Bournemouth, Dorset and Poole

Local Aggregates Assessment 2012
(including data for 2012)

Dorset County Council
Bournemouth Borough Council
Borough of Poole

Contents

Background

1.1. This Local Aggregates Assessment (LAA) considers demand for and supply of aggregates in the administrative areas of Bournemouth, Dorset and Poole Councils (BDP). It is a joint LAA, prepared by Dorset County Council on behalf of Poole Borough Council and Bournemouth Borough Council. References to the Mineral Planning Authorities include all three Authorities.

1.2. Aggregates can be defined as hard granular (mineral) materials, required for a range of uses in society. They are raw materials for the construction industry, required for built development, manufacturing and the maintenance of infrastructure such as roads and sea defences. They also have other uses such as for recreational facilities and in horticulture/landscaping. They are required to support economic development. They may be primary (specifically excavated or dredged for aggregate use), secondary (produced as a by-product of some other process or excavation) or recycled from some appropriate waste material.

1.3. BDP are all Mineral Planning Authorities (MPAs) and have jointly produced a Minerals Strategy which guides minerals development to 2028 and will be adopted by all three Authorities by Spring 2014. Work is in progress on a Mineral Sites Plan (MSP), identifying the sites that will deliver the various minerals strategies.

1.4. The Minerals Strategy seeks to ensure that there is a sufficient supply of aggregate to support development, in accordance with the National Planning Policy Framework (NPPF). In BDP there are a range of sources of aggregate and this (LAA) considers all of these and the contribution each makes in meeting identified need, including:

- Recycled and secondary aggregate.
- Marine dredged aggregate.
- Crushed rock.
- Land won sand and gravel.

1.5. The LAA describes current and future aggregates supply and consumption and how future supply will be met. This LAA incorporates data collected for the year 2012, the most recent data held by the MPA. It also includes data from the 4 year extended monitoring surveys, which collect data on aggregate movements between MPAs, to give a picture of relative levels of consumption by sub-national area and nationally. The last extended monitoring survey was in 2009. Where appropriate, evidence produced during the production of the BDP Minerals Strategy may also be used.

1.6. Table 1 and Figure 1 below show aggregate supply across Bournemouth, Dorset and Poole for 2012 and earlier. The graphs show that recycled aggregates production is the only source that shows a consistent increase, although quantities are small. Land won sand and gravel, particularly Poole Formation sand, maintains steady production despite economic downturn, at a time when many other Mineral Planning Authorities are recording declines in land-won aggregate production.

Table 1 - Aggregate Supply

Aggregate types	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	10 YEAR AVERAGE	3 YEAR AVERAGE
River Terrace (sand and gravel)	0.48	0.59	0.66	0.57	0.74	0.71	0.63	0.7	0.56	0.67	0.26	0.46	0.42	0.48	**0.56**	**0.45**
Poole Formation (sand)	0.84	1.02	1.15	0.99	0.89	0.95	1.08	1.10	1.00	1.00	1.00	0.95	1.1	0.95	**1.00**	**1.00**
Total Land-Won sand and gravel	**1.32**	**1.61**	**1.81**	**1.56**	**1.63**	**1.66**	**1.71**	**1.80**	**1.56**	**1.67**	**1.26**	**1.41**	**1.52**	**1.43**	**1.57**	**1.45**
Crushed Rock - Locally Won	0.31	0.42	0.44	0.38	0.34	0.30	0.20	0.19	0.27	0.29	0.27	0.26	0.15	0.15	**0.24**	**0.19**
Crushed Rock - Rail Imported	Not available				0.14	0.16	0.12	0.1	0.1	0.11	0.03	0.05	0.07	0.04	**0.09**	**0.05**
Total crushed rock	**0.31**	**0.42**	**0.44**	**0.38**	**0.48**	**0.46**	**0.32**	**0.29**	**0.38**	**0.40**	**0.30**	**0.31**	**0.22**	**0.19**	**0.33**	**0.24**
Sand and Gravel - Marine Dredged	Not available				0.07	0.08	0.08	0.10	0.09	0.11	0.08	0.09	0.09	0.09	**0.09**	**0.09**
Recycled aggregates	Not available							0.16	0.23	0.3	0.25	0.24	0.27	0.32	**0.25**	**0.28**
Total production	Not available							**2.35**	**2.26**	**2.48**	**1.89**	**2.05**	**2.1**	**2.03**	**2.16**	**2.06**

Notes.

1) Figures in million tonnes per annum.
2) 1999 to 2002 land won sand and gravel figures sourced from SWRAWP Annual Reports 1999 - 2002.
3) Land-won sand and gravel 'split' between Poole Formation and River Terrace for 1999 to 2002 is **estimated** based on average proportional split for the years 2003 to present.
4) Recycled Aggregate only shows 7 year average and 3 year average.

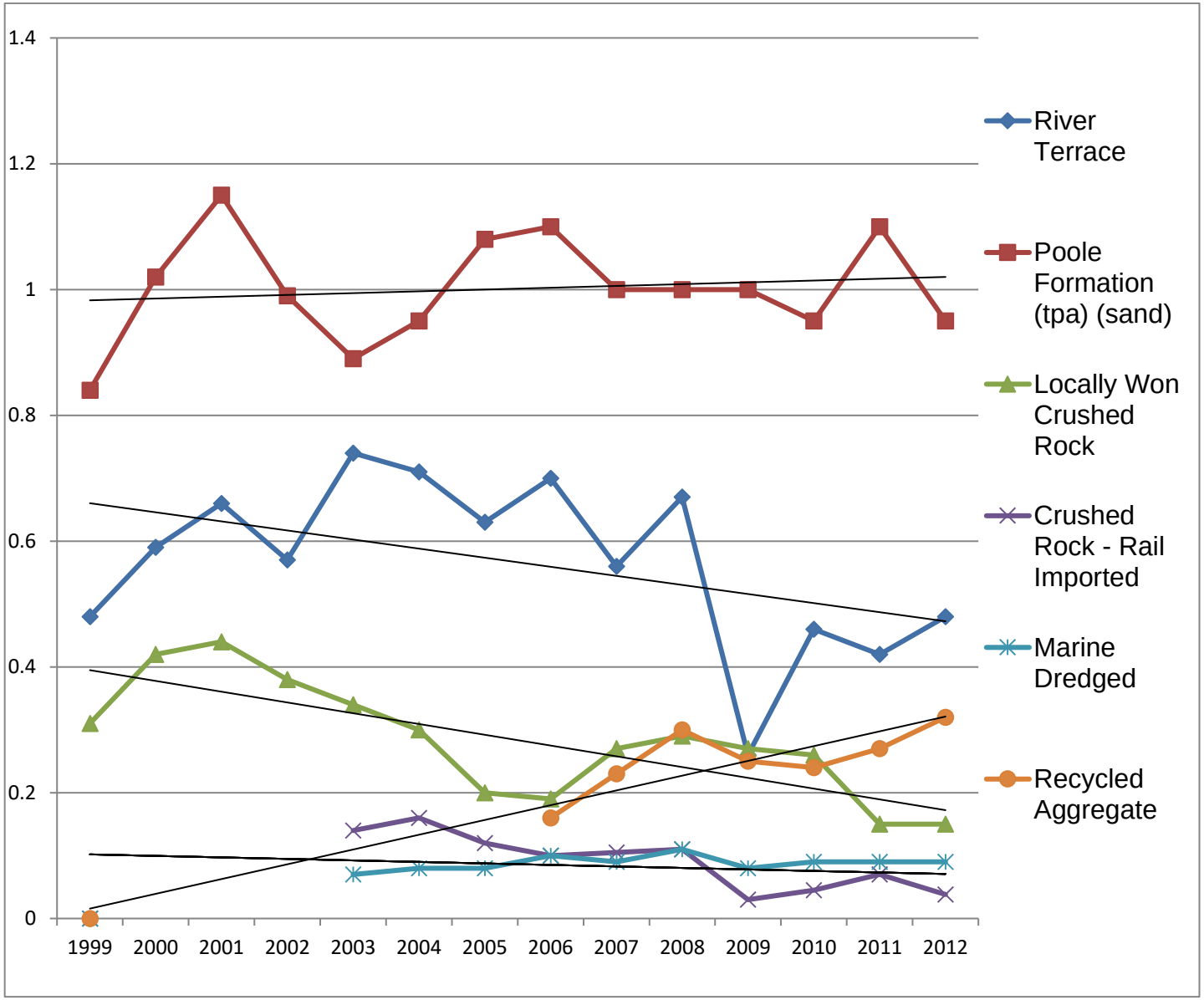

Figure 1: Aggregate supply.

Recycled and Secondary Aggregate

1.7. Recycled and secondary aggregates are an important part of the total aggregate supply in BDP and serve to reduce the demand for land-won or marine aggregate. Data held on the amount of recycled aggregate produced, where it is produced and what it is used for is more limited than for other types of aggregate but recent survey work indicates that an average of 250,000 tonnes per annum (tpa) (or higher, as discussed below) is currently produced.

1.8. Recycled aggregates are usually construction, demolition and excavation (CDE) wastes such as brick, concrete, soils and sub-soils and road planings which can be re-used as aggregate (instead of being disposed of) usually after some form of processing. This processing can include screening, sorting, crushing, washing or blending with land-won aggregate. Recycled aggregates have a range of uses, including bulk fill for construction projects or as base layers for roads and other built development. When recycled aggregate is blended with land won material, as referred to earlier, the resultant 'hybrid' material can be used for higher specification applications.

1.9. Secondary aggregates are materials produced as industrial by-products, such as foundry sand or crushed glass. In the past spent foundry sand has been imported into Poole for use at the asphalt plant there. They can also be by-products of other mineral extraction as in the case of the sand removed to access underlying ball clay. However, in BDP sand from this source is included with primary aggregate for convenience and to ensure that no material is missed or double counted.

Recycled Aggregate - Supply

1.10. Data relating to the production of recycled aggregate in BDP is set out in Table 1 and Figure 1. The MPAs are building up their database of recycled aggregate production but do not yet have data records extending to 10 years. Average output over the past three years has been in the region of 280,000 tonnes per year and over the past seven years approximately 250,000 tonnes per year. By comparison, the total permitted capacity for aggregate recycling production is over 580,000 tonnes. Although potential capacity is significantly higher than average sales, this does not mean that these higher levels will be realised. It is possible that much of the material suitable for recycling is already being recycled and CDE arisings may not increase significantly.

1.11. In 2012 there were thirteen known specific aggregate recycling sites of varying scales, which produced between them a variety of washed aggregate, fill material and soils. These are illustrated in Figure 2. Five of the sites can be regarded as strategic facilities, with either a capacity or average output of 50,000 tonnes or more.

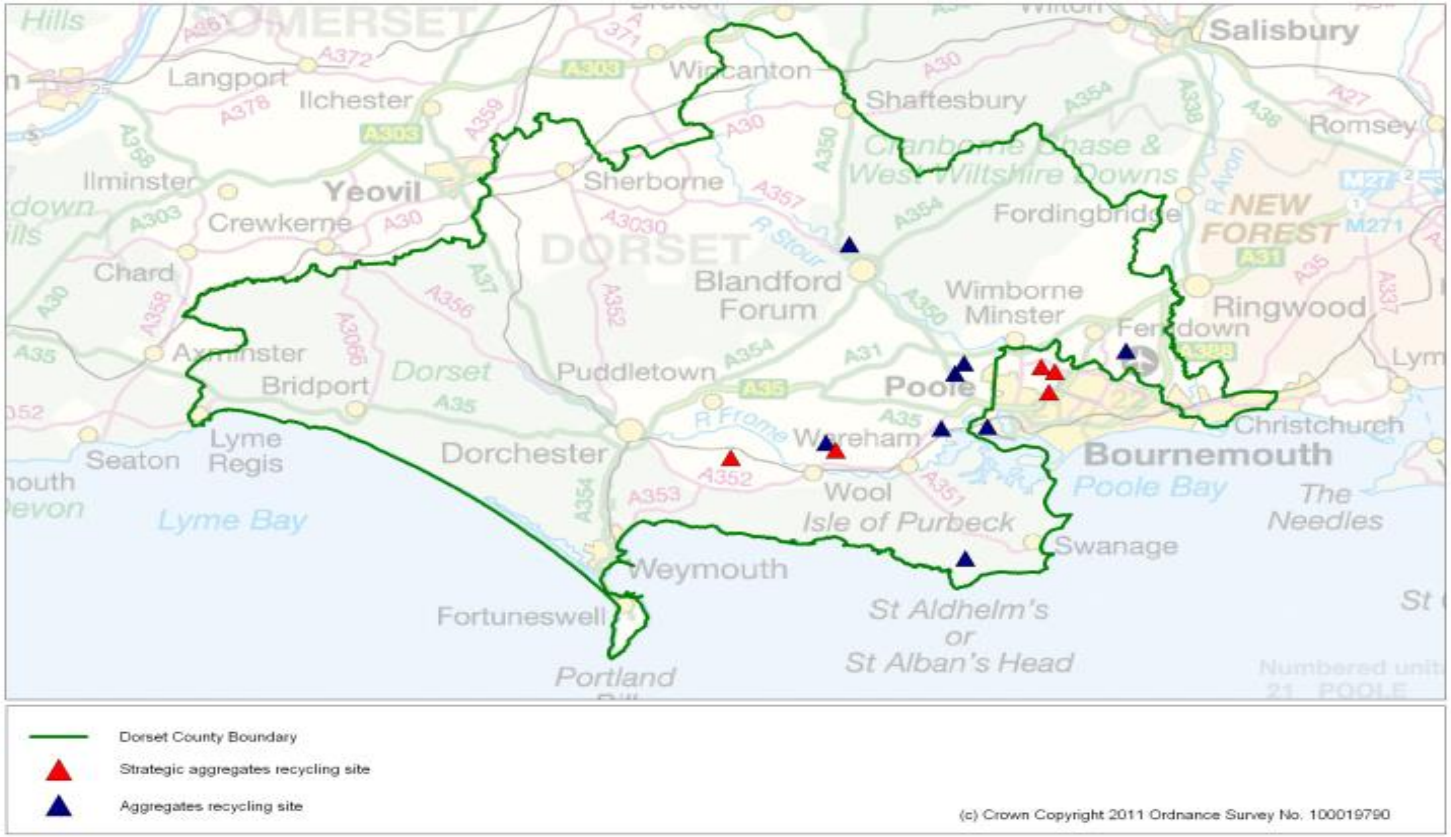

Figure 2: Aggregate Recycling Sites

1.12. In addition to these fixed recycling sites it is expected that a significant amount of recycled aggregate is produced at development/construction sites, using mobile crushing/processing plant. It is difficult to estimate how much this might be. Paragraph 4.31 of the Survey of Arisings and Use of Alternatives to Primary Aggregates[1] suggests that of the total production of recycled aggregate, some 80% is derived from fixed sites with an additional 20% from construction sites. Given that this report is dated 2007, it may be that the proportion is now even higher. Applying an 80/20 split to the 2012 BDP figures, the 3 year average production figure could be as much as 350,000 tonnes per annum, and the 2012 production could have been as high as 400,000 tonnes. It is not possible to prove this but recycled aggregate production could have been higher than recorded figures indicate.

[1]Capita Symonds Ltd, in association with WRc plc. February 2007, Department for Communities and Local Government : London

Imports and Exports

1.13. It is assumed that, in areas close to the county boundary, recycled material travels to and from neighbouring minerals planning authority areas. As a relatively low-value product with limited applications it is unlikely to travel far. No information is currently held on distances travelled by recycled aggregate. It is expected that any current export/import relationship will continue.

Recycled Aggregate - Demand

1.14. It is difficult to estimate demand, as there is no requirement to maintain a landbank of recycled aggregate. Demand is market driven and it is expected that, subject to availability of material for recycling, facilities in BDP will continue to produce recycled aggregate to meet market demand. The general production trend illustrated in Figure 1 is upwards, but it is not known how long this will continue. Economic recovery leading to increased construction will stimulate demand and, it is expected, production. Demand will be limited by the limited range of applications of the product.

Constraints/Opportunities

1.15. Permitted production capacity is high and is not a constraint. Constraints will include:

- actual availability of material;
- how far the material to be recycled and the recycled aggregate will travel; and
- loss of aggregate recycling sites through site closure or finish of temporary planning permission without renewal or being made permanent.

As noted above the production trend shows a continued increase but it is not known when this will level out.

1.16. The Bournemouth, Dorset and Poole Minerals Strategy encourages the production of recycled aggregates by maintaining current production and, where possible and appropriate, increasing output from existing facilities or development of new or improved facilities through:

- renewing temporary permissions and issuing long-term or permanent permissions, provided these are justified and adverse impacts can be satisfactorily mitigated;
- safeguarding existing recycling facilities for the life of their permission; and
- encouraging replacement capacity where production capacity is lost through termination of a permission.

Capacity

1.17. There have been no new permissions and the total permitted capacity for aggregate recycling production remains at over 580,000 tonnes per year. Although potential production capacity is significantly higher than average sales, this does not mean that these higher levels will be realised. It is possible that most material suitable for recycling is already being recycled and CDE arisings may not increase significantly.

Marine-dredged Sand and Gravel

1.18. National marine policy is contained in the Marine Policy Statement[2] (MPS), prepared in accordance with section 44 of the Marine and Coastal Access Act 2009. It provides the framework for preparation of Marine Plans by the Marine Management Organisation (MMO). The Marine Plans are intended to implement the MPS and the MMO began preparation of the South Inshore and South Offshore Marine Plans in April 2013. These cover the areas from which Dorset gets its marine dredged aggregate. The South Plan Analytical Report[3] (SPAR) has been prepared, setting out the issues - including mineral extraction - to be addressed in the Marine Plans.

1.19. Marine dredged sand and gravel is extracted from the sea bed from licensed areas off the coast of Hampshire, the Isle of Wight and West Sussex. These deposits of marine aggregate (sand and gravel) are considered to be fluvial, fluvio-glacial, or beach deposits formed during glacial episodes within the last 2 million years when sea levels were lower. Marine dredged aggregates are landed at a wharf in the Port of Poole.

Marine sand and gravel - Supply

1.20. Marine dredged sand/gravel is used for concreting and is also used for beach replenishment, making a relatively small but important contribution to the overall need for minerals in BDP. Landings are relatively constant at around 90,000 tonnes per annum. This is likely indicative of the fact that at this wharf demand outstrips supply, even in economic downturn. This is likely to be due to the constraints of the wharf handling capacity. Landings are shown in Table 1 and Figure 1. Despite the variation in landings, the overall trendline shows a gradual increase in supply.

1.21. Mineral rights for marine sand and gravel are owned by the Crown Estate. The marine aggregate landed at Poole Wharf is from the South Coast dredging region, illustrated in Figure 3 below. During 2012, 3.63 million tonnes of construction aggregate were dredged from a permitted licensed tonnage of 8.70 million. In addition 0.73 million tonnes were specifically dredged for beach nourishment. Of the total marine aggregate dredged for construction from the South Coast region, 62.44% of the tonnage dredged was delivered to the South Coast (2.27mt)[4].

Marine sand and gravel – Demand

1.22. As with recycled aggregate, there is no requirement to provide a landbank for marine aggregate so it is difficult to estimate or indicate demand (required supply). Again demand will be market driven, with the marine aggregate landed primarily meeting demand in the Poole/Bournemouth urban area. Capacity at the wharf is limited so it is likely that there will be demand for all the aggregate landed. This will be especially true with continuing economic recovery and increasing demand for construction materials.

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[2] UK Marine Policy Statement, HM Government. March, 2011. London: The Stationery Office.

[3] See: http://www.marinemanagement.org.uk/marineplanning/areas/south_spar.htm September 2013.

[4] Marine Aggregate Extraction 2012: The Crown Estate, 15th Annual Report

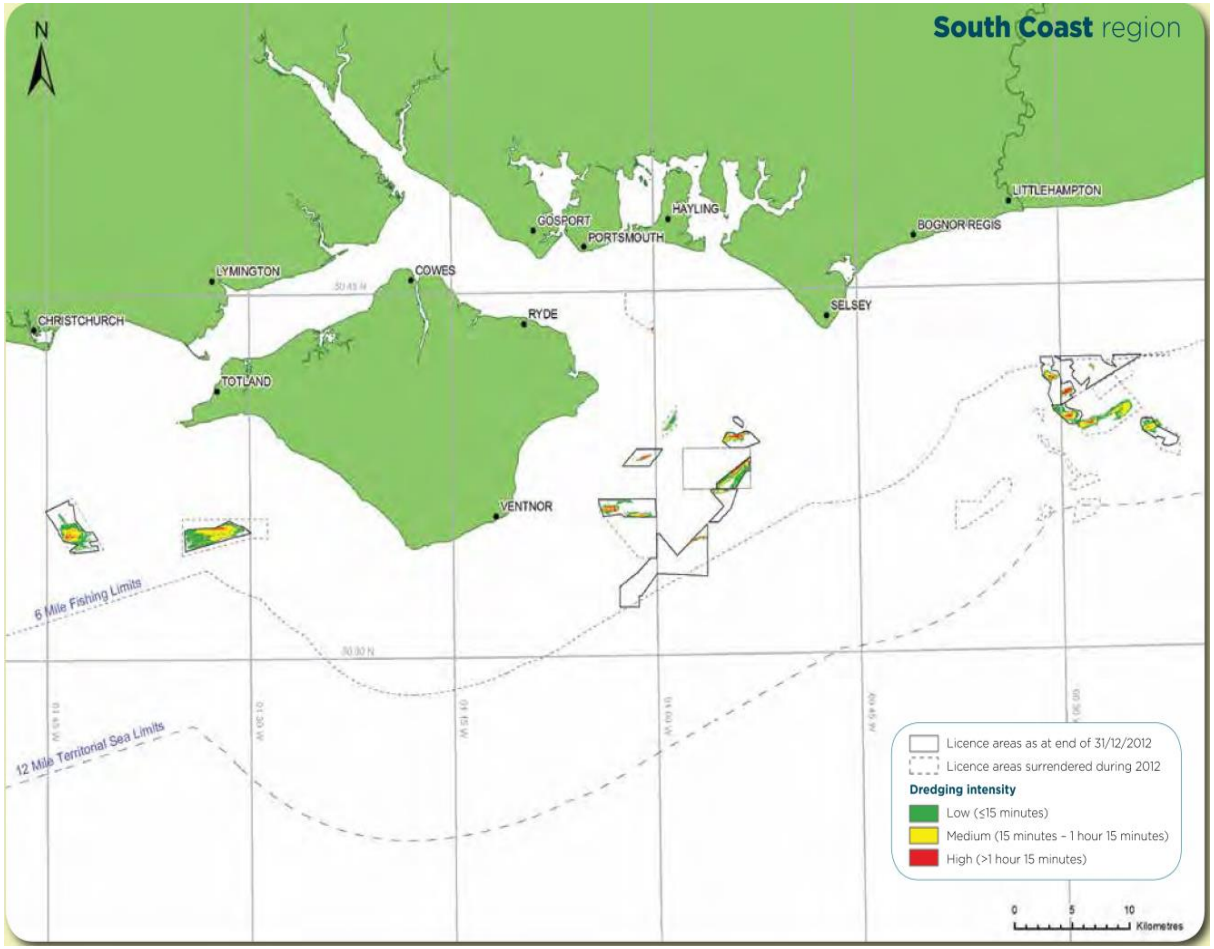

Figure 3: Licensed Dredging Areas (Source: The Crown Estate).

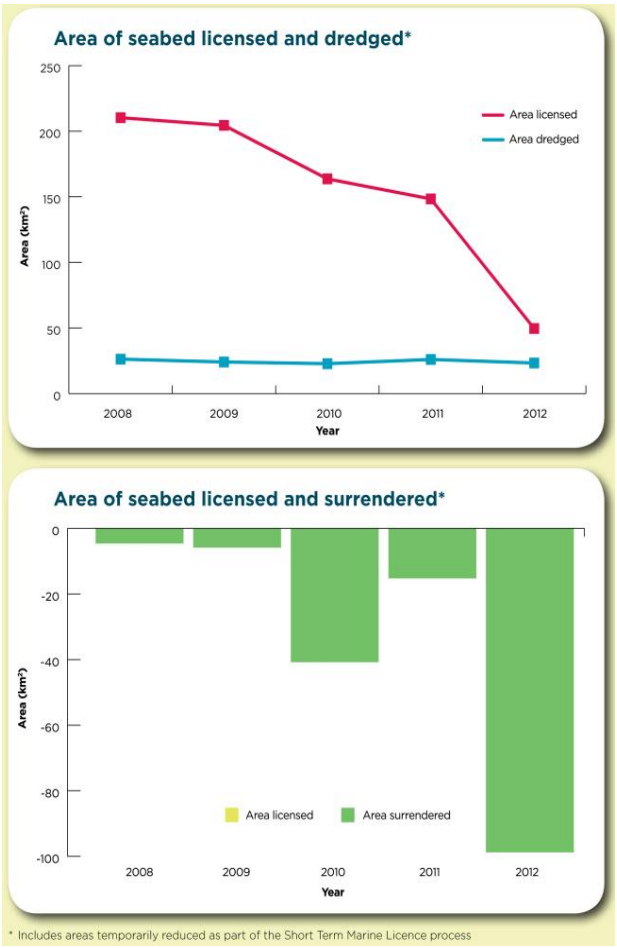

Figure 4: Changes in Licensed Area. (Source: The Crown Estate)

Capacity

1.23. As illustrated in Figure 4, during 2012 the area licensed for marine aggregate extraction in the South Coast region decreased. However, given that the area licensed for dredging was 49.60km^2 , dredging took place within 23.31km2 (47% of the licensed area) and 90% of dredging effort took place within 9.76km^2 it is considered that capacity remains to continue a steady supply of landings of up to 100,000 tpa to contribute to the overall need for

aggregates in BDP[5]. The wharf at Poole Port is safeguarded to enable and encourage landings and processing to continue. The wharf has no planning restrictions regarding imports of aggregate. Figure 5 shows the wider aggregate resource off the south coast.

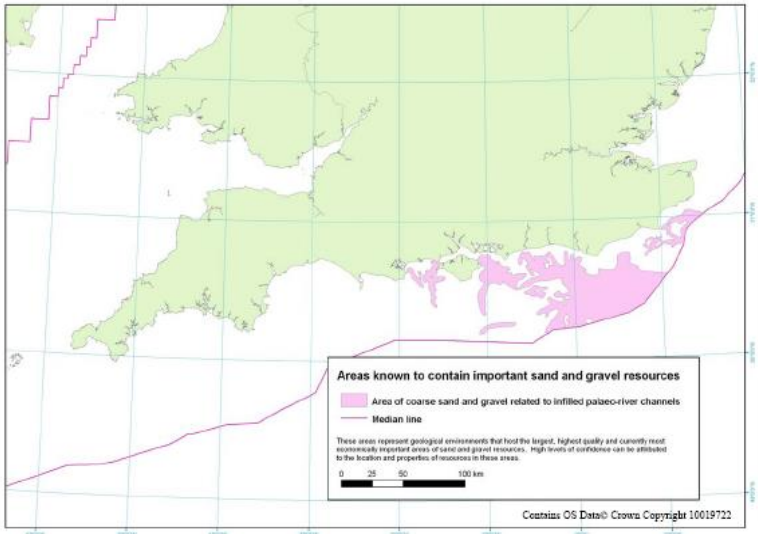

Figure 5: Marine Aggregate Resource(Source: The Crown Estate).

Constraints

1.24. The principal constraints on the level of marine landings during the plan period are the production capacity to dredge and deliver the material to the wharves, security of port access (loss of wharves), channel and berth restrictions and the road transport system away from the wharf. Without expansion, there is currently limited additional capacity at Poole Wharf. Landings are constrained by the capacity of the wharf, with 4,000 tonnes being the maximum load that can be landed at any one time and total storage capacity of processed material is around 10,000 tonnes.

1.25. With limited spare capacity at Poole wharf, there is little flexibility to deliver additional resources of marine dredged aggregates into Dorset unless the wharf was to be used as a trans-shipment wharf. This is where large articulated lorries take material directly from the ships for onward processing. This could be an option if increased supplies of aggregates are needed in the future or if other sources are constrained.

1.26. In 2009, of the landings of marine dredged sand and gravel at the Wessex Wharf in Poole, 43% remained in Bournemouth, Dorset and Poole, 34% was exported to other destinations in the South West and 23% was exported to the South East. Of the 39,000 tonnes of marine sand and gravel consumed in Dorset in 2009, more than 85% was landed directly in Dorset while Hampshire/West Sussex supplied between 5% and 10% of this amount. A very small amount was imported from Somerset. This indicates that at most Bournemouth, Dorset and Poole imported some 4,000 tonnes of marine dredged

[5]Marine Aggregate Extraction 2012: The Crown Estate, 15th Annual Report

sand and gravel in 2009, while it exported approximately ten times this amount. Although Bournemouth, Dorset and Poole are net exporters of marine dredged sand and gravel, the figures involved are all relatively small and not considered of great significance – apart from indicating the role of Bournemouth, Dorset and Poole in supplying sand and gravel to surrounding (and beyond) authorities[6].

[6] Collation of the Results of the 2009 Aggregate Minerals Survey for England and Wales: British Geological Survey, May 2011 (Department for Communities and Local Government, Welsh Assembly Government); Personal communication from Dr. Joseph Mankelow, British Geological Survey, 22 June, 2012.

Crushed Rock

1.27. Both Purbeck and Portland contain reserves of limestone rock famous for its use as a building or monumental stone. Crushed aggregate and armour stone are produced alongside dimension stone from the quarries on Portland and at one site in Purbeck. Each of the operational quarries has reserves of dimension stone offcuts and wastage which can be used as aggregate. The mines also provide offcuts and wastage that can be crushed for aggregate use.

1.28. The Jurassic Limestone is generally regarded as relatively weak, a softer rock than Carboniferous Limestone and is normally unsuitable as a concreting aggregate. It is often used as fill or as Type 1 aggregate for construction purposes. Stone to be crushed for aggregate production is either waste stone resulting from production of dimension stone, certain other types of stone not suitable for dimension stone or stone from the cherty series, which forms the deepest quarried bed on Portland and is only suitable for crushing. Working of the cherty beds delays quarry restoration and makes restoration at or near ground level more difficult. The sole aggregates quarry in the Isle of Purbeck is Swanworth Quarry, near Worth Matravers, which produces crushed rock (although not from the cherty series) from Portland Beds.

1.29. Much of the current extraction on Portland takes place under a large composite planning permission granted in 1951, covering around two thirds of the plateau forming the top of the island. Extraction of dimension stone is the primary focus of the quarries/mines, and crushed rock is essentially a by-product, utilising the stone not suitable for dimension stone. This permission for quarrying lasts until 2042.

1.30. Crushed rock also enters BDP from Somerset, both by road and by rail from Whatley Quarry, operated by Hanson. This is much harder Carboniferous limestone suitable for road and other construction uses. There is a rail depot at Hamworthy in Poole which, prior to its closure in 2012, received crushed limestone from Whatley Quarry in Somerset for local distribution and use. Imports included washed limestone sand, a 20-5 concrete sand, type 1 fill and 40mm scalpings. Hamworthy Depot also imported sand from Masters Quarry for blending purposes and was a recycling centre accepting inert waste for crushing, screening and general sale. The main uses for the aggregate were the local market, Hanson in-house concrete plants and other concrete product sites. Although the depot at Hamworthy is currently not operational, the facility remains and its re-opening remains an option should the operator wish to resume imports.

Crushed Rock - Supply

1.31. Sales of crushed rock produced in Dorset are illustrated in Table 1and Figure 1, including both local land-won production and rail imports. Road imports are not included as these are difficult to determine. There has been some reduction in production in recent years and the trend is currently a gradual decline.

1.32. Overall crushed rock production for the south west sub-national area has declined from 26,518,000 tonnes in 2001 through to 22,238,000 tonnes in 2005 to 17,206,000 tonnes in 2009[7]. This represents a 35% decline, compared to a 39% decline for Dorset for the same time period. Dorset's production shows a similar trend to the more general decline in crushed rock production.

7 Collation of the results of the 2001 Aggregate Mineral Survey for England and Wales (Prepared by British Geological Survey on behalf of ODPM 2001). Similarly for the 2005 and 2009 reports, though these were commissioned by Department for Communities and Local Government.

Imported granite

1.33. Crushed granite is also imported into Poole Wharf for exclusive use in an asphalt producing plant in Poole. The amount imported relates to demand for asphalt in the area.

Crushed rock - Demand

1.34. As with other sources of aggregate, demand for crushed rock is market driven. However there is also a requirement placed on Mineral Planning Authorities by the NPPF[8] to provide for the maintenance for a landbank of at least 10 years for crushed rock, based on a rolling 10-year average of crushed rock production. Total sales of crushed rock in 2012 were approximately 150,000 tonnes and the 10 year average of production from 2003 to 2012 is approximately 240,000 tonnes per annum (tpa). A conservative estimate of the remaining reserves of crushed rock in Dorset is approximately 13 mt, which corresponds to a landbank of around 54 years, at a consumption level of 0.24 mtpa. This does not take into account possible waste stone from the mines.

13 mt / 0.24 mtpa = 54 years

1.35. This is well beyond the life of the Minerals Strategy and for that reason no specific commitment was made to identify new sites. The 'rolling basis' of the methodology means that the appropriate annual supply for sand and gravel will be regularly revised by the Mineral Planning Authorities through the LAA.

Crushed rock - Exports and Imports

1.36. In 2009, 693,000 tonnes of crushed rock were consumed in Dorset[9]. Of this, approximately 40% was produced in Dorset, 55% was imported from Somerset and Powys and Devon each supplied between 1% and 5%. By far the majority of the crushed rock produced in Dorset remains in Dorset (in 2009, 96%). Of the exported mineral, Wiltshire (c.3%) and Hampshire (c. 1%) received the highest level of exports.

Crushed rock - Constraints to future supply

1.37. The environment of both Portland and Purbeck is sensitive to new quarry development. The Minerals Strategy (Policy AS3) discourages the development of new sites for the processing and production of crushed rock other than in exceptional circumstances. Much of the identified Portland reserve is comprised of the cherty series aggregate. Although this mineral exists and comprises a permitted reserve, given the length of time it takes to work it and the size of the resultant void there is no certainty that it will be worked by the dimension stone operators who work the quarries, or their agents. There have already been indications that the quarries could be restored to other uses when the viable dimension stone has been removed. It is possible that further reserves, including waste stone on Portland, may be identified during the plan period.

1.38. Swanworth Quarry in Purbeck is within an Area of Outstanding Natural Beauty (AONB) and the Minerals Strategy (paragraphs 7.49 and 7.50) generally discourages aggregate quarrying within an AONB because of its potential to cause serious harm to the landscape. In addition, the NPPF states that planning permission should be refused for major developments in designated areas except in exceptional circumstances, where it is in the public interest. Where there is no harm to the AONB or where the harm is minimal and can be satisfactorily mitigated against, then extraction of sand and

[8] National Planning Policy Framework, paragraph 145.

[9] Collation of the results of the 2009Aggregates Mineral Survey for England and Wales (Prepared by British Geological Survey on behalf of Department for Communities and Local Government.)

gravel may be appropriate in exceptional circumstances. Although the reference in the Minerals Strategy is explicitly to sand and gravel, it may be taken to mean crushed rock as well. New developments in the AONB are not ruled out but do have to be clearly justified and impacts mitigated.

1.39. Opportunities for the establishment of additional rail depots are limited. In the north, where the Salisbury-Exeter line passes in and out of Dorset, the Mendip quarries are relatively close, but road links are more direct. The north-south single line from Yeovil to Dorchester passes through a rural area with limited opportunity and need for such a facility. Work is being undertaken to increase capacity on the main line from London to Weymouth. Possible establishment of new depots along this line will continue to be investigated and encouraged by the Mineral Planning Authorities.

1.40. For dispatching sand to London, sidings at Wool serve as a railhead to load sand extracted at Warmwell Quarry near Dorchester. Approximately 100,000 tonnes of sand are sent by rail annually. Warmwell has only a limited remaining reserve, so it is not known how long this level of export can be maintained, unless a successor site is developed or other companies use these sidings.

Road Imports of crushed rock

1.41. Crushed rock is also imported to Bournemouth, Dorset and Poole by road, primarily from Somerset. It is more difficult to obtain accurate figures for amount of road imports. As noted, of the 693,000 tonnes of crushed rock consumed in Bournemouth, Dorset and Poole in 2009, some 55% came from Somerset[10]. In 2009, approximately 30,000 tonnes were imported by rail to Hamworthy Depot, this implies that approximately 350,000 tonnes were imported by road from Somerset. It is likely that much of this rock came in as reverse loads in lorries taking sand and gravel to Somerset from Dorset (in 2009, this was approximately 290,000 tonnes). In 2011, Whatley Quarry had a reserve of in excess of 100 mt, so there is confidence that this level of supply can be maintained over the plan period.

[10] Collation of the Results of the 2009 Aggregate Minerals Survey for England and Wales: British Geological Survey, May 2011 (Department for Communities and Local Government, Welsh Assembly Government); Personal communication from Dr. Joseph Mankelow, British Geological Survey, 22 June, 2012; Duty to cooperate interaction with Hampshire County Council, Somerset County Council, Wiltshire County Council and Devon County Council.

Sand and gravel

1.42. Figure 6 below shows the distribution of sand and gravel deposits in BDP. The Plateau Gravels are found capping many of the hills and ridges in a broad zone stretching from the north of Dorchester to Wareham and around the fringes of Poole, Bournemouth and Wimborne. Only isolated pockets now remain available, the majority already being worked out, built upon or of ecological importance.

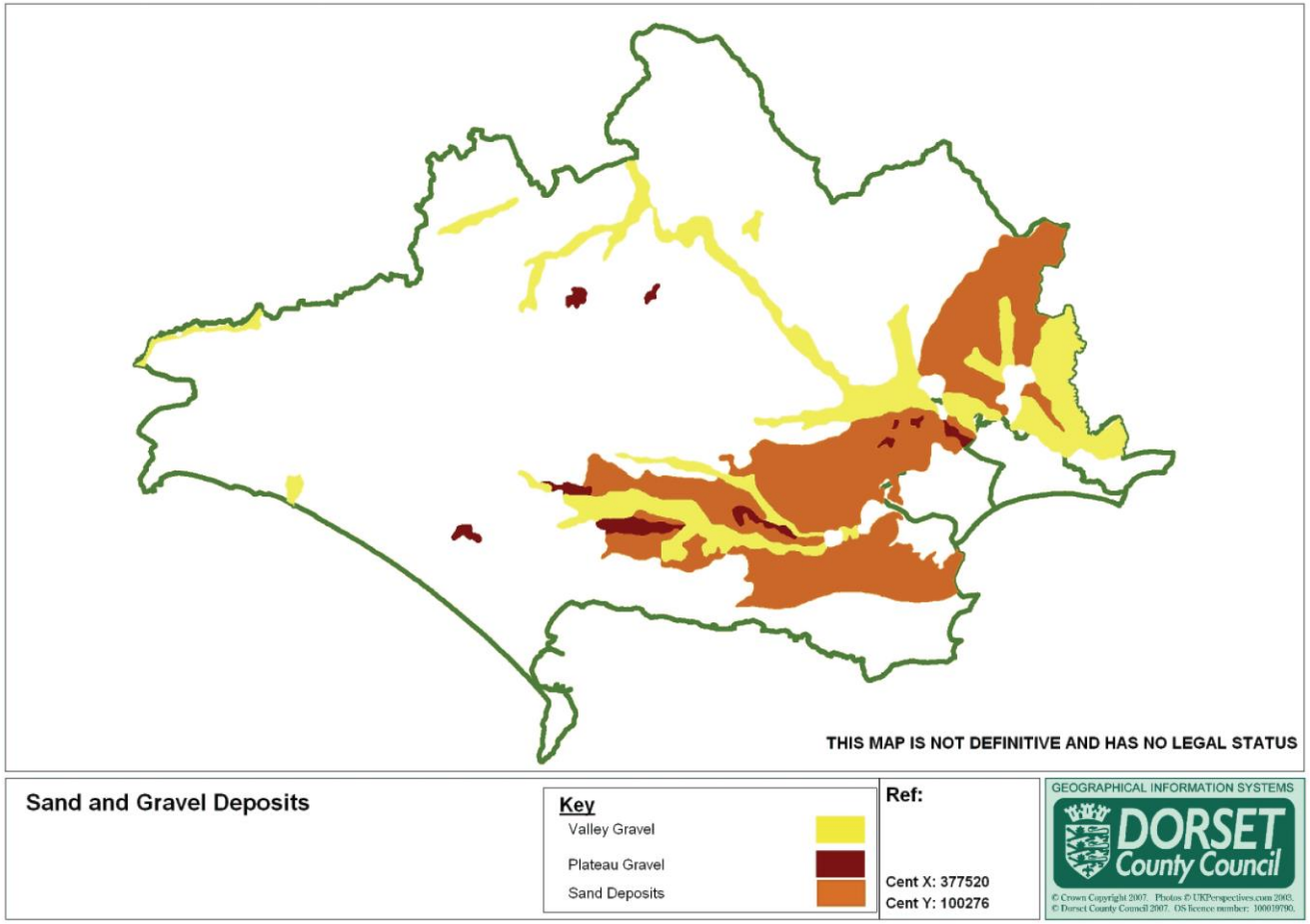

Figure 6: Sand and Gravel Reserves

1.43. Valley or river gravel is found in the valleys of the Piddle, Frome, Stour and Avon, and in the north west of the county, the Axe. There has only been limited working of these areas in the past.

1.44. Solid sand deposits of the Poole Formation are found in south east Dorset. They comprise a series of upward fining sequences, becoming finer grained with increasing silt content towards the south east. The large variations in particle size enable a wide range of products to be produced, but their unpredictable distribution presents difficulties. They form the most important source of sand in Dorset.

1.45. The ball clay resource is also located within the Poole Formation with sand (and gravel) often forming a deep overburden over the clay. Permissions can be granted for the extraction of this mineral, in advance of, or alongside or after, the ball clay extraction. This sand and gravel is considered to be a secondary aggregate if it needs to be removed to access the ball clay. If sand/gravel is extracted below the limit of the ball clay, it is considered a primary aggregate. The Minerals Strategy restricts the extraction of this sand and gravel resource associated with ball clay within the Dorset AONB.

Land-won sand and gravel - Supply

1.46. For land won sand and gravel Dorset continued to be an important producer, a position it has held since the early1990's with production generally exceeding 1.5mt each year between 1993 and 2008 but peaking at 1.8mt in 2001.Production fell to its lowest level of only 1.27mt in 2009 but recovered to 1.44mt in 2010 and then rose againto1.52mt in 2011, only to fall back to 1.43mt in 2012, a decrease of approximately 90,000 tonnes.

1.47. Sand and gravel from Dorset is supplied to south-east England, including London, and elsewhere in the south-west. Sales of land-won sand and gravel produced in Dorset over the 12 year period from 1999 are set out in Table 1 and illustrated in Figure 1. Although there has been some reduction in production in recent years, the general trend is for fairly steady levels of production with consistently higher levels of production of Poole Formation sand over River Terrace sand and gravel.

1.48. Overall land-won sand and gravel production for the south west sub-national area has declined from 5,791,000 tonnes in 2001[11] through to 5,264,000 tonnes in 2005 to 3,638,000 tonnes in 2009. This represents a 37% decline, compared to a 22% decline for Dorset for the same time period. The fact that Dorset's decline is less than that of the sub-national area indicates that Dorset is a significant provider of land-won sand and gravel beyond its boundaries and continues to supply sand and gravel while output from other producers is declining. The reason for Dorset's maintenance of production, compared with the fall outside of Dorset is not clear, but could be due to the reserves in Dorset permitting maintenance of supply while declining supplies elsewhere are reflected in declining supply figures. Dorset continues to be the main production area and in 2012 accounted for about 46% of sales. Approximately 56% of the South West's reserves were held at sites in Dorset which had a landbank of about 14 years[12].

Land-won sand and gravel– Demand

1.49. The NPPF (paragraph 145) requires that Mineral Planning Authorities base future sand and gravel requirements on a rolling average of sales over a ten-year period and other relevant local information, including an assessment of other supply options. For sand and gravel, total sales during the period 2003 to 2012 (the last 10 years) amounted to approximately 15.65 mt, an average of 1.57 mt. The 'rolling basis' of the methodology means that the appropriate annual supply for sand and gravel will be regularly revised by the Minerals Planning Authority through the LAA.

1.50. To maintain the necessary level of provision, the Policy AS1 of the Minerals Strategy states that:

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[11] Collation of the results of the 2001Agg Mineral Survey for England and Wales (Prepared by British Geological Survey on behalf of ODPM 2001). Similarly for the 2005 and 2009 reports, though these were commissioned by Department for Communities and Local Government.

[12] South West Aggregates Working Party - **Annual Report: 2012**

An adequate and steady supply of locally extracted sand and gravel will be provided by maintaining a landbank of permitted sand and gravel reserves equivalent to at least 7 years' worth of supply over the period to 2028, based on the current agreed local annual supply requirement for Bournemouth, Dorset and Poole

1.51. The 'agreed local annual supply requirement' is the rolling 10 year average, as identified in the LAA each year. This will ensure that there is a stock of planning permissions which will satisfy the annual supply requirement for a period of at least 7 years. This is the landbank – the total remaining quantity of mineral reserve with planning permission for extraction. At the end of 2012, there were just over 18.3mt of permitted sand and gravel reserves in Dorset. At the current 10-year average level of production (1.57 mtpa) this would last almost 12 years if no further permissions were granted:

Permitted Reserves / Level of Provision = Remaining landbank

18.3 mt / 1.57 mtpa = 11.7 years

1.52. This shows that at the start of 2012 the Dorset landbank was around 11.7 years, but as production continues this figure will fall unless more permissions are granted. This figure comprises the landbank for both Poole Formation sand and river terrace sand and gravel. Poole Formation sand and river terrace/plateau sand and gravels have different properties and uses, and it is considered appropriate to monitor their supply separately. Further analysis makes it possible to identify separate landbanks. At the end of 2012, estimated reserves for River Terrace aggregate were approximately 8.7 mt and estimated reserves for Poole Formation aggregate were approximately 9.6 mt. The average annual supply figure of 1.57 mtpa at the end of 2012 can be split pro rata as follows, on the basis of average production levels between 2003 and 2012:

- 36% for river terrace/plateau sand and gravel (1.57 x 36% = 0.57 mtpa)
- 64% for Poole Formation sand (1.57x 64% = 1.00 mtpa)

1.53. When these separate provision levels are applied to the 2012 reserves, this gives indicative landbanks of around 15.2 years for River Terrace sand and gravel and almost 9.6years for Poole Formation sand. This exercise will be repeated annually to identify possible shortfalls in provision, as required by Policy AS2 of the Minerals Strategy which states that:

The Mineral Planning Authorities will maintain a separate landbank for both Poole Formation and River Terrace aggregate equivalent to at least 7 years' supply in each case.

1.54. In addition to the 10 year average, BDP also considered the planned level of built development in the area as an indicator of an appropriate level of future aggregate provision. The emerging Bournemouth, Dorset and Poole Minerals Strategy considered this issue and assumed there would be no step-change in the level of growth. The LAA will take this stance as well.

Table 2: Exports to and Imports from Bournemouth, Dorset and Poole (based on 2009[13]data.)

Location	Sub-national Area	Destination of exports & relative proportions exported	Source of supply and relative proportion from that supply
Somewhere in Greater London	London	c. 5%	0%
West London			
Berkshire	South East	<1%	0%
Hampshire and IOW		c. 7% (102,000)	9.8% (68,000)
Kent and Medway		0.0%	0%
Oxfordshire		<1%	0%
Surrey		0.0%	0%
West Sussex		<1%	c. 2%
Somewhere in South East		<2%	?
Avon	South West	<5%	0%
Cornwall		<1%	0%
Devon		<10% (92,000)	<1%
Dorset		c. 47% (640,000) remains in Dorset	c. 90% (most land-won sand and gravel used in Dorset is locally sourced)
Gloucestershire		<2%	c. 2%
Somerset		c. 20% (290,000)	0%
Wiltshire		c. 3% (37,000)	<1%
Somewhere in South West		<2%	?
Shropshire	West Midlands	<1%	0%
WLS4 South East Wales	Wales	<1%	0%
WLS5 Remainder of South Wales			
Totals		**1,350,165 tonnes land-won sand and gravel produced in Bournemouth, Dorset and Poole in 2009**	**696,000 tonnes land-won sand and gravel consumed in Bournemouth, Dorset and Poole in 2009**

[13] Collation of the Results of the 2009 Aggregate Minerals Survey for England and Wales: British Geological Survey, May 2011 (Department for Communities and Local Government, Welsh Assembly Government); Personal communication from Dr. Joseph Mankelow, British Geological Survey: 22 June, 2012. Duty to cooperate interaction with Hampshire County Council, Somerset County Council, Wiltshire County Council and Devon County Council.

1.55. Table 2 illustrates imports to and exports from BDP. Approximately half of the land-won sand and gravel produced in Dorset is used within the county (including Bournemouth and Poole), with the rest being exported to other parts of the country. The main recipients of exported material are Somerset, Hampshire, Devon and Wiltshire, followed by London and assorted other authorities in the south of England. Of the material consumed within Dorset, by far the majority is produced within Dorset. There are limited imports from other authorities, with the largest source being Hampshire followed by Gloucestershire and West Sussex and Devon and Wiltshire.

1.56. The 2009 Aggregate Minerals Survey (AMS) commissioned by the Department for Communities and Local Government (CLG) and undertaken and coordinated by the British Geological Survey (BGS) provided broad land-won sand and gravel import and export figures for MPAs/ regions. The data within the AMS along with additional information obtained directly from the BGS has provided further information on imports into Dorset, showing that overall Dorset is a net exporter of land-won sand and gravel, supplying Hampshire and other authorities.

Capacity and Constraints

1.57. Individual sites have limits placed on their working by the planning permission under which they are worked. As with other aggregate sources, production of sand and gravel is market driven, with increased demand leading to increased supply. In periods of lower economic growth and demand for construction, there will be less development of sand and gravel sites and less production at such sites. The landscape and environmental sensitivity of BDP also set limits on the development of mineral sites. Policy AS1 of the Minerals Strategy notes that:

Sites will only be considered where it has been demonstrated that possible effects (including those related to hydrology, displacement of recreation, species, proximity, land management and restoration) that might arise from the development would not adversely affect the integrity of the Dorset Heaths SAC, Dorset Heathlands SPA and Dorset Heathland Ramsar site either alone or in combination with other plans or projects.

1.58. The sand and gravel landbank remains above the requisite 7 years (see paragraph 1.51). The Minerals Strategy sets out the commitment to maintain landbanks at 7 years and the emerging Mineral Sites Plan will demonstrate how this can be achieved. At present it is considered that there are adequate sand and gravel reserves in BDP to maintain production of sand and gravel.

1.59. Environmental and landscape constraints could act to limit production. A lack of landowners willing to release their land for aggregates development could also be a constraint. In such a case there would need to be a reassessment of the provision for sand and gravel production but it is not expected that these issues will threaten production in the near future. This will become clearer as the sites identified for possible inclusion in the Mineral Sites Plan undergo sustainability appraisal.

Conclusions/Review

1.60. Overall supply of aggregates in Bournemouth, Dorset and Poole is from a variety of sources – land-won sand and gravel, crushed rock, recycled aggregates, marine dredged aggregate and wharf/rail depot imports – as illustrated in Table 1. This indicates generally steady production of each category of aggregate, with land won sand and gravel comprising by far the greatest share of aggregate produced.

1.61. The strategy for aggregate production is to maintain a level of production that will allow Dorset to meet its needs and also supply land-won sand and gravel to other authorities. The Minerals Strategy relies on the rolling ten year average to set the level of annual production and there is confidence that this can be delivered. These figures indicate that there is capacity for Bournemouth, Dorset and Poole to maintain production of aggregates, for local markets and for export. Whether this is in fact possible will be determined through the production of the Minerals Sites Plan document.

1.62. The amount of sand and gravel that will need to be provided for through the Mineral Sites Document can be calculated as;

Annual production figure x Years of the plan (2012 to 2028) - Existing Permitted Reserves at end of 2012 = Requirement for new sites

(1.57mt x 16 years) – 18.3 mt = 6.82 mt

1.63. There will be a need to identify new sand and gravel sites containing at least 6.82 mt in the Mineral Sites Document **if the end-date of that document is taken as 2028, the end-date of the Minerals Strategy.** It has not yet been decided what the end-date of the Mineral Sites Plan should be – if it will be later than this, then the amount of aggregate to be provided for will be greater. For example, if the end-date of 2030 is used, reflecting the two year gap since the figures used in the Minerals Strategy, the amount of aggregate to be provided for would become:

(1.57mt x 18 years) – 18.3 mt = 9.96 mt

1.64. The Minerals Strategy considers that it should be possible to supply this level of land-won sand and gravel from within Bournemouth, Dorset and Poole, despite the high level of environmental constraints affecting future mineral working. Deliverability of annual aggregate supply is a key issue. The Mineral Sites Plan must demonstrate with reasonable certainty that the appropriate annual level of production can be achieved.

1.65. Table 3 provides a comparison of average annual production or level of import for each source of aggregate based (with one exception) on 2012 levels, against an estimate of maximum annual production or level of import, to indicate where there could be potential for increased provision. Such capacity (surplus) is shown in the ‘Balance’ column. No figure is given for road imports as there is no limit set on these (apart from whatever the market will bear) and it is difficult to monitor these year by year. Rail imports are included, as the potential remains to re-open the depot.

Table 3: Current Production Levels and Capacity (figures in tonnes per annum.)

Aggregate Type/Source	2012 Production/Imports	Potential maximum production/imports	Deficit (-) or Surplus (+)
Land-won sand and gravel	1,430,000	1,570,000[1]	+140,000
Crushed Rock – local land won	150,000	240,000[1]	+ 90,000
Crushed Rock – rail imports	38,000	100,000 [3]	+ 62,000
Crushed Rock – road imports	c. 300,000 (2009 estimate)	300,000[2]	0
Marine dredged sand and gravel	90,000	100,000[2]	+ 10,000
Recycled Aggregates	c. 350,000	500,000[4]	+ 150,000
Totals	**2,358,000**	**2,810,000**	+ **452,000**

Notes
1. Potential capacity values for land-won sand and gravel and for crushed rock have used the current rolling 10 year average as set out in the Submission Minerals Strategy.
2. Estimate based on past production.
3. Based on peak past production – from 2013 rail depot is not operational, but facilities remain.
4. Estimated from permitted capacity.

Local land-won sand and gravel and crushed rock

1.66. There are no anticipated, upcoming demands for land-won sand and gravel and crushed rock locally or further field that are greater than would normally be expected, placing greater demand on BDP reserves.

1.67. For local land won sand and gravel and crushed rock, there is capacity for increase in two ways. Firstly, current production for sand and gravel and crushed rock is less than the current annual supply figures (the rolling 10-year average) which implies there is capacity in the short to medium term for production to increase to the level of whatever the current rolling 10-year average is provided the market demand was present. If the demand remains at a sustained high level then production could increase beyond this level, provided there were no planning (or other) constraints (e.g. numbers of lorry movements) coming into play. Table 1 indicates that for land-won sand and gravel, in 2008 production was 1.67 mt. For crushed rock, in 2008 production was 0.29 mt. These figures are relatively recent and demonstrate that aggregate production has reached this level and could do so again (or likely go even higher) if the demand was there. However, production at this level would see the landbank reduce at a faster level and could trigger a review of the aggregates provision strategy of the Minerals Strategy.

1.68. Secondly, since the rolling 10-year average figure will vary annually depending on production, should production consistently increase this will be reflected in the annual capacity figure – increasing production will result in an increasing production capacity level. This provides flexibility for increased

production in the medium to longer term, although sustained increases could begin to place unacceptable environmental and social pressures on the local environment and again could trigger a review of the Mineral Planning Authorities' approach to aggregate provision. In addition, the Mineral Planning Authorities will take into consideration the 3 year average of production to reflect shorter-term changes in demand.

1.69. Policy AS1 of the Minerals Strategy makes provision for sourcing supply from alternative locations if identified sites in the Mineral Sites Plan prove inadequate for any reason, as follows:

An adequate and steady supply of locally extracted sand and gravel will be provided by maintaining a landbank of permitted sand and gravel reserves equivalent to at least 7years' worth of supply over the period to 2028, based on the current agreed local annual supply requirement for Bournemouth, Dorset and Poole This will be achieved from:

i. Remaining reserves at existing permitted sites;
ii. New sand and gravel sites, including extensions to existing permitted sites, as identified in the Mineral Sites Plan;
iii. New sites not identified in the Mineral Sites Plan, provided:
- *a. Monitoring indicates that the sites identified in ii. above are unlikely to meet Bournemouth, Dorset and Poole's landbank requirements; or*
- *b. The proposed development is for the prior extraction of aggregate in advance of non-minerals development; or*
- *c. The development is part of a proposal for another beneficial use; or*
- *d. The development is for a specific local requirement.*

Rail Imported crushed rock

1.70. For rail imported crushed rock, as noted earlier the potential currently exists for the depot to be re-opened. Although no imports are expected, the capacity remains and has been included in the overall capacity for aggregate supply. Supply will be market driven.

Road imported crushed rock

1.71. It is difficult to put a firm figure on levels of input from road imported crushed rock as the amount brought in will depend largely on the market. Given that it is likely that Somerset will maintain its production of crushed rock and provided the demand exists in Dorset and supply from Somerset by road is the cheapest option, there is arguably no limit (at least, in terms of the available aggregate supply) to the amount of aggregate that will come in by road.

Marine dredged sand and gravel

1.72. Although the area licensed for dredging has decreased, it is considered that the remaining resource is adequate to maintain imports to Poole. Under current arrangements there is limited scope for the increased production from this source. The limits are primarily due to limited capacity at the wharf. No significant increases are expected here.

Recycled aggregates

1.73. This LAA has shown a continued increase in production of recycled aggregates, although production is nowhere near potential capacity. It is not known how long production of recycled aggregate can continue increasing, taking into account the market and the supply of material to be recycled. Although the potential for increase exists in terms of permitted capacity, to achieve this increased supply will rely on the market for the product and availability of material to be processed. Recycled aggregates play an important role in offsetting the need for land-won aggregates.

Comment

1.74. Minerals can only be worked where they are found and much of the BDP environment is highly protected and under pressure from a range of other uses/constraints. Environmental designations (including European, national and local), landscape designations and other designations (e.g. the World Heritage Site) all can (and do) restrict minerals development. Similarly, the water environment (including floodplains, Source Protection Zones, aquifers, groundwater depth and geology) can also restrict development. Minerals development has the potential to significantly affect settlements and tourism interests, although impacts should be mitigated if the development is properly located, designed and managed. However, the level of settlement and tourist interest in Dorset does have a limiting effect on minerals development.

1.75. Table 3 indicates that there is likely to be capacity for increased production of aggregate produced or supplied to Bournemouth, Dorset and Poole should market demand exist/increase. It is considered that the levels of aggregate provision identified in the Minerals Strategy can be delivered, but this approach (particularly regarding provision of land-won sand and gravel and crushed rock) will be rigorously tested during the production of the Mineral Sites Plan. In order to respond to unforeseen rises in demand for sand and gravel and crushed rock, the Minerals Strategy will be subject to robust monitoring of all policies so that production can be related to supply/demand and the effectiveness of the policies at delivering minerals for BDP and surrounding areas can be continuously assessed.