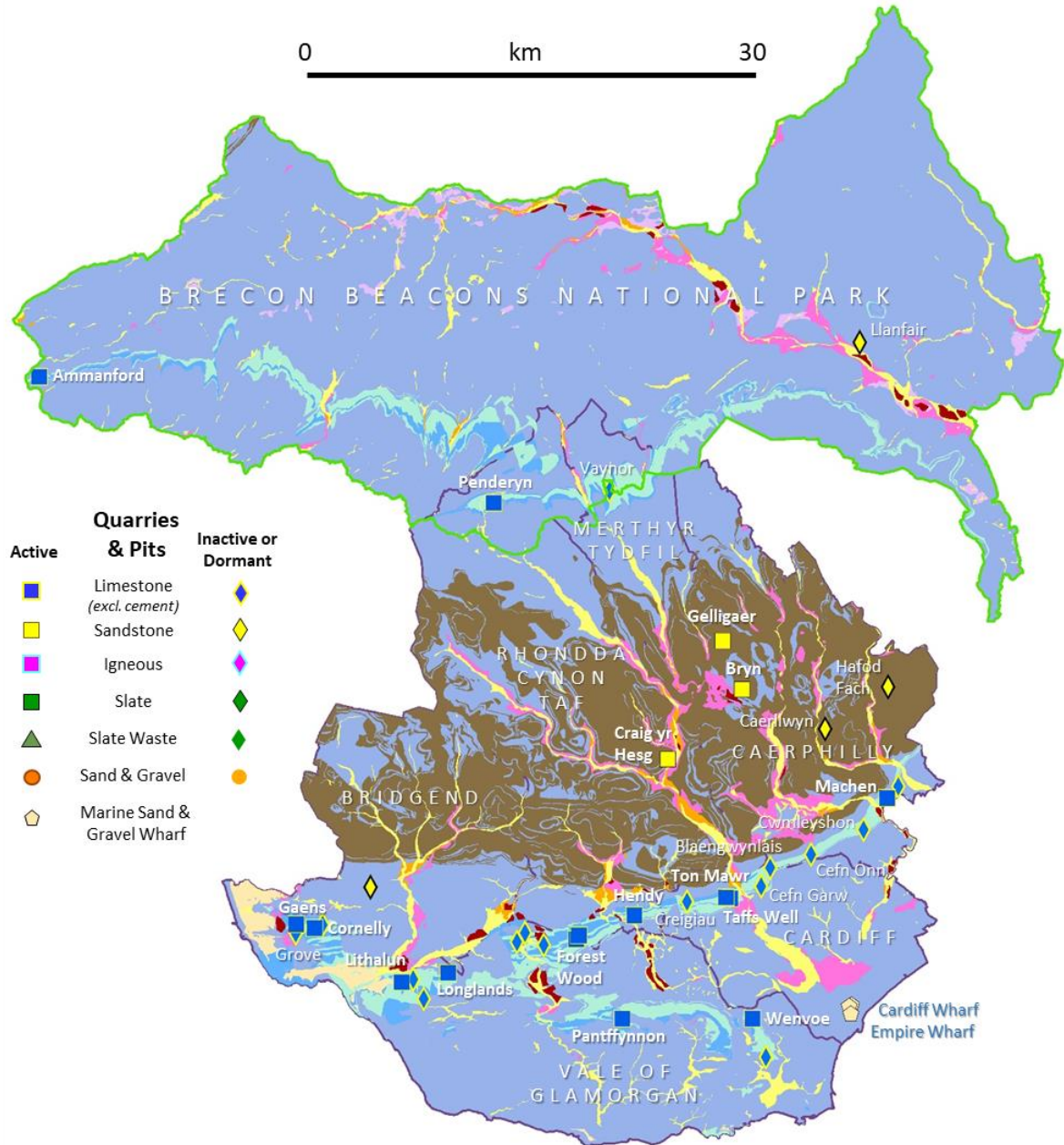
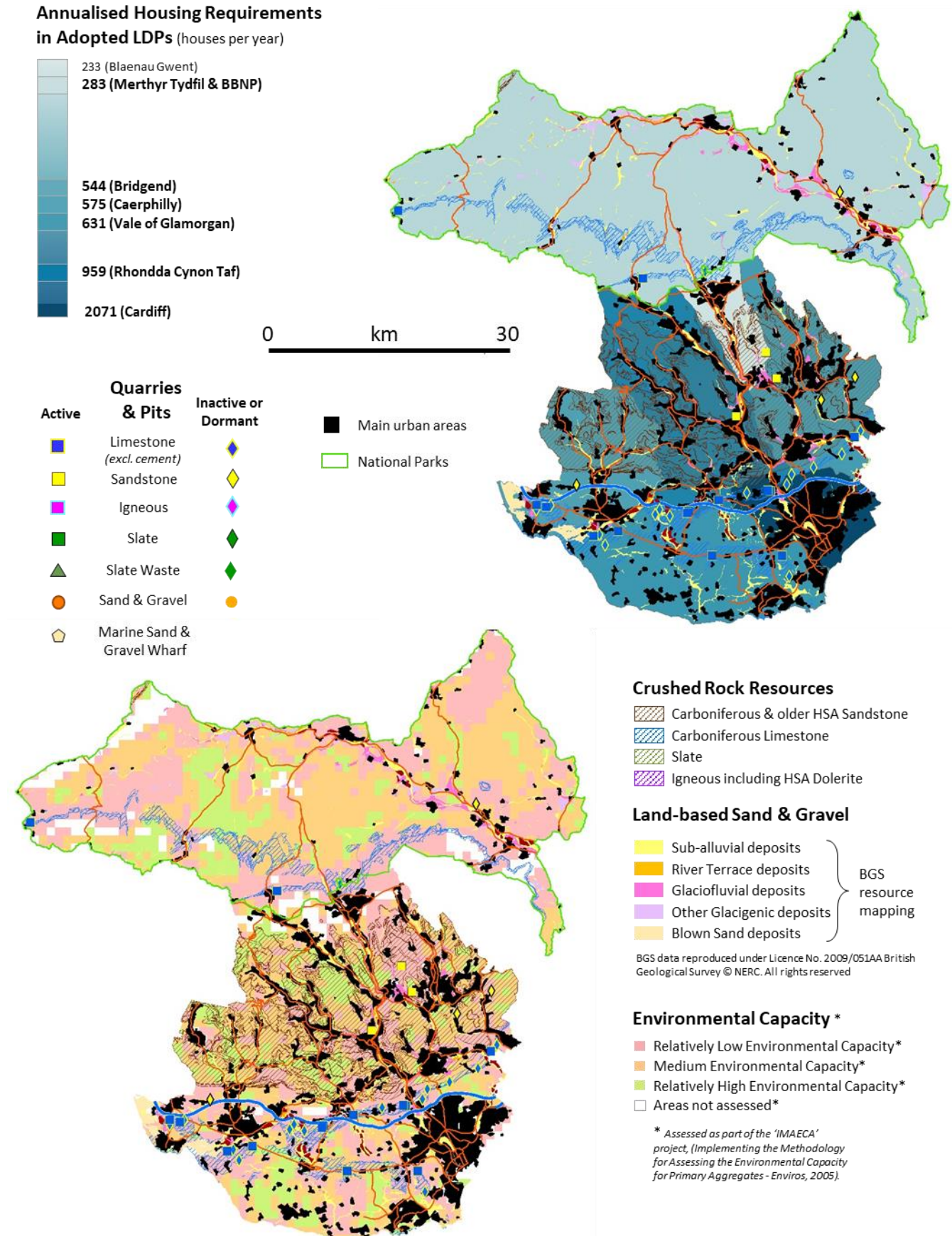


Figure B9: Aggregate Resources, Quarries, Planned Housing Requirements and Environmental Capacity in the Cardiff City Sub-Region

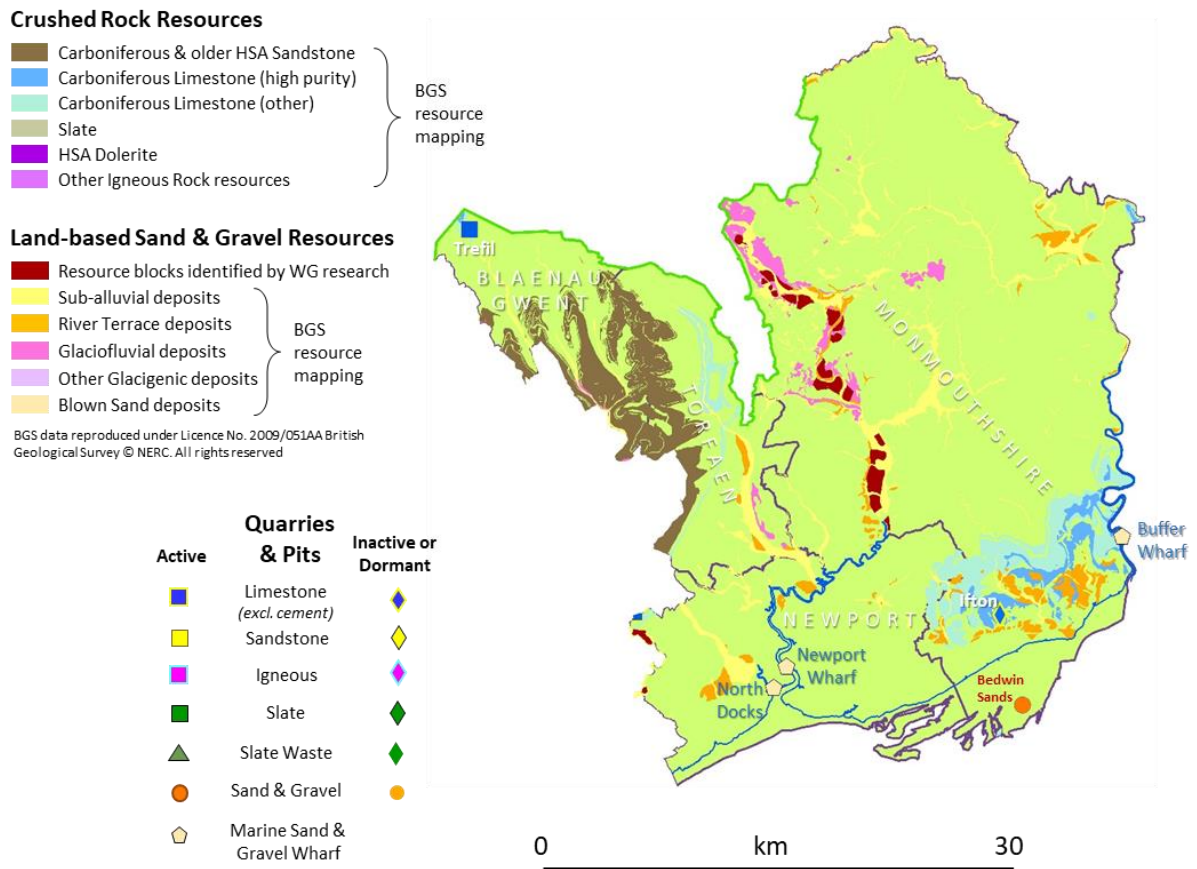


- B63. The second, and most important area of Carboniferous Limestone resource in the Cardiff City sub-region is that within the 'south crop', extending from Bridgend in the west, through the Vale of Glamorgan and Cardiff to Caerphilly in the east. No less than ten active limestone aggregate quarries 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.

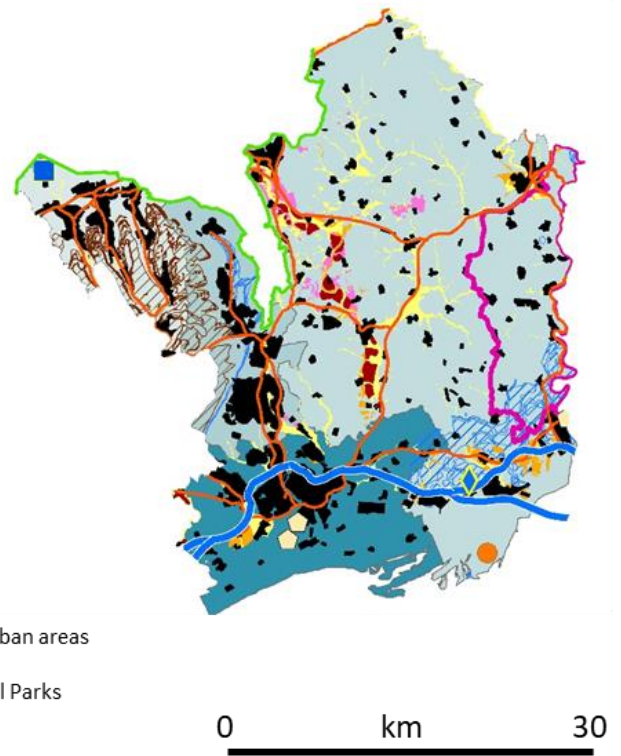
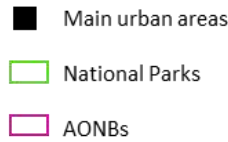
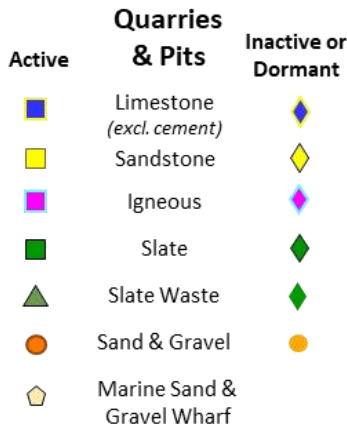
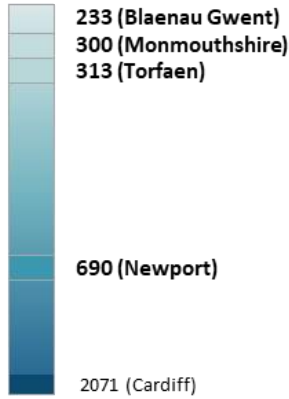
Figure B10: Aggregate Resources and Quarries in the Former Gwent Sub-Region



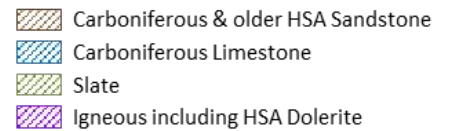
- B69. The Carboniferous Limestone resources provide essential, general-purpose construction aggregates. Those around Trefil Quarry in the north are recognised as a Preferred Area for future extraction in the Blaenau Gwent LDP, but are also constrained by being at the western edge of a subsequently-designated 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

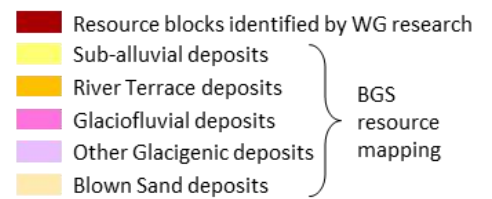
Annualised Housing Requirements in Adopted LDPs (houses per year)



Crushed Rock Resources

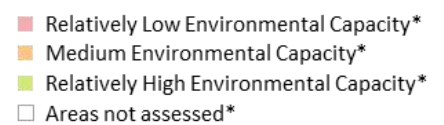


Land-based Sand & Gravel



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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
Pantyyfynnon 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).