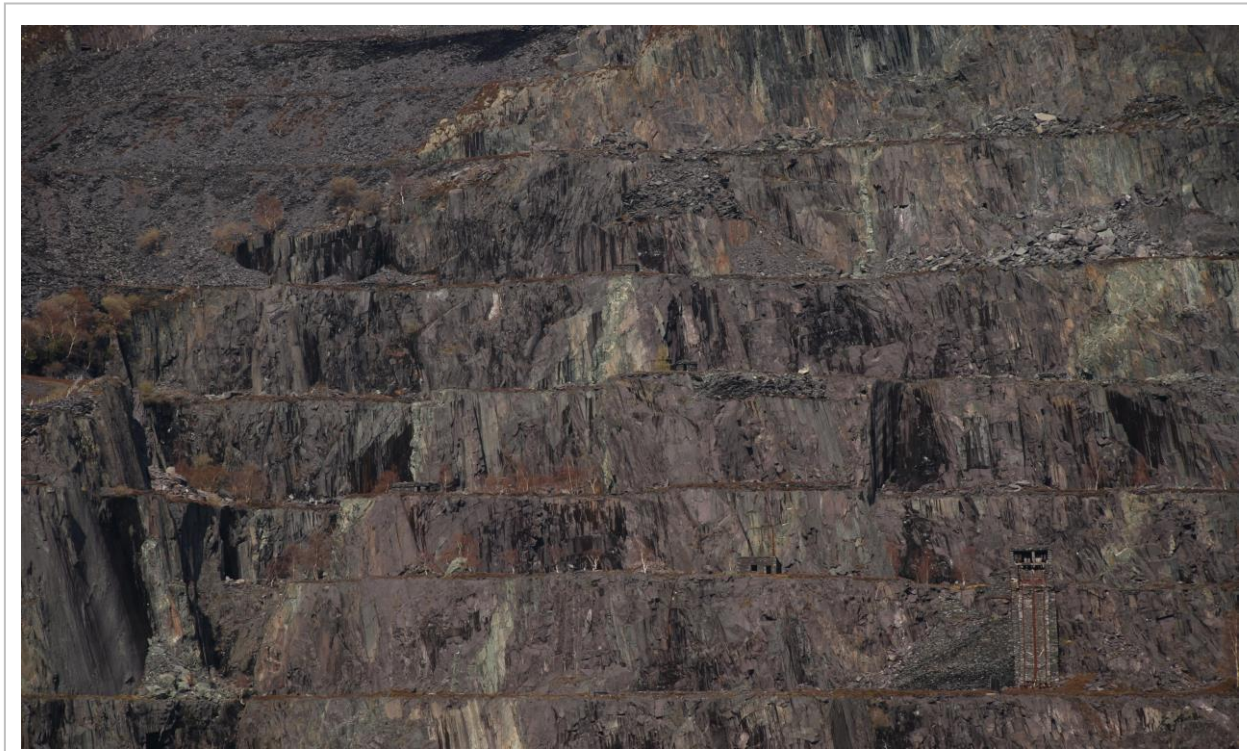


Regional Technical Statement (1st Review)

Appendix A (North Wales)



Final Edition (endorsed) - 1st August 2014)

North Wales
Regional
Aggregates
Working Party



Llywodraeth Cymru
Welsh Government

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Appendix A: North Wales Region - Detailed Analysis & Recommendations

Introduction

- A1. This appendix is intended to complement, and should be read in conjunction with, the main document of the First Review of the Regional Technical Statement (RTS). It provides additional detail, specific to the North Wales RAWP Region, relating to the analysis of demand and the consideration of existing supply patterns. This information then feeds back into the determination of new apportionments and allocations (where required) for future aggregate provision, as presented in Chapter 5 of the main text. The final part of the Appendix incorporates that information into specific recommendations and guidance for each individual Mineral Planning Authority within North Wales.

Sub-Regional Analysis of Demand in North Wales

- A2. As explained in Chapter 3 of the main text, the starting point for assessing the future demand for aggregates over the period covered by the revised RTS (i.e. 2011-2036) has been taken to be the average of actual or estimated sales figures for the preceding 10 year 'baseline' period (2001 to 2010), within each MPA.
- A3. The historical sales represent the demand that has been placed upon those authorities in terms of aggregates required within those areas and elsewhere, including exports to England, particularly from the sites within North East Wales.
- A4. They also represent the residual demand for land-based primary aggregates over that period, since the overall demand was partly satisfied by supplies from secondary, recycled and marine aggregate sources, as well as by imports from primary aggregate sources in England (though these are generally very limited).
- A5. The figures for North Wales are shown in Table A1, below. The origin of the data is explained fully in Chapter 3 of the main text.

Table A1: Summary of average sales figures for land-based primary aggregates in North Wales, 2001 - 2010

Mineral Planning Authority	Land-won Sand & Gravel Aggregates (mtpa)	Crushed Rock Aggregates (mtpa)
Wrexham	0.58	0
Flintshire	0.31	2.94
Denbighshire	0.02	0.89
Conwy + Snowdonia NP	0	1.23
Anglesey	0	0.38
Gwynedd	0.17	0.37
Sub-totals, North Wales	1.08	5.80

SOURCE: Collated by the North Wales RAWP secretary from confidential MPA data, for publication in annual RAWP reports, but refined in some cases from other public domain information (e.g. planning applications, Inspectors' reports and LDP documents) to provide a more detailed or updated breakdown.

- A6. The figures show that the supply of land-won sand & gravel has been dominated by Wrexham and Flintshire, this being largely a reflection of their proximity and good access to the main market areas in both North East Wales and adjoining parts of North West England. It also reflects the existence of substantial glacio-fluvial sand & gravel resources in those areas - particularly to the east of Wrexham. Whilst similar deposits exist in North

West Wales, particularly in Gwynedd, these are less well-placed to serve the main markets, and production there is therefore more limited.

- A7. In the case of crushed rock aggregates, historical demand has again been focused primarily on North East Wales, and for the same reasons, but in this case the materials have overwhelmingly been supplied from Flintshire. This reflects the extensive resources of high quality Carboniferous Limestone within relatively unconstrained areas to the east of the Clwyddian Hills AONB, in contrast to the situation in Wrexham, where the continuation of these resources falls almost entirely within the AONB. Significant quantities of limestone from Flintshire, including high purity limestone for industrial uses, are exported into England, and some are used for cement manufacture at Padeswood near Mold. Limestone production also takes place elsewhere in North Wales, together with igneous rock and slate production, particularly in Gwynedd. In the case of Conwy, the output figures incorporate sales from one small igneous rock quarry within the Snowdonia National Park, in order to maintain confidentiality. Further observations on the supply pattern in North Wales, including the relationships between resources, markets and environmental capacity, are given in paragraphs A28 onwards, below.
- A8. By default, the use of historical sales data as a basis for estimating future demand provides a built-in allowance for the supply of secondary, recycled and marine aggregates, assuming that these various factors will continue as before (with different levels of contribution in each MPA). It also assumes that the factors influencing the overall scale of construction activity will remain broadly unchanged. In practice, adjustments may need to be made in order to reflect changes in any of these factors which are considered likely to occur in future years, within each MPA.
- A9. The need for any such adjustments to be made is assessed below, both for North Wales as a whole and, where appropriate, for individual sub-regions or MPAs. The issues are considered under the headings of:
- **supply factors** (relating to the continued availability of alternative materials),
 - **import/export factors** and
 - **demand factors** (relating to influences on overall construction activity).
- A10. In each case, the observations relate to the anticipated changes compared to the average conditions over the 2001-2010 baseline period, and they relate only to the reasonably foreseeable future (no more than 10 years), since longer-term predictions are likely to be unreliable. It is important that these observations are kept under review and adjusted each time the RTS is revised.

Anticipated Changes in Supply Factors

Secondary Aggregates

- A11. 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 ballast¹.
- A12. Aggregate production from metallurgical slags and from coal-fired power station arisings, no longer occurs in North Wales. 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 North Wales, almost all former colliery waste tips (mainly in Flintshire/Wrexham) have been either landscaped as part of reclamation schemes or utilised for base fill material. Volumes still available have not been assessed recently but are understood to be small or insignificant.

¹ it might appear more logical to group these substances under 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.

- A13. In North Wales, crushed slate, derived either from slate waste (as a by-product of roofing material production) or quarried specifically for use as primary aggregate, features significantly in the overall pattern of supply, especially in Gwynedd. Both categories are included in the overall figures for crushed rock production within the North Wales RAWP reports and, over the 10-year baseline period, have accounted for between 5.3% and 16.2% of total crushed rock sales, with evidence of a rising trend in both proportion and actual sales up to a peak in 2007. Although output has since fallen during the current recession, the proportions have remained high in the period up to 2010 (between 11.7 and 14.8%). This suggests an underlying increase in the market for slate aggregate, reflecting its increasing acceptance by users, as well as the price advantage associated with the exemption of this material from the Aggregates Levy (but see next paragraph). 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, only for the balance between slate and other types of crushed rock.
- A14. In August 2013, HMRC announced that a European Commission investigation into certain exemptions and reliefs contained within the aggregates levy was being undertaken to determine whether or not these amounted to 'State Aid' (Revenue & Customs Brief 24/13). Of particular relevance to Wales, these materials include slate, shale, colliery spoil and (perhaps) aggregates made from metallurgical slag. On 18th December 2013, the Government published draft legislation on the suspension of these exemptions (Finance Bill 2014). Final details of the EC investigation are currently awaited but the implication is that they could have significant implications for the balance between primary and alternative aggregates, if the exemptions are found to be unlawful. These implications have not yet had chance to be factored into the following analysis. However, the Government is strongly of the view that the exemptions in question do not give rise to State aid, and is providing information to the Commission to support that view as part of the formal investigation process. The Bill incorporates provisions for secondary legislation to restore any suspended exemptions, if appropriate, following the outcome of the EC investigation.

Recycled Aggregates

- A15. Aggregates produced from construction, demolition and excavation wastes (CDEW), but excluding asphalt plantings, recycled rail ballast and recycled glass, 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.
- A16. 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 industry view is that there is little opportunity for significant further increase in the proportion of construction aggregate likely to be derived from this sector. The future availability of recycled aggregates is 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 (2001 to 2010).

Marine-dredged Aggregates

- A17. In North Wales, very little marine-dredged sand & gravel is used. The figures for marine aggregates are combined, in the annual RAWP reports, with those for land-won sand & gravel, but are understood (from the 2008 RTS) to be in the order of 45,000 tpa (although only 32,000 in AM2009 survey). Dredging licences within the coastal waters of North Wales are primarily used to supply Merseyside, with substantial quantities being landed in Liverpool. This, in turn, offsets the pressure for exports to NW England from land-based resources in N Wales.
- A18. For the time being, it seems reasonable to suppose that marine-dredged aggregates will continue to supply a similar (very small) proportion of overall demand as they have done over the last decade, so the demand for land-won aggregates in any of the MPAs in North Wales is not likely to be affected.

Anticipated Changes in Import/Export Factors

- A19. Wales has always been a net exporter of land-won aggregates. Data on both exports and imports is recorded in the 4-yearly Aggregate Minerals (AM) Surveys, and data for exports in the last three surveys is summarised in Table A2, below. In North Wales, the main aggregate exports, by far, are those of Carboniferous Limestone which primarily (more than 90% in 2005 and almost 100% in 2009) are supplied to North West England. These exports, in turn, are sourced primarily from the NE Wales sub-region (mostly from Flintshire) with smaller quantities from NW Wales (notably from Conwy). The AM Survey figures generally show that, as overall sales have fallen in recent years - particularly since 2005, 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 likely to be true: as the economy rebounds from the current recession in future years, the demand for exports from North Wales is likely to increase once again, and more quickly than the overall rate of economic growth. However, whether or not this will reach or exceed the levels of demand experienced in the 2001 to 2010 baseline period cannot be certain: it will depend, to a large extent, on the future level of economic growth and construction activity within North West England.

Table A2: Summary of key export statistics for North Wales from recent AM surveys

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

* 'exports' includes movement between North Wales and South Wales, as well as to other regions (mostly in England).

** crushed rock sales exclude slate

- A20. Imports of land-based aggregates are very minor, by comparison with exports. In North Wales, imports amounted to just 0.03mt of land-won sand & gravel (from England), and only 0.653mt of crushed rock, more than 90% of which comprised igneous rock and sandstone from neighbouring South Wales.

Anticipated Changes in Economic Demand Factors

- A21. Before considering future changes it is worth considering the relationships between aggregate sales and economic factors over the baseline period (2001 to 2010). Since economic growth/recession figures are available only for the country as a whole, this analysis is presented in the main text rather than in this Regional appendix (see paragraphs 3.34 onwards), with only a brief summary given here.
- A22. The analysis used annual GDP change figures, for the UK as a whole, as a broad indicator of economic activity, and compared these to the annual series of aggregate sales data from individual RAWP reports. The GDP figures clearly show the onset of the recession in 2008 and 2009, and the modest level of growth in 2010, compared with the earlier parts of the baseline period, broadly tying-in with the available sales data. Since 2010, GDP growth has fallen back again, but the average growth (from out-turn and forecast) from 2011 to 2018, is 1.88% per annum. This compares with an average of 1.78% per annum for the 2001 to 2010 baseline period and suggests that demand figures up to 2018 are, if anything, likely to be slightly higher than those for the baseline period. Consideration also needs to be given, however, to the possibility of a return to more substantial growth in the period beyond 2018. Whilst there is currently no evidence to quantify or even suggest such growth, it would be prudent to allow for it, in order to avoid the risk of under-provision.
- A23. Other potential sources of information that have been considered regarding the likely future demand for construction aggregates include population growth forecasts and Local Authority housing forecasts, though neither of these provide any clear indications of changes in demand within the short to medium-term future.
- A24. Aside from predictions of economic growth and associated general construction activity, a further important element in the demand for aggregates is that relating to major infrastructure projects. Consultation with the North Wales RAWP Technical Secretary and RAWP members has suggested that such projects may include the following:
- Caernarfon bypass construction;
 - Redevelopment of the Wrexham industrial estates, including the construction of a proposed major new prison;
 - North Wales Gateway Project, including redevelopment of the former Shotton steelworks sites and of the former RAF Sealand site near Queensferry;
 - New nuclear power station at Wylfa on the Isle of Anglesey;
 - Numerous large scale wind farm proposals (land-based and offshore);
 - Tidal/wave power schemes;
 - Possible supply of stone from coastal quarries in North Wales to the proposed tidal lagoon project in Swansea Bay and armourstone to coastal defence projects;
 - Possible future expansion of Harwarden as a Regional Airport and to accommodate Airbus manufacturing; and
 - A55 North Wales coast road upgrade.
- A25. Additional projects, focused on adjoining parts of north west England but still potentially capable of influencing future aggregate demand in North Wales include:
- Wirral Waters (site of the former docks in Birkenhead);
 - Liverpool 2 Docks;
 - Ince(Peel) "ecopark and energy plant " near Ellesmere Port;

- Mersey Gateway (second Mersey crossing) near Runcorn; and
- Possible linking of East-West and North-South rail lines near Chester.

A26. The likelihood of any of these projects coming forward in the short, medium and long term is difficult to predict, and in part depends upon investor confidence and Government commitment. There is therefore no clarity, at present, on the timescales involved or on the associated demand for construction aggregates. Equally, however, there is no readily available information on the quantities of aggregates used in major projects that were undertaken during the baseline period (2001 to 2011), and therefore no basis for any meaningful comparison between the recent past and the short- to medium-term future.

Summary of Sub-Regional Demand Assessment

A27. Subject to the outcome of HMRC's decision regarding the possible suspension of certain exemptions from the Aggregates Levy, and to the outcome of the formal EC investigation into those exemptions (see para. A14 above), little justification has otherwise been found for modifying the assumption that future demand *upon* MPAs in North Wales should be based simply on the average sales figures for the baseline period (2001 to 2010), as detailed in Table A1, above, subject to any fine-tuning of the balance between individual MPAs to take account of proximity and environmental capacity issues, as discussed in the following section. Whilst there is some evidence that short term rates of economic growth are likely to be slightly higher than those seen during most of the baseline period, implying a slightly increased level of demand in future years, there is also a need to allow for the possibility of further increased growth during later years within the period covered by the revised RTS. That possibility is at least hinted at by future projections of population growth, but is also in keeping with the more general long-term economic cycle of peaks and troughs. If the Aggregate Levy exemptions are suspended, or if the Levy itself is eventually abolished, this would have significant implications in terms of the future demand for primary aggregates. Whilst it would not be justified to rely to such factors in terms of clear predictions, it would be prudent not to ignore them for the purposes of ensuring an adequate level of future provision of construction aggregates.

Sub-Regional Analysis of Supply Patterns in North Wales

A28. Figures A1 to A6 illustrate the spatial patterns associated with individual mineral types (or in some cases two mineral types where these are clearly separated and where they are at least partially interchangeable in terms of aggregate end-uses - e.g. limestone and slate or sandstone and igneous rock).

A29. In each case there are two maps. The first one deals with 'proximity' issues (i.e. the relationships between resources, quarry locations, major roads and the distribution of both population density and urban areas). The second one then deals with environmental capacity issues (using the output from the IMAECA analysis).

A30. As noted in the main document, it must be emphasised that these maps show the extent of potential resources and not reserves or 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). **Reserves** are those parts of a resource which known to be suitable for this purpose (usually as a result of detailed ground investigations and laboratory testing) and **permitted reserves** are those reserves which have valid planning permission for the winning and working of the materials in question.

A31. All of the maps are presented at the same scale (slightly smaller than the scale used for South Wales in Appendix B). All of the quarry locations shown on the maps are detailed in Tables A3 to A5, later in this Appendix.

A32. As noted in the main document, not all of the roads shown on the 'proximity' maps are necessarily used for the transportation of aggregates, and that additional local roads will also be utilised close to individual quarries, distribution depots or customer locations.

Equally, some of the exported material is transported by rail, though the quantities involved are not large. Together, the areas of high population density and the main urban areas provide a good indication of where construction activity is most likely to be concentrated, but the locations of major transport routes have an additional important influence on export distribution.

Carboniferous Limestone

- A33. The distribution of Carboniferous Limestone quarries and resources in North Wales is shown on Figures A1 and A2. The majority of existing quarries, and most of the resources, are located within Flintshire, which is also (by far) the main supplier (see Table A1, above).
- A34. Significant parts of the resource, particularly within Denbighshire and Wrexham, are constrained by the recently expanded Bryniau Clwyd AONB. To a lesser extent the Ynys Môn AONB constrains resources on the Isle of Anglesey. Plentiful resources exist outside of these areas, however, within other parts of Denbighshire and Anglesey, as well as in Conwy and Flintshire. Of these, the resources in Flintshire are closest to the main centres of demand, in terms of population density, existing urban areas and access (via the A55) to the major markets of Merseyside and North Cheshire. In this respect, Flintshire would represent an obvious preference for any future limestone resources that may need to be developed, both in terms of proximity to markets and of avoiding the AONBs.
- A35. However, reference to Figure A2 suggests there may be less scope for such development in terms of environmental capacity, except in some parts of northern Flintshire. There would seem to be greater scope, in this respect, within parts of Conwy and north Denbighshire, where proximity factors are less compelling in terms of exports to England but are good in terms of supplying urban areas and infrastructure projects along the North Wales coast. These are issues which would need to be considered in more detail as and when new allocations are required.
- A36. Existing crushed rock landbanks in Anglesey and Gwynedd are currently less than the total provision of 25 years required by the RTS, although opportunities for increasing these, in terms of new Carboniferous Limestone allocations, are very limited. No limestone resources exist within Gwynedd and those in Anglesey are either within the Ynys Môn AONB (Fig. A1) or largely within areas of low environmental capacity (Fig. A2). There are, however, extensive igneous rock resources in both of these areas, and additional resources of slate (outside as well as within the Snowdonia National Park) in Gwynedd (see below). But given the relatively limited population density, urbanisation and major infrastructure development within Anglesey and Gwynedd, compared to the situation further east, there may be merit in reducing the future crushed rock apportionments in these areas and increasing those in Conwy, Denbighshire, Flintshire and Wrexham. This suggestion is carried forward to the discussion about future apportionments and allocations within Chapter 5 of the main document.
- A37. At present, Wrexham provides no contribution at all in terms of crushed rock production (though it provides the major share of sand & gravel output), and its reserves of both limestone and slate are now almost entirely within the expanded AONB. Whether or not there is scope for any crushed rock resources to be developed here is a matter of detail which lies beyond the resolution of the RTS. It may be prudent, however, to consider a joint apportionment with Flintshire, with the expectation that the two MPAs co-operate to find an optimum solution. This, again, is considered further in Chapter 5 of the main document.

Slate

- A38. Figures A1 and A2 also illustrate the distribution of slate resources and production sites within North Wales. The latter include both quarries, where new slate is extracted as a primary aggregate, and existing slate waste tips, where material is reprocessed as a secondary aggregate, either under a specific planning permission or as deemed development rights under Part 23, Class B of the GPDO. Both of these are counted as primary aggregate within the North Wales RAWP reports (see para. A13 above) but both

are also exempt from the Aggregates Levy, simply on the basis of rock type. The majority of current slate aggregate production is associated with sites located either immediately outside the north-western boundary of the Snowdonia National Park (particularly at Penrhyn slate quarry and tip, near Bethesda), or (on a much smaller scale) around Blaenau Ffestiniog, which is located centrally within (but excluded from) the National Park. Two other currently active units are located to the north of Llangollen within the Bryniau Clwyd AONB in Denbighshire, but these are understood to produce little or no aggregate material other than decorative chippings.

- A39. Given that most slate aggregate is used locally within NW Wales, and that most of the resources are constrained by the National Park or the AONB, there is little to suggest that the existing supply pattern either needs to change or is capable of doing so. There is scope for the output from established sites in Gwynedd to increase, in response to any future rise in demand in the NW Wales sub-region, but there is limited (if any) likelihood of this material displacing sales of limestone aggregate to the main markets in North East Wales and North West England. This could potentially happen if there were to be a significant increase in the Aggregates Levy, giving slate aggregates a further price advantage, but the reverse could be true if the Aggregates Levy were to be abolished, in line with the ongoing legal challenge being pursued by the British Aggregates Association. Moreover, any potential sustainability benefits associated with increased use of slate waste would need to be balanced against the increased radius of transportation from sites within Gwynedd, which would be contrary to the proximity principle. Thus, although Gwynedd is facing a slight shortfall of crushed rock reserves compared with the total level of provision required to maintain the existing supply pattern over 25 years (see Table 3.7 in the main document), it may be sensible to adjust the future apportionments so that the shortfall is effectively transferred to limestone production further east instead, as suggested above. Again, this suggestion is carried forward to the discussion about future apportionments and allocations within Chapter 5 of the main document.

Igneous Rock and Sandstone

- A40. The resources and production sites for both igneous rock and sandstone within North Wales are illustrated in Figures A3 and A4. A high proportion of both types of resource are constrained by the Snowdonia National Park and/or by one of the three AONBs. There are, nevertheless, outcrops of both resource types outside of these areas, particularly in Gwynedd, Conwy and Anglesey.
- A41. The term 'igneous rock' is used here, and in the maps, as shorthand for 'igneous and metamorphic rock', which in practice covers an extremely wide range of rock types, but all with similar suitability for use as general purpose hard rock aggregates. In some cases, (shown on the maps as 'HSA Dolerite'), the rocks are suitable for use as High Specification Aggregate (as defined in Chapter 4 of the main document) and are worked as such at Minffordd near Porthmadog in Gwynedd. This is currently the only unit in this group which exports aggregate to England. Penmaenmawr diorite quarry on the north coast of Conwy was formerly an exporter of rail ballast to England, by rail, but ballast production here has been greatly reduced since 2008, when the contract to supply Network Rail was lost. All other quarries in this group tend to supply only local markets, although, in the recent past, these have included major contracts such as upgrading the A55 North Wales Coast road and the A5 across Anglesey. In the future, the same resources may be called upon for many of the potential major infrastructure projects listed at para. A24, above.
- A42. The sandstone resources shown on the Figures A3 and A4 are also potentially suitable for use as HSA, although none have ever been worked for this purpose (not least because of their distance from significant markets for this material and their unproven reliability compared with HSA sandstone resources in South Wales). Weaker sandstones were, until recently, worked for local use in eastern Flintshire, but those sites are no longer operational and the resources are not shown on the maps. As a consequence, there are no active sandstone quarries in North Wales at all at the present time.

- A43. Whilst there is potentially scope for the further development of igneous rock resources in both Anglesey and Gwynedd, and whilst the crushed rock landbanks in these areas are less than the total provision required to maintain the existing pattern of supply, this may not be the best way forward. As noted in para. A36, above, there is likely to be more benefit (in terms of the proximity principle, at least) in rebalancing future apportionments such that the additional allocations required are found in other parts of North Wales, further east, and are provided from Carboniferous Limestone, rather than from igneous rock or sandstone resources.

Land-based Sand & Gravel

- A44. In the case of land-based sand and gravel extraction, as illustrated in Figures A5 and A6, the current supply pattern is dominated by one site within Wrexham, although smaller contributions are also made by four other active pits: one other in Wrexham, two in Flintshire and one in Gwynedd.
- A45. Whilst the Wrexham sites are ideally placed in relation to the markets of NE Wales and adjoining parts of NW England, they are much further away from the smaller but important local markets along the North Wales coast of Denbighshire and Conway, and much further still from those in both Gwynedd and Anglesey. From a proximity point of view there is therefore a need to maintain adequate supplies to those areas from other sites, and this will need to be reflected in future apportionments and allocations. In terms of environmental capacity, there would seem to be potential opportunities in north Denbighshire and in Gwynedd (both to the east and south of Caernarfon, within resource blocks identified by the Liverpool University (2003) study), and at the eastern end of the Llŷn Peninsula. It is suggested therefore that apportionments are adjusted so that future allocations for sand & gravel provision in North Wales are focused on these areas in order to generate an improved balance of supply sources.
- A46. This, however, is dependent upon suitable resources being available within Denbighshire and/or Gwynedd. More specifically, resources are needed which include an appropriate balance between fine aggregate (sand) and coarse aggregate (gravel). If that cannot be achieved, the fine aggregate fraction might still need to be supplied from NE Wales or, perhaps, from marine-dredged sources off the North Wales coast.

Current Sources of Supply in North Wales

- A47. Tables A3 to A5, below, list the currently active, inactive and dormant aggregate quarries in North Wales (updated to August 2013). The lists exclude quarries devoted to the manufacture of cement, building stone, silica sand, shale or other non-aggregate products.

Table A3: Active Aggregate Quarries in North Wales (2013)

Quarry Name	Operator	Commodity	Easting	Northing
CONWY				
Abergele	Hanson Aggregates	Limestone	296700	375800
Penmaenmawr	Hanson Aggregates	Igneous	270135	375515
Raynes	CEMEX UK	Limestone	289000	378190
DENBIGHSHIRE				
Berwyn	Berwyn Slate Quarry Ltd	Slate	318500	346300
Graig	Lafarge Tarmac	Limestone	320500	356500
Moel y Faen	Jones Bros Ruthin (Civil Engineering) Co Ltd	Slate	318700	348100
FLINTSHIRE				
Aberdo	D P Williams Holdings Ltd	Limestone	318700	373300
Fron Haul	Lloyds Quarries & Sand & Gravel Co Ltd	Sand & Gravel	315700	370600
Halkyn	CEMEX UK	Limestone	319000	372000

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Hendre	Lafarge Tarmac	Limestone	319400	368000
Maes Mynan	Lloyds Quarries & Sand & Gravel Co Ltd	Sand & Gravel	311500	372100
Pant	Lafarge Tarmac	Limestone	319800	370200
GWYNEDD				
Aberllefenni Slate Waste	Robin Meredith, Arthog Slate Co	Slate Waste	276920	310290
Alexandra	Caernarfonshire Crown Slate Quarries	Slate + Slate Waste	251800	356105
Alexandra Bach	Caernarfonshire Crown Slate Quarries	Slate Waste	251860	356190
Bryn-Fferam	Wynne's Transport Ltd	Slate Waste	251810	355495
Bryntirion Tip, Gloddfa Ganol	Welsh Slate	Slate Waste	269325	347590
Cefn Graianog	Tudor Griffiths Group	Sand & Gravel	246000	349500
Crown New	Caernarfonshire Crown Slate Quarries	Slate Waste	251205	355465
Hafod-Y-Wern	Gwilym Elias Owen	Slate Waste	253135	357215
Llechwedd	G H James Cyf.	Slate Waste	270000	346680
Llechwedd	Greaves Welsh Slate Co Ltd	Slate	270200	346800
Manod	Welsh Slate	Slate	273100	345400
Minffordd (HSA)	Lafarge Tarmac	Igneous	259400	339100
Penrhyn	Welsh Slate	Slate Waste	261460	365960
Penrhyn Slate Quarry	Welsh Slate	Slate	261290	363780
Pen-yr-Orsedd	Welsh Slate	Slate	250745	354070
Trefor	R T Davies	Igneous	236100	345900
Ty Mawr East	Watkin Jones & Son Ltd	Slate Waste	249695	352530
Ty Mawr West	D W & E W Jones	Slate + Slate Waste	249650	352450
Tyn-y-Weirglodd	Welsh Slate	Slate Waste	249450	352195
ISLE OF ANGLESEY				
Aber	Anglesey Masonry Ltd	Limestone	250300	386650
Gwalchmai	The Hogan Group	Igneous	238175	376990
Gwyndy	The Hogan Group	Igneous	239955	379665
Hengae	The Hogan Group	Igneous	244000	368600
Nant Newydd	W J Owens & Sons	Limestone	248100	381100
Rhuddlan Bach	Clive Hurt Plant Hire Ltd	Limestone	248600	380700
SNOWDONIA				
Braich Ddu	John Roberts	Slate Waste	271985	338460
Craig y Tan	G E Williams	Igneous	271349	336224
Ty'n-y-Coed	Robin Meredith, Arthog Slate Co	Slate Waste	265030	315275
WREXHAM				
Ballswood	DP Williams Ltd	Sand & Gravel	335200	356600
Borras	Lafarge Tarmac	Sand & Gravel	336300	352500

Table A4: Inactive Aggregate Quarries in North Wales (2013)

Quarry Name	Operator	Commodity	Easting	Northing
CONWY				
Llanddulas	Waste Recycling Group	Limestone	290300	377460
Plas Gwilym	Plas Gwilym Environmental	Limestone	287850	378100
DENBIGHSHIRE				
Burley Hill	Lafarge Tarmac	Limestone	320280	360075
Denbigh	Hanson Aggregates	Limestone	305090	367050
FLINTSHIRE				
Ddol Uchaf	Lloyds Quarries & Sand & Gravel Co Ltd	Sand & Gravel	313800	371500
Pen-yr-Henblas	Grosvenor Estate	Limestone	319100	372900
GWYNEDD				
Aberllefenni Mine	Wincillate Ltd	Slate	276920	310290
Ffestiniog	Welsh Slate	Slate + Slate Waste	269206	347186
Greenarfon	Mulcair Ltd	Slate Waste	246950	350840
Llecheiddior Uchaf		Sand & Gravel	247133	344656
Twll Llwyd	W Humphries	Slate	249000	351800
ISLE OF ANGLESEY				
Gaerwen	The Hogan Group	Igneous	248000	372830
Penmon	Jones Bros Ruthin (Civil Engineering) Co Ltd	Limestone	263555	381290
WREXHAM				
Hafod	Cory Environmental Ltd	Sand & Gravel	330800	345600

Table A5: Dormant Aggregate Quarries in North Wales (2013)

Quarry Name	Operator	Commodity	Easting	Northing
FLINTSHIRE				
Grange	Mr. D. Priestley	Limestone	316660	375935
GWYNEDD				
Cae Efa Llwyd	Mr H Evans	Sand & Gravel	246370	353000
Dorothea	Penygroes Quarries Ltd	Slate	249905	353270
Marchlyn	First Hydro	Slate	260200	362675
Tan y Bryn Farm	G & G L Bowness	Sand & Gravel	246640	352350
Twll Coed	Welsh Slate	Slate	249165	351945

A48. 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 process²), it is only the active and inactive sites which contributed to the reserves figures presented in Table 3.7 of the main document. Reserves at dormant sites are noted separately in Table 3.8 of that document. 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 (2001 to 2010).

A49. Full lists of active, inactive and dormant sites for individual years prior to 2013 are given in the relevant annual RAWP reports.

² 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 report.

Apportionments, Allocations and Guidance to MPAs in North Wales

- A50. The following pages set out the recommendations and guidance for each individual MPA in North Wales, drawing upon the figures calculated in Chapter 5 of the main document. The MPAs are dealt with in alphabetical order.
- A51. In each case, reference to the 'Plan period' relates to the end date of the Local Development Plan which has been adopted, or is in preparation (whichever is later) for that particular planning authority.
- A52. It should also be noted that the annualised apportionments given for each authority are provided only for the purpose of guiding the total apportionments required over the duration of that particular authority's LDP.
- A53. 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 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 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.
- A54. For such reasons, and as already noted in Chapter 1 of the main document, where it is justified by new evidence, it is open for individual MPAs to depart from the apportionment and allocation figures recommended by the RTS. In doing so, however, an MPA 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 MPAs to ensure that sub-regional and regional totals are still achieved) and this would be likely to become a key issue at Examination and/or Public Inquiry. Where the local authorities involved are unable to reach agreement, or if individual local authorities do not accept the Regional Technical Statement, the Welsh Government will consider its default powers to intervene in the planning process, as a last resort (MTAN 1, paragraph A3).

ANGLESEY**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: **0.28 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

These figures are based on the assumption that average annual demand for land-won primary aggregates within the area, over the period to 2036, will be comparable to the average annual sales over the baseline period used in the First Review (i.e. 2001 to 2010).

They are also based on the assumption 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.

The accuracy 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 NRW, WG etc.) 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.

It should be emphasised that the annualised apportionments noted above 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 the authority to maintain or limit these in line with either the annualised apportionment or the historical sales averages.

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 (see below).

Comparison with existing landbanks

The total apportionments for Anglesey, as calculated in Table 5.1 of the main document, over the 25-year horizon covered by The First Review are zero for land-won sand & gravel and 7 million tonnes for crushed rock. These compare with existing landbanks of zero for sand & gravel and 5.69 million tonnes for crushed rock (as at 31st December 2010).

Allocations required to be identified in the Local Development Plan

In order to address the resulting crushed rock shortfall, new allocations for crushed rock totalling at least 1.31 million tonnes will need to be identified within the LDP.

Alternatively, the planning authority may wish to explore collaborative working with either Conwy or Gwynedd, which both have a surplus of crushed rock reserves, as indicated in Table 5.3 of the main document. This option should only be pursued, however, where the sites that make up the proposed shared landbank offer advantages, in terms of the proximity principle, environmental capacity and other sustainability criteria, compared with the option of developing new allocations within Anglesey itself. Any shared landbank agreements should be made in writing with the consent of all parties.

In view of the lack of any sand & gravel apportionment being required for Anglesey (which itself is a reflection of the very limited availability of potential resources on the island, by comparison with those available in neighbouring Gwynedd), there is no specific requirement for land-based sand & gravel allocations to be identified within the LDP. This

contrasts with the recommendations given in the original RTS which, purely on the basis of average regional proportions of total consumption, required Anglesey to make an allocation of 1.5 million tonnes of sand & gravel within its LDP.

However, consideration should also be given to whether any of the factors set out in paragraph A53 above give rise to any further requirements for resource allocations.

As far as possible, any allocations should 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 accordance with MTAN 1 (para. 49), no allocations should be identified within the Ynys Môn Area of Outstanding Natural Beauty, unless there are no environmentally acceptable alternatives.

Use of alternative aggregates

Little or no marine-dredged aggregates are thought to be utilised within Anglesey. As noted in the original RTS, the use of secondary aggregates is confined to occasionally processing locomotive ash at Trywyn Trewan and recycled glass is mixed with stone for asphalt at one quarry. There may be some additional potential for recycling construction, demolition and excavation wastes as aggregates in the event that MOD or industrial land is released for redevelopment but, otherwise, this source of alternative aggregate is also likely to be very limited.

Nevertheless, the residual requirements for primary land-won aggregates assume that these alternative materials will continue to be utilised to a level comparable to that seen in previous years, 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 wharves, jetties 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).

CONWY AND THE SNOWDONIA NATIONAL PARK**Apportionment for the future provision of land-won primary aggregates**

Together, the two planning authorities 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: **1.23 million tonnes per year** until the end of the Plan period and for 10 years thereafter.

The majority if not all of this provision is expected to be supplied from Conwy.

These figures are based on the assumption that average annual demand for land-won primary aggregates within the combined area, over the period to 2036, will be comparable to the average annual sales over the baseline period used in the First Review (i.e. 2001 to 2010).

They are also based on the assumption 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.

The accuracy 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 NRW, WG etc.) 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.

It should be emphasised that the annualised apportionments noted above 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 the authority to maintain or limit these in line with either the annualised apportionment or the historical sales averages.

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 (see below).

Comparison with existing landbanks

The total apportionments for Conwy and the Snowdonia National Park (combined), as calculated in Table 5.1 of the main document, over the 25-year horizon covered by the First Review of the RTS are zero for land-won sand & gravel and 30.75 million tonnes for crushed rock. These compare with existing (combined) landbanks of zero for sand & gravel and 67.43 million tonnes for crushed rock (as at 31st December 2010).

Allocations required to be identified in the Local Development Plan

In view of the surplus of existing permitted crushed rock reserves, no further allocations for crushed rock 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 A53 above give rise to any other requirements for resource allocations within Conwy.

As far as possible, any allocations should 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 or Areas of Outstanding Natural Beauty. For this reason, no allocations

should be identified within the National Park, unless there are no environmentally acceptable alternatives, and efforts should continue to be made to gradually transfer the very small amount of production which currently takes place within the National Park to Conwy and/or to other neighbouring authorities.

Use of alternative aggregates

Small quantities of marine sand are landed at Port Penrhyn in neighbouring Gwynedd, some of which may be utilised within the coastal towns in north east Conwy.

As noted in the original RTS, no significant sources of secondary or recycled aggregates have been identified in Conwy, with the possible exception of relatively small slate waste tips. Two small-scale slate waste tips are also active within the Snowdonia National Park

There is also likely to be continued recycled aggregate production, albeit at a modest level, from construction, demolition and excavation wastes, primarily within the towns along the Conwy coast.

Nevertheless, 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.

Safeguarding of primary aggregate resources

Resources of both crushed rock aggregates and land-based sand & gravel should be safeguarded within both LDPs 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, jetties and railheads within Conwy should be identified for safeguarding, in order to provide a full range of sustainable transport options (whether or not they are currently utilised). This should include facilities for the transfer of slate waste from neighbouring areas, through Conwy.

DENBIGHSHIRE**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: 0.1 million tonnes per year until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: 0.89 million tonnes per year until the end of the Plan period and for 10 years thereafter.

These figures are based on the assumption that average annual demand for land-won primary aggregates within the area, over the period to 2036, will be comparable to the average annual sales over the baseline period used in the First Review (i.e. 2001 to 2010).

They are also based on the assumption 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.

The accuracy 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 NRW, WG etc.) 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.

It should be emphasised that the annualised apportionments noted above 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 the authority to maintain or limit these in line with either the annualised apportionment or the historical sales averages.

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 (see below).

Comparison with existing landbanks

The total apportionments for Denbighshire, as calculated in Table 5.1 of the main document, over the 25-year horizon covered by the First Review of the RTS are 2.2 million tonnes for land-won sand & gravel and 22.25 million tonnes for crushed rock. These compare with existing landbanks of zero for sand & gravel and 22.07 million tonnes for crushed rock (as at 31st December 2010).

Allocations required to be identified in the Local Development Plan

In order to address the resulting shortfalls, new allocations totalling at least 2.2 million tonnes for sand & gravel and at least 0.18 million tonnes for crushed rock will need to be identified within the LDP. In practice, the crushed rock allocation will probably need to be significantly greater than this, in recognition of scale of extraction needed to justify a new planning application, even for an extension to an existing quarry.

Consideration should also be given to whether any of the factors set out in paragraph A53 above give rise to any further requirements for resource allocations.

As far as possible, the allocations should 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 or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Bryniau Clwyd AONB, unless there are no environmentally acceptable alternatives.

As an alternative to finding new allocations within the county, the planning authority may wish to explore collaborative working with neighbouring Conwy, which has a substantial surplus of crushed rock reserves, as indicated in Table 5.3 of the main document.

This option should only be pursued, however, where the sites that make up the proposed shared landbank offer advantages, in terms of the proximity principle, environmental capacity and other sustainability criteria, compared with the option of developing new allocations within Denbighshire itself. Any shared landbank agreements should be made in writing with the consent of all parties.

Use of alternative aggregates

Little or no marine-dredged aggregates are thought to be utilised within Denbighshire.

Slate waste is processed at two active sites within the southern part of the Bryniau Clwyd AONB, but the material is believed to be used only as decorative chippings and low grade fill. Other than these, there are no other known sources of secondary aggregate within the county.

There is likely to be some recycled aggregate production from construction, demolition and excavation wastes, primarily within the main coastal towns, but also within some of the quarries, including one of the slate waste units referred to above.

Despite the limited availability of alternative materials within Denbighshire, the residual requirements for primary land-won aggregates assume that these will continue to form part of the overall supply pattern 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, jetties 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).

FLINTSHIRE**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: 0.2 million tonnes per year until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: 3.13 million tonnes per year (shared with Wrexham) until the end of the Plan period and for 10 years thereafter.

These figures are based on the assumption that average annual demand for land-won primary aggregates within the area, over the period to 2036, will be comparable to the average annual sales over the baseline period used in the First Review (i.e. 2001 to 2010).

They are also based on the assumption 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.

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

The accuracy 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 NRW, WG etc.) 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.

It should be emphasised that the annualised apportionments noted above 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 the authority to maintain or limit these in line with either the annualised apportionment or the historical sales averages.

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 (see below).

Comparison with existing landbanks

The total apportionments for Flintshire, as calculated in Table 5.1 of the main document, over the 25-year horizon covered by the First Review of the RTS are 4.4 million tonnes for land-won sand & gravel and 78.25 million tonnes (shared with Wrexham) for crushed rock. These compare with existing landbanks of 3 million tonnes for sand & gravel and 74.41 million tonnes for crushed rock (all within Flintshire), as at 31st December 2010. These figures exclude limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plan

In order to address the resulting shortfalls, new allocations totalling at least 1.4 million tonnes of sand & gravel and at least 3.84 million tonnes of crushed rock will need to be identified within the LDP. The crushed rock allocation is shared with neighbouring Wrexham and therefore, depending on the outcome of collaborative working between the two authorities, some or all of it may need to be identified in the LDP for Wrexham, rather than Flintshire.

Consideration should also be given to whether any of the factors set out in paragraph A53 above give rise to any further requirements for resource allocations.

As far as possible, any allocations should 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 or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Bryniau Clwyd AONB, unless there are no environmentally acceptable alternatives.

Treatment of Dormant sites

A single dormant limestone quarry exists within Flintshire, as detailed in Table A5, 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 14 of Minerals Planning Policy Wales, it may be offset against any requirements that may otherwise be identified for allocations for future working. Subject to such assessment, this may help to address all or part of the requirement for new crushed rock allocations noted above.

Use of alternative aggregates

Unknown quantities of navigational dredgings from the Dee Estuary are landed at Mostyn Dock, some of which are understood to have been deployed for low specification construction fill. Other than this, no marine-dredged aggregates are thought to be used within Flintshire.

Colliery spoil would once have been available for use as a secondary aggregate within the coalfield area but, in most instances, the area has been redeveloped for use by new, high-tech industries, leaving little further opportunity for generating secondary aggregates on a regular basis.

The relatively high levels of industrial and commercial development and redevelopment (compared with most other parts of North Wales) generate significant quantities of construction, demolition and excavation wastes, from which (currently unknown quantities of) recycled aggregates are derived. Whilst redevelopment has already taken place in many areas, there may be some further opportunities in the south of the county.

The residual requirements for primary land-won aggregates assume that these varying quantities of alternative materials will continue to form part of the overall supply pattern 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, jetties 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).

GWYNEDD

Apportionment for the future provision of land-won primary aggregates

For planning purposes, Gwynedd excludes the Snowdonia National Park, which is a separate Mineral Planning Authority (and is dealt with in combination with neighbouring Conwy, above). Gwynedd 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: 0.2 million tonnes per year until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: 0.27 million tonnes per year until the end of the Plan period and for 10 years thereafter.

These figures are based on the assumption that average annual demand for land-won primary aggregates within the area, over the period to 2036, will be comparable to the average annual sales over the baseline period used in the First Review (i.e. 2001 to 2010). They are also based on the assumption 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.

The accuracy 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 NRW, WG etc.) 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.

It should be emphasised that the annualised apportionments noted above 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 the authority to maintain or limit these in line with either the annualised apportionment or the historical sales averages.

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 (see below).

Comparison with existing landbanks

The total apportionments for Gwynedd, as calculated in Table 5.1 of the main document, over the 25-year horizon covered by the First Review of the RTS are 4.4 million tonnes for land-won sand & gravel and 6.75 million tonnes for crushed rock. These compare with existing landbanks of 0.7 million tonnes for sand & gravel and 8.51 million tonnes for crushed rock (as at 31st December 2010).

Allocations required to be identified in the Local Development Plan

In order to address the resulting shortfall for sand & gravel, new allocations totalling at least 3.7 million tonnes will need to be identified within the LDP. In view of the small surplus of existing crushed rock reserves, no crushed rock allocations are specifically required. However, consideration should also be given to whether any of the factors set out in paragraph A53 above give rise to any other requirements for resource allocations. In particular, a sizeable part of the existing crushed rock landbank in Gwynedd is made up of permissions at slate quarries and slate waste tips and, whilst slate aggregate is able to substitute for other rock types in many situations, it is not suitable for all applications. Additional allocations for other types of crushed rock might therefore be required and the situation will need to be kept under close review by the planning authority. Particular

attention will need to be given to the continuation (or otherwise) of the exemption of slate from the Aggregates Levy (see para. **Error! Reference source not found.**, above). If the exemption is removed there could well be an increased demand for other types of crushed rock aggregate.

As noted in the original RTS, any future crushed rock permissions in Gwynedd may need to be specifically dependent upon justification for material of a particular quality (e.g. rail ballast or road surfacing aggregate) which cannot be met from processed slate waste.

As far as possible, any allocations should 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 or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Llŷn Peninsula AONB, unless there are no environmentally acceptable alternatives.

Treatment of Dormant sites

A total of five dormant quarries exist within Gwynedd, as detailed in Table A5, above. Three of these are slate quarries and two are sand & gravel workings. 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 14 of Minerals Planning Policy Wales, they may be offset against any requirements that may otherwise be identified for allocations for future working. Subject to such assessment, the two dormant sand & gravel units may offer prospects for addressing all or part of the requirement for new allocations noted above.

Use of alternative aggregates

Small quantities of marine sand are landed at Port Penrhyn near Bangor, and are probably utilised within a radius of 20 to 30 miles within northern Gwynedd and (perhaps) neighbouring Conwy.

As noted earlier, crushed slate aggregate, derived either from slate waste or quarried specifically for use as primary aggregate, features significantly in the overall pattern of supply within Gwynedd, with evidence of a rising trend in both proportion and actual sales up to a peak in 2007. Although output has since fallen during the recent recession, the proportions have remained high. This suggests an underlying increase in the market for slate aggregate, reflecting its increasing acceptance by users, as well as the price advantage associated with the current exemption of this material from the Aggregates Levy. 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, only for the balance between slate and other types of crushed rock.

Recycled aggregate production from construction, demolition and excavation wastes within Gwynedd is likely to be limited to small quantities within the main towns and utilised only for local projects.

The residual requirements for primary land-won aggregates assume that all of these alternative materials will continue to be utilised, particularly but not only in the case of crushed slate, 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, jetties 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).

WREXHAM**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: 0.58 million tonnes per year until the end of the Plan period and for 7 years thereafter.
- Crushed rock aggregates provision: 3.13 million tonnes per year (shared with Flintshire) until the end of the Plan period and for 10 years thereafter.

These figures are based on the assumption that average annual demand for land-won primary aggregates within the area, over the period to 2036, will be comparable to the average annual sales over the baseline period used in the First Review (i.e. 2001 to 2010).

They are also based on the assumption 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.

The accuracy 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 NRW, WG etc.) 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.

It should be emphasised that the annualised apportionments noted above 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 the authority to maintain or limit these in line with either the annualised apportionment or the historical sales averages.

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 (see below).

Comparison with existing landbanks

The total apportionments for Wrexham, as calculated in Table 5.1 of the main document, over the 25-year horizon covered by the First Review of the RTS are 12.76 million tonnes for land-won sand & gravel and 78.25 million tonnes (shared with Flintshire) for crushed rock. These compare with existing landbanks of 15.24 million tonnes for sand & gravel and 74.41 million tonnes for crushed rock (all within Flintshire), as at 31st December 2010. These figures exclude limestone reserves which are allocated for non-aggregate use.

Allocations required to be identified in the Local Development Plan

In order to address the resulting crushed rock shortfall, new allocations totalling at least 3.84 million tonnes will need to be identified. This figure is shared with neighbouring Flintshire, where all of the existing crushed rock quarries in the combined area are located. However, depending on the outcome of collaborative working between the two authorities, some or all of the new crushed rock allocations required may need to be identified in the LDP for Wrexham, rather than Flintshire.

Consideration should also be given to whether any of the factors set out in paragraph A53 above give rise to any further requirements for resource allocations.

As far as possible, any allocations should 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 or Areas of Outstanding Natural Beauty. For this reason, no allocations should be identified within the Bryniau Clwyd AONB, unless there are no environmentally acceptable alternatives. In practice, this severely restricts the opportunities for new crushed rock allocations to be found within Wrexham unless there are no acceptable alternatives within Flintshire.

Use of alternative aggregates

Little or no marine-dredged aggregate is thought to be utilised within Wrexham, not least because of the extensive and accessible reserves of land-based sand & gravel within the area.

As noted in the original RTS, slag banks were periodically processed at the former Brymbo Steelworks for construction fill and colliery spoil heaps were utilised as embankment fill, but neither of these sources of secondary aggregate are now available. Similarly, a substantial amount of derelict land and buildings associated with the former mining and clay products industries, e.g. around Ruabon, has been cleared and other tips have been reprofiled leaving little scope for generating further material from such sources.

As in Flintshire, relatively high levels of industrial and commercial development and redevelopment (compared with other parts of North Wales) generate significant quantities of construction, demolition and excavation wastes, from which (currently unknown quantities of) recycled aggregates are derived. Significant further redevelopment is anticipated in the years ahead and this source of alternative aggregates is therefore likely to continue.

The residual requirements for primary land-won aggregates assume that all available 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).

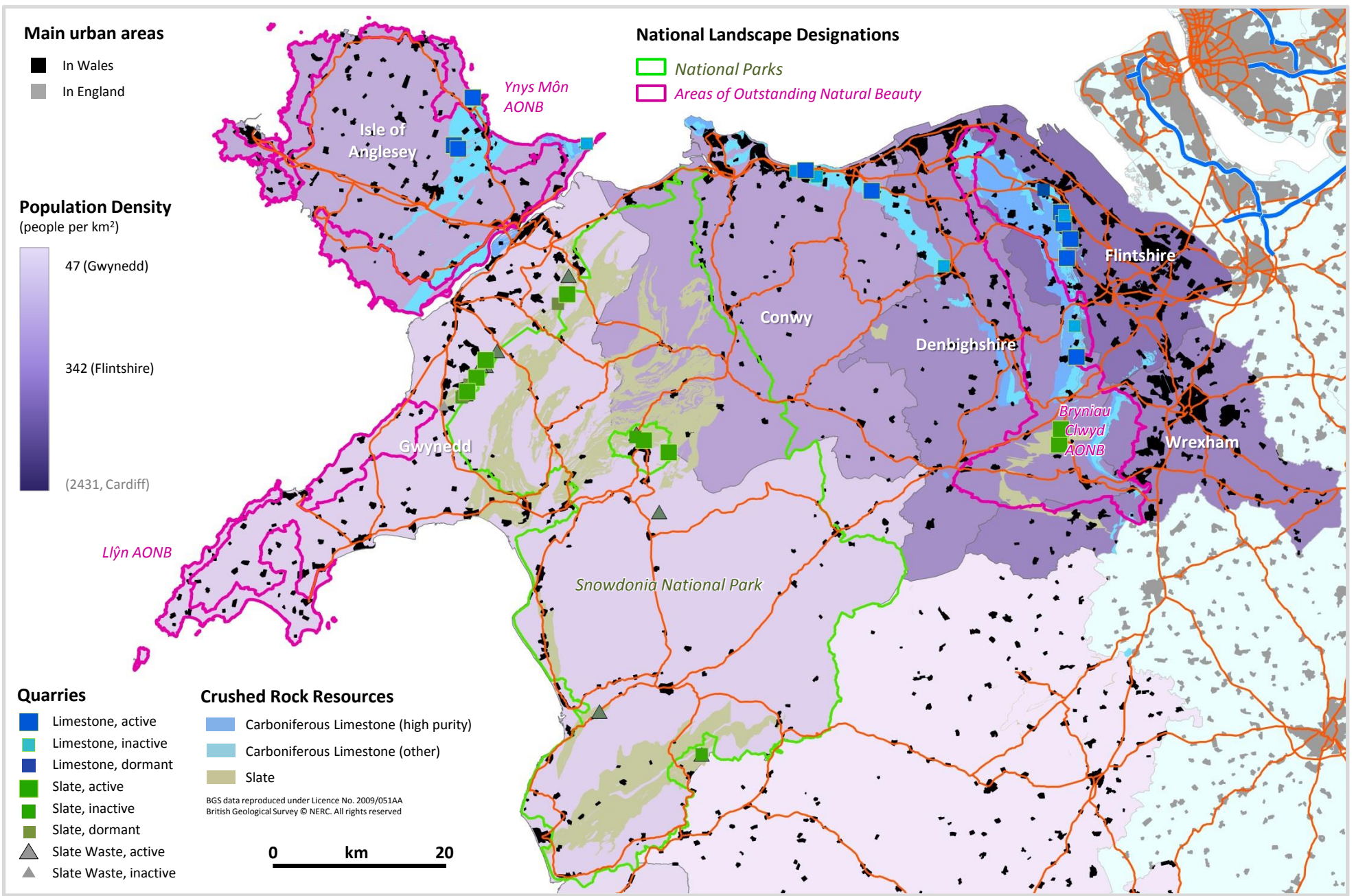


Fig A1: Limestone & slate resources and quarries in relation to national landscape designations, population density, urban areas and major roads.

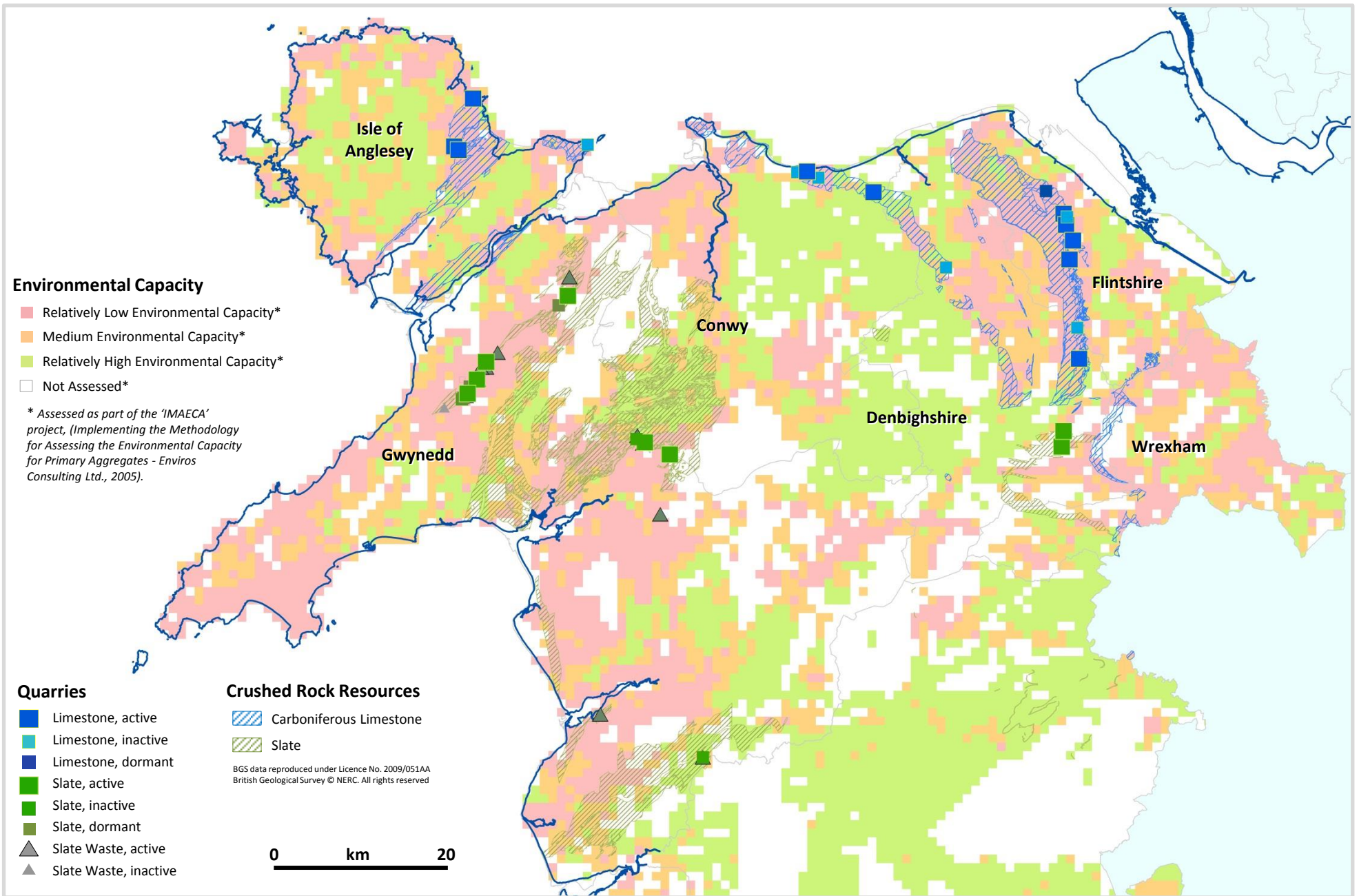


Fig A2: Limestone & slate resources and quarries in relation to assessed Environmental Capacity for future quarrying.

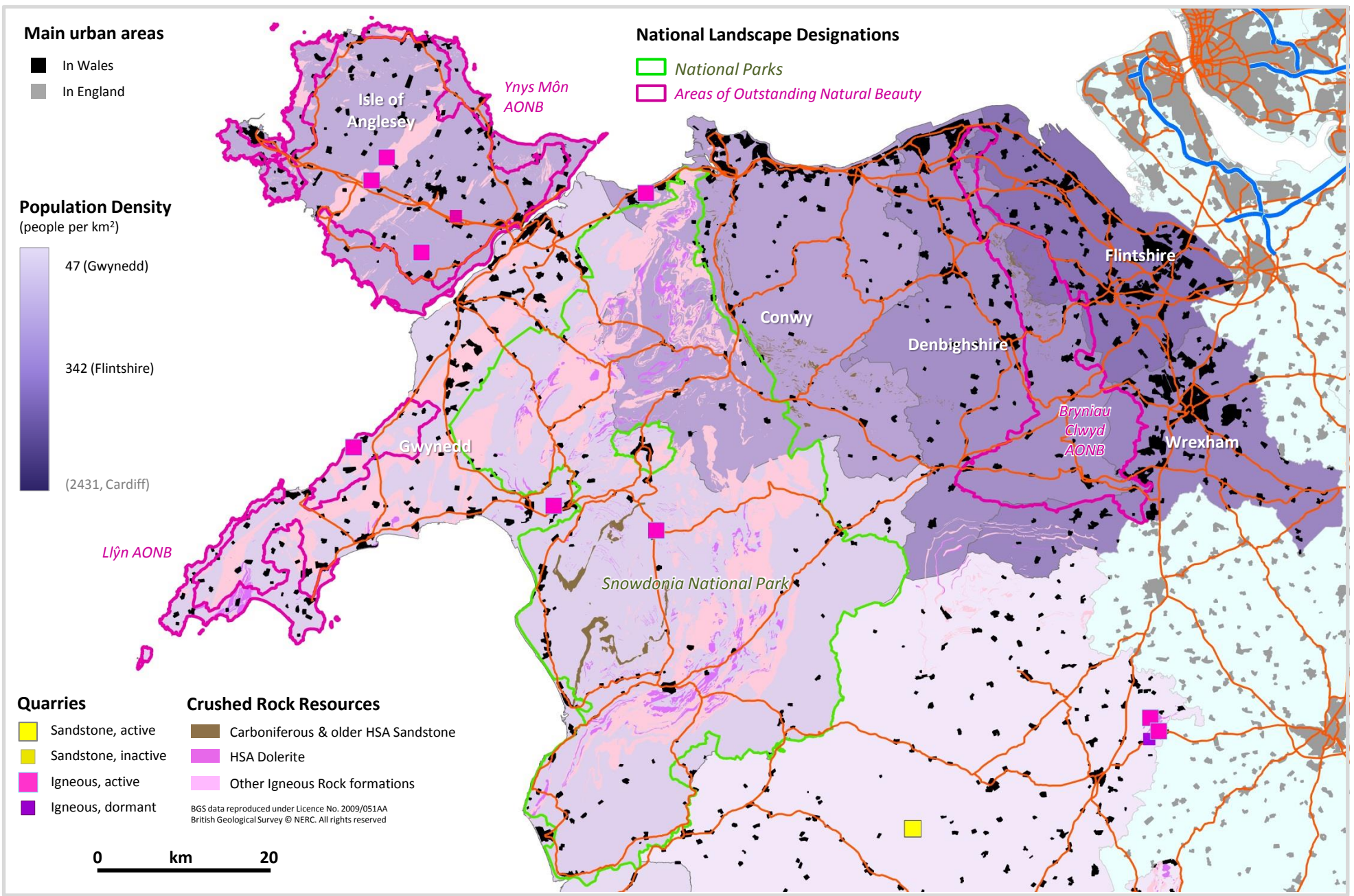


Fig A3: Igneous rock resources and quarries in relation to national landscape designations, population density, urban areas and major roads.

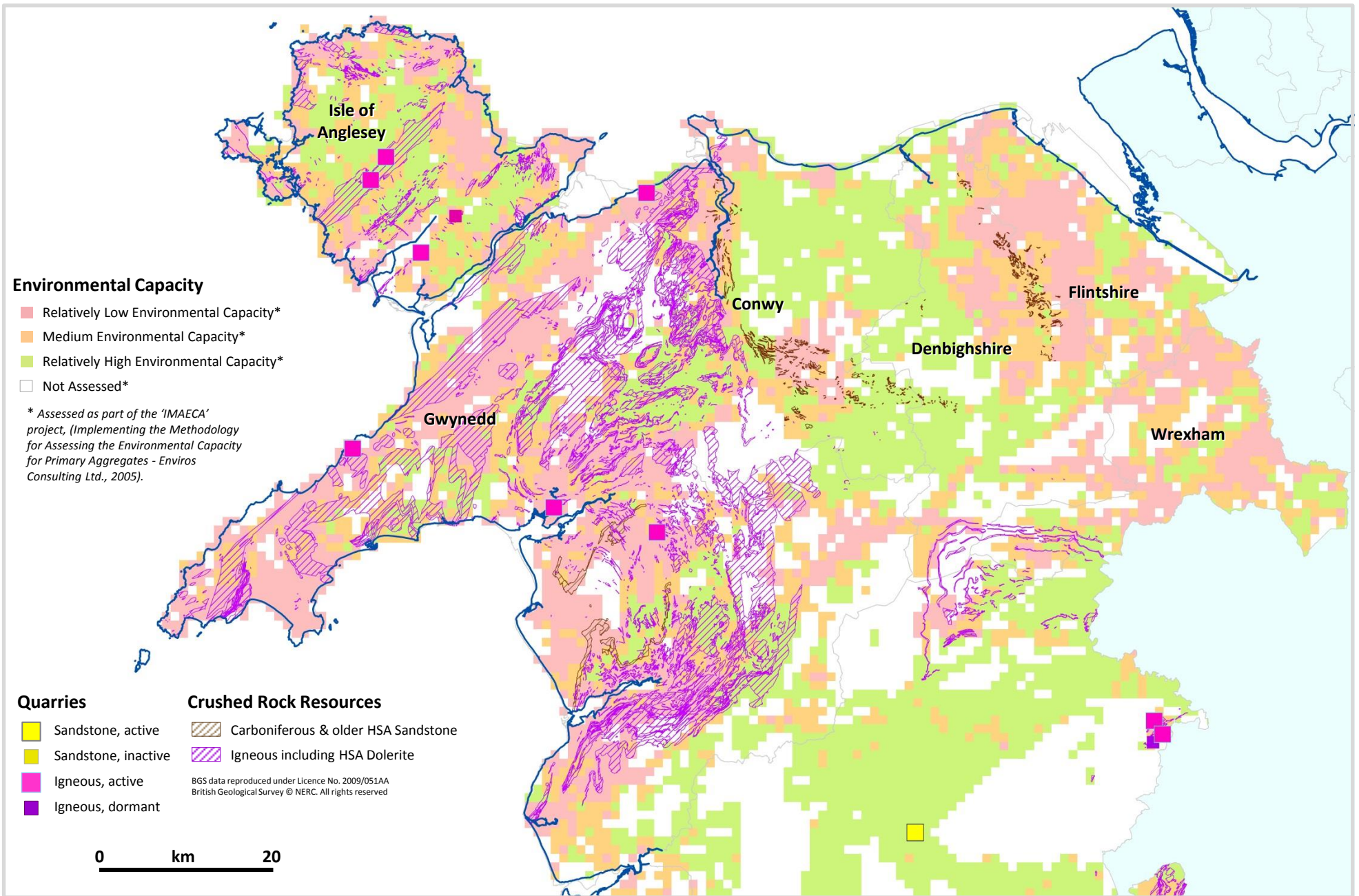


Fig A4: Igneous rock resources and quarries in relation to assessed Environmental Capacity for future quarrying

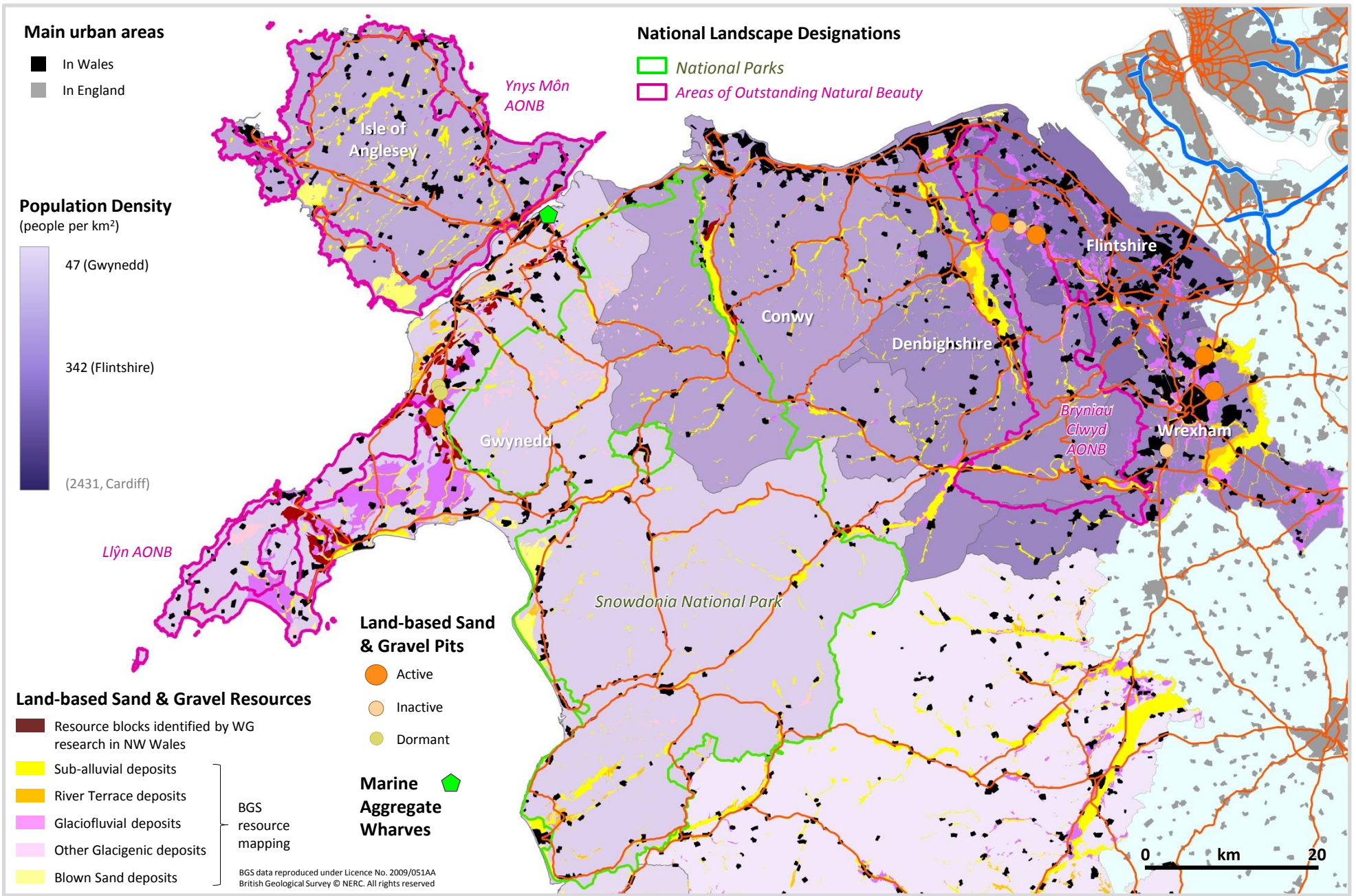


Fig A5: Sand & gravel resources and quarries in relation to national landscape designations, population density, urban areas and major roads.

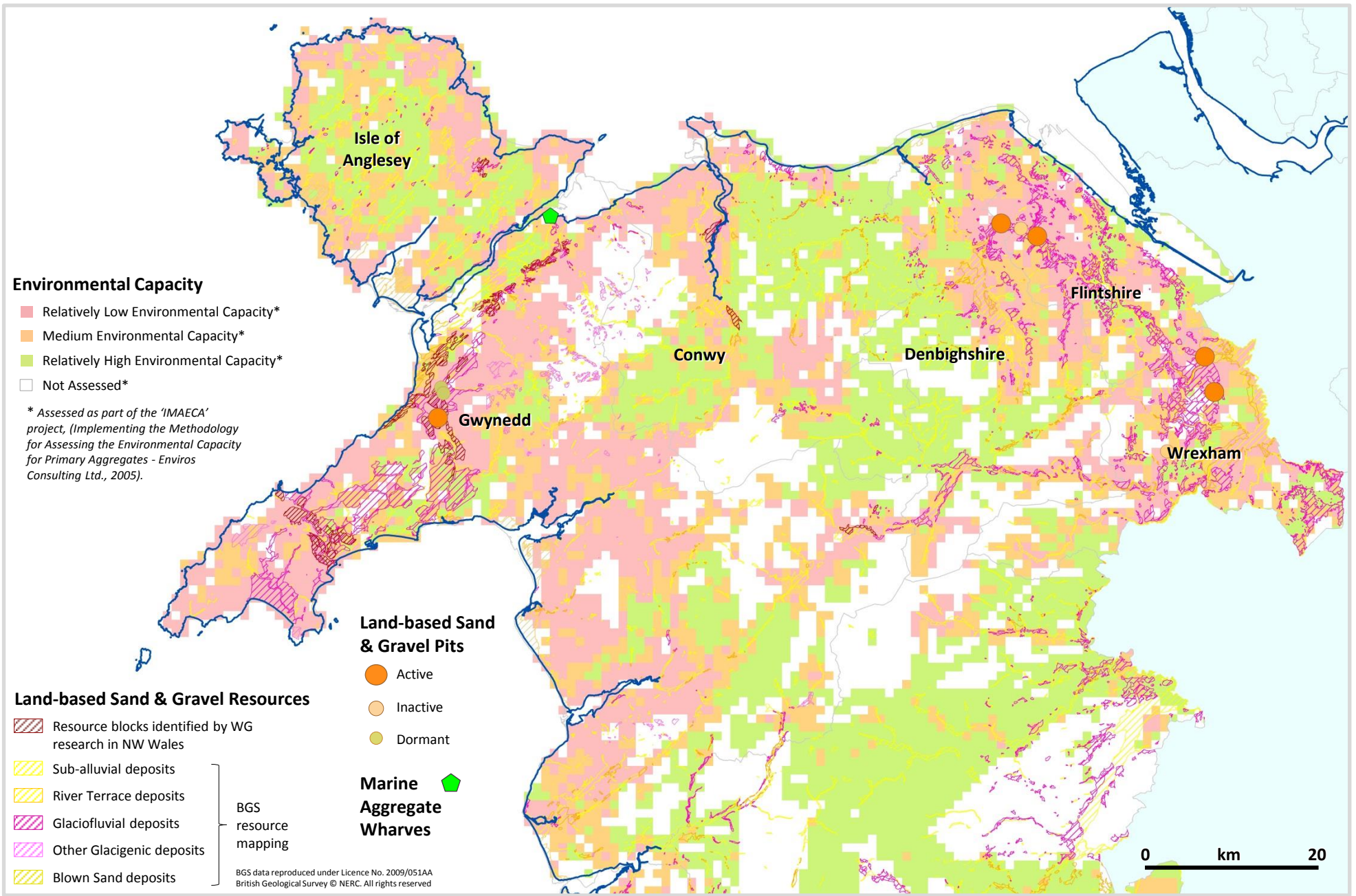


Fig A6: Sand & gravel resources and quarries in relation to assessed Environmental Capacity for future quarrying.