Bournemouth, Dorset and Poole

Local Aggregates Assessment 2013

incorporating data up to and including 2013

Bournemouth Borough Council
Dorset County Council
Borough of Poole

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Contents

Background

1.1. This Local Aggregate Assessment (LAA) reviews provision of aggregates from various sources in the Bournemouth, Dorset and Poole Councils (BDP) area and considers likely future demand for, and feasibility of supply of, aggregates for the future. This 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, essential requirements 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, including 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. The National Planning Policy Framework (NPPF) advises in paragraph 145 that "Minerals Planning Authorities should plan for a 'steady and adequate supply of aggregates through preparation of a LAA." The National Planning Policy Guidance (NPPG) refers to LAAs containing three elements:

- a forecast of the demand for aggregates based on both the rolling average of 10-years sales data and other relevant local information;
- an analysis of all aggregate supply options, as indicated by landbanks, mineral plan allocations and capacity data e.g. marine licenses for marine aggregate extraction, recycled aggregates and the potential throughputs from wharves; and
- an assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or a surplus of supply and, if the former, how this is being addressed

1.4. Local minerals policy is set by the Bournemouth, Dorset and Poole Minerals Strategy, which was adopted by all three Authorities in May 2014. It sets out the strategy for the supply of minerals, including aggregates, up to 2028. Work is in progress on a Mineral Sites Plan (MSP) for Bournemouth, Dorset and Poole (BDP) to identify the sites that will deliver the various minerals strategies set out in the Minerals Strategy.

1.5. The LAA describes current and future aggregates supply and consumption and how future supply will be met. It includes data collected for 2012 and 2013. It also relies on 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.

Total Aggregate Supply

1.6. Table 1 and Figure 1 below show the balance of supply of aggregates for Bournemouth, Dorset and Poole. Of the range of sources, land-won sand and gravel is by far the greatest supplier and showed an increase in 2013. For Poole Formation sand, production in 2013 was the highest level since 2001. 2013 also saw a fall in production of recycled aggregate and no rail import of crushed rock.

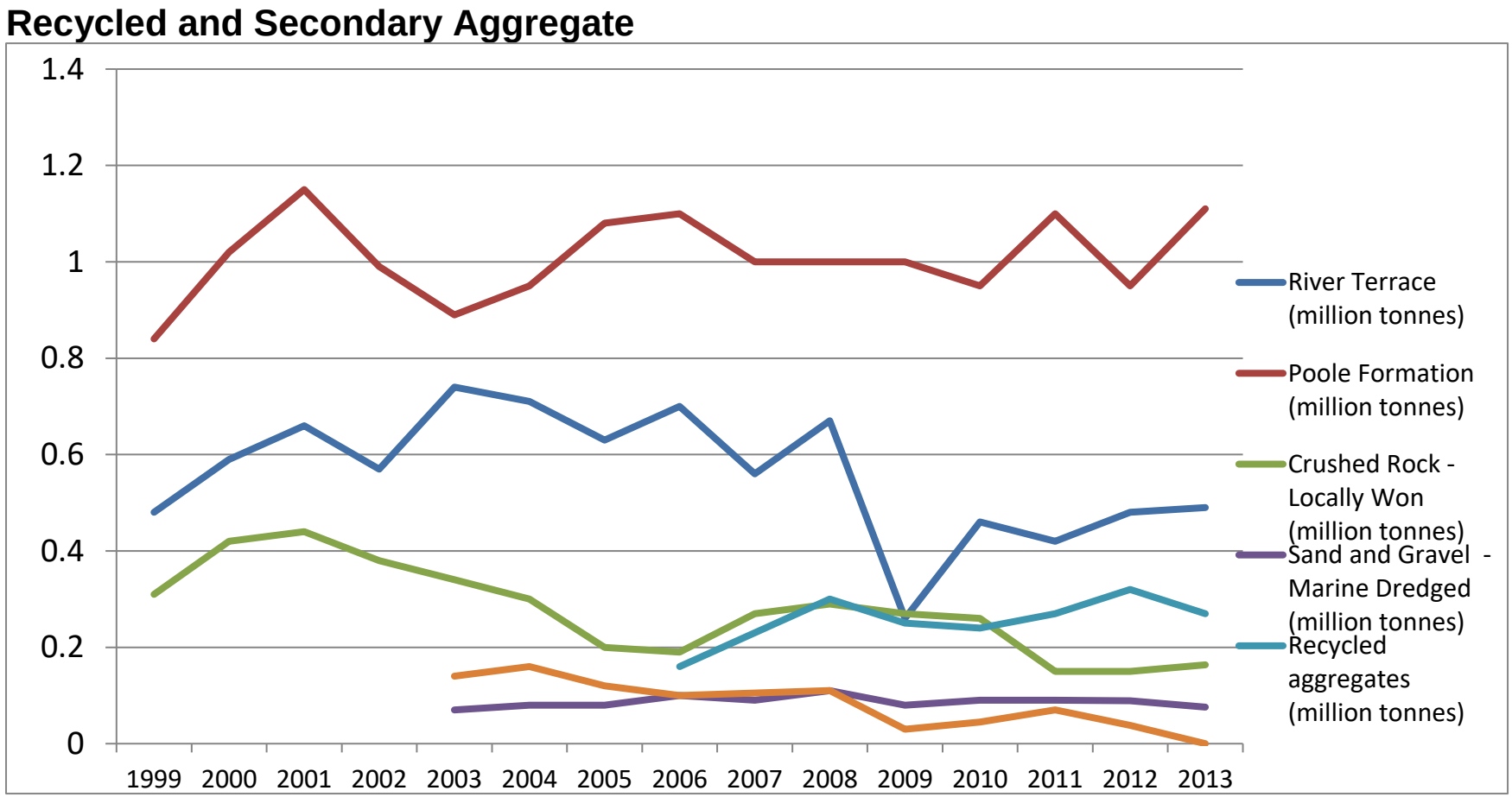
Table 1 – Aggregate Supply

Aggregate sources	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	% of supply	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	0.49	**23.23%**	**0.54**	**0.46**
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	1.11	**56.62%**	**1.02**	**1.05**
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**	**1.60**		**1.56**	**1.52**
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	0.16	**7.75%**	**0.22**	**0.15**
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	0.0	**0%**	**0.08**	**0.04**
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**	**0.16**		**0.30**	**0.19**
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	0.08	**3.61%**	**0.09**	**0.09**
Recycled aggregates	Not available							0.16	0.23	0.3	0.25	0.24	0.27	0.32	0.27	**12.8%**	**0.26**	**0.29**
Total production	Not available							**2.35**	**2.26**	**2.48**	**1.89**	**2.05**	**2.1**	**2.03**	**2.11**	**100%**	**2.16**	**2.08**

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 8 year average and 3 year average.
5) Averages for 'Total Production' are for 8 and 3 years only.
6) Information for Crushed Rock imports by road are not included as there is no firm data to support them.

Figure 1: Aggregate Supply



Background

1.7. Recycled and secondary aggregates are an important part of the total aggregate supply in BDP and help 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. Recent survey work indicates that the 8-year average of production is approximately 260,000 tonnes per annum (tpa) (or potentially higher, as discussed below).

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, usually after some form of processing. This processing can include screening, sorting, crushing, washing or blending with land-won aggregate.

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.

1.10. 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.

Demand

1.11. It is difficult to assess 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. Data relating to the production of recycled aggregate in BDP is set out in Table 2. Data records do not yet extend to 10 years. Average output over the past three years has been in the region of 290,000 tonnes per year and over the past eight years approximately 260,000 tonnes per year.

Table 2: Recycled Aggregate production, 2006 – 2013 (million tonnes)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	8 YEAR AVERAGE	3 YEAR AVERAGE
Recycled aggregates	Data not available							0.16	0.23	0.3	0.25	0.24	0.27	0.32	0.27	**0.26**	**0.29**

Source: *Aggregate Monitoring Surveys, 2006-2013*

Supply

1.12. The total permitted capacity for aggregate recycling production is over 580,000 tonnes. There have been no recent new permissions. Although potential capacity is significantly higher than average sales, this does not mean that these higher levels will be realised. Availability of supply of material to be recycled together with market demand are considered to be the drivers of production. In 2013, the amount of recycled aggregate produced declined. The reason for this decline is not known.

1.13. In 2012 there were thirteen fixed 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 Facilities

1.14. 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 from mobile plant is now even higher.

1.15. Applying an 80/20 split to the 2013 BDP figures, the 3 year average production figure could be around 360,000 tonnes per annum, and the 2013 production could have been as high as 330,000 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/Exports

1.16. It is assumed that, in areas close to the county boundary, recycled material could travel to and from neighbouring minerals planning authority areas if market demand existed. 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 existing export/import relationship will continue.

Future Supply

1.17. Constraints will include:

- actual availability of material to be recycled;
- 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.

1.18. The 2014 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.

1.19. The general production trend has been upwards until 2013, when there was a reduction in output. The reason for this is not known. Limited data is available on projected arisings of construction, demolition and excavation (CDE) waste, but it is assumed that these will increase, particularly as construction increases in line with improvements in the economy. It is assumed that production of recycled aggregates will increase again, particularly if market demand and the supply of material to be recycled increase.

1.20. Demand will be affected by the limited range of applications of the product, the availability/price of other sources of aggregate and whether recycled aggregate would be technically suitable for specific needs. As the 2014 Minerals Strategy encourages increased production and permitted capacity far exceeds current supply, it is expected that supply will increase as dictated by market demand and subject to availability of material to be recycled.

Marine-dredged Sand and Gravel

Background

1.21. 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

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

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.

1.22. 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. Mineral rights for marine sand and gravel are owned by the Crown Estate, and extraction can only take place following the award of a marine licence by the Marine Management Organisation. The marine aggregate landed at Poole Wharf is from the South Coast dredging region. Figure 3 below illustrates the resource and licenced dredging areas around the south coast. The marine dredged sand/gravel is used primarily as a concreting aggregate, making a relatively small but important contribution to the overall need for minerals in Bournemouth, Dorset and Poole.

1.23. Marine dredged aggregate is also used for beach nourishment/replenishment, in Bournemouth and Poole. Between 1970 and 2010, Bournemouth Council has taken some 4,800,000 m^3 of material from various sites - Pot Bank in 1970 & 1974, Poole Harbour Entrance in 1988/90 and Area 451 (approximately 50 miles distant) in 2006/10. No material has been placed on the beach since 2010 and the next replenishment is planned for 2015. Bournemouth plans to import 210,000 m^3 every 3 years (2015, 2018 and onwards). In addition, Bournemouth Council proposes to import 144,000 m^3 in 2015 to restore material lost in storms over the winter of 2013/2014. That will be added previously planned 210,000 m^3 to make 354,000 m^3 in 2015. Poole Council uses material dredged from the main channel of Poole Harbour for the source of their beach replenishment. In 2003, 88,000 m^3 of sand was put on the beach; in 2005/06, 405,000 m^3 was spread and starting in November of 2014 some 40,000 m^3 will be spread.

Demand

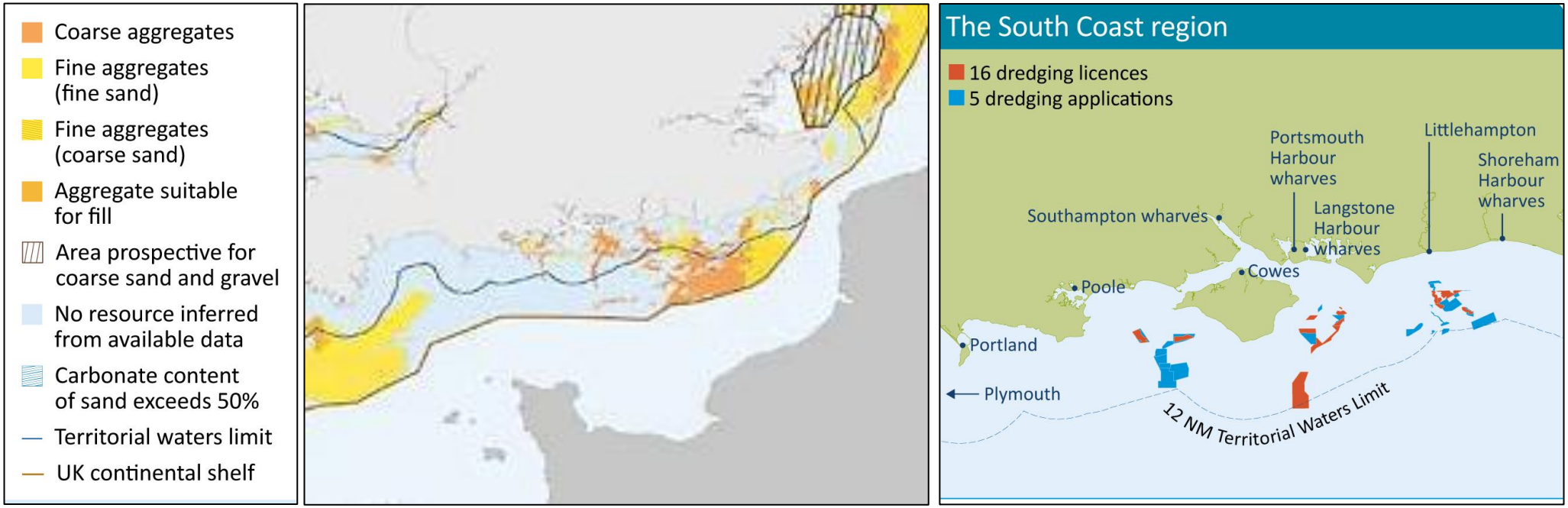
1.24. The only wharf currently landing marine dredged aggregates is Poole Wharf, operated by CEMEX in the Port of Poole. Landings have been relatively constant at around 90,000 tonnes per annum and are shown in Table 3.

Table 3: Marine Dredged Sand and Gravel, 2003 – 2013 (million tonnes) Source: Aggregate Monitoring Surveys, 2003-2013

Aggregate sources	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10 YEAR AVERAGE	3 YEAR AVERAGE
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	0.08	**0.09**	**0.09**

Figure 3: Marine Sand and Gravel Resources and Dredging Licences

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



(Source: Marine Aggregates Capability and Portfolio 2013, Crown Estate).

Imports/Exports

1.25. 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 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[4].

[4] 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.

Future Supply

1.26. As with recycled aggregate, there is no requirement to provide for a landbank for marine aggregate. 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. The wharf at Poole Port is safeguarded to protect its function. It has no planning restrictions regarding imports of aggregate. Capacity is influenced by factors such as the size and availability of dredgers, the permitted rates of dredging and then the capacity of the wharf to handle dredgers and the navigational restrictions. Road access to the port and market demand are also relevant.

1.27. The *Marine Aggregates Capability and Portfolio 2013* (Crown Estate) indicates that for the South Coast, the total current primary reserves[5] are 50.14 million tonnes, with a 10 year annual average offtake of 4.23 million tonnes and (as of 31 December 2012) a maximum annual permitted offtake of 8.70 million tonnes. This equates to a land bank of almost 12 years, indicating that a continuation of supply (or even an increase, should the need arise) is expected to be possible from this source.

1.28. Industry notes that while the wharf in Poole Harbour has some constraints (related to access to the berth, which requires supplying vessels to 'book in'), this is not believed to represent a constraint that limits the supply to the historic levels of around 90,000 tonnes. Instead, the level of supply provided relates to the scale of market demand that exists for marine products, compared to the wider portfolio of supply options. If the market demand altered or the balance of the supply portfolio changed, marine supplies could potentially play a larger role if required. it is understood from the operator that there is the potential for further tonnage to be landed should the market demand exist.

[5] These are the current licensed production areas.

Crushed Rock

Background

1.29. 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 on Portland also provide offcuts and wastage that can be crushed for aggregate use.

1.30. 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.

1.31. 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. It does not include mining permissions.

1.32. Crushed rock also enters BDP from elsewhere, but principally from Somerset both by road and by rail. This is much harder Carboniferous limestone suitable for road and other construction uses.

Demand

Table 4: Crushed Rock, 1999/2003 – 2013 (million tonnes)

Aggregate sources	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10 YEAR AVERAGE	3 YEAR AVERAGE
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	0.16	**0.22**	**0.15**
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	0.0	**0.08**	**0.04**

Source: *Aggregate Monitoring Surveys, 1999-2013*

1.33. Sales of land-won and rail imported crushed rock are illustrated in Table 4. Road imports are not included as there is currently limited data on these. Although there has been some reduction in production in recent years, production in 2013 showed an increase.

1.34. 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[6]. This represents a 35% decline, compared to a 39% decline for Dorset for the same time period.

Supply

1.35. **Importation of Crushed Granite**: Crushed granite is imported into Poole Wharf from Northern Ireland for exclusive use in an asphalt producing plant in Poole. The amount imported relates to demand for asphalt in the area. For confidentiality reasons figures are not quoted.

1.36. **Rail Imports**: Hamworthy rail depot in Poole, prior to its closure in 2012, received crushed limestone from Whatley Quarry in Somerset for local distribution and use. An average of approximately 90,000 tpa was imported up to the end of 2012, while the site was still active. No aggregate was imported in 2013 as the depot is currently not operational. However, the facility remains and its re-opening remains an option should the operator wish to resume imports.

1.37. 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.

1.38. 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. On this line, and the main line from London to Weymouth, new depots or the expansion of existing depots are encouraged through Policy AS 4 of the Minerals Strategy 2014. No new rail depots have been nominated to the Mineral Planning Authorities through the call for sites carried out as part of production of the Mineral Sites Plan.

1.39. For rail imported crushed rock, the potential currently exists for the Hamworthy depot to be re-opened and for imports of around 100,000 tpa to be resumed, dependent on demand and other factors.

1.40. **Road imports:** 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. Of the 693,000 tonnes of crushed rock consumed in Bournemouth, Dorset and Poole in 2009, some 55% came from Somerset . Since in 2009 approximately 30,000 tonnes were imported by rail to Hamworthy Depot, this indicates that approximately 350,000 tonnes were imported by road from Somerset. Some of this is likely to have come in as reverse loads in lorries taking sand to Somerset from Dorset (in 2009, approximately 290,000 tonnes).

1.41. The Somerset Local Aggregate Assessment 2014 notes that the county reserve of crushed rock is 425 million tonnes, which is estimated to last for some 31 years. 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.

1.42. **Land-won crushed rock:** 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[7] to provide for the maintenance for a landbank of at least 10 years for crushed rock, based on a rolling 10-

[6] 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.

[7] National Planning Policy Framework, paragraph 145.

year average of crushed rock production. Total sales of crushed rock in 2012 were approximately 150,000 tonnes and in 2013, 160,000 tonnes. The 10 year average of production from 2004 to 2013 is approximately 220,000 tonnes per annum (tpa). A conservative estimate of the remaining reserves of crushed rock in Dorset is approximately 12 mt, which corresponds to a landbank of around 54 years, at a consumption level of 0.22 mtpa. This does not take into account possible waste stone from the mines.

12 mt / 0.22 mtpa = 54 years

1.43. This is well beyond the life of the 2014 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 aggregate – in this case crushed rock - will be regularly revised by the Mineral Planning Authorities through the LAA.

Exports and Imports

1.44. In 2009, 693,000 tonnes of crushed rock were consumed in Dorset[8]. 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.

Future supply

1.45. The environment of both Portland and Purbeck is sensitive to new quarry development. The 2014 Minerals Strategy (Policy AS 3) 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. Mining is encouraged on Portland, and unwanted stone from mining operations can be crushed for aggregate.

1.46. Swanworth Quarry in Purbeck is within an Area of Outstanding Natural Beauty (AONB) and the National Planning Policy Framework 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 gravel may be appropriate in exceptional circumstances. Although the reference in the 2014 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.

1.47. On Portland where the majority of the crushed rock quarries are, production of crushed rock is not the primary business of these quarries and it is the unwanted stone that is crushed. In addition, the nature of the Jurassic limestone limits the uses of the crushed rock. The quarry in Purbeck also produces softer Jurassic limestone and is potentially constrained by landscape and other designations.

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

1.48. Significant increases in demand for crushed rock are not expected. As noted in paragraphs 1.42 and 1.43, the crushed rock landbank is considered more than adequate to meet any increases in demand that may occur. There is potential for the rail depot at Hamworthy to be re-opened and there is also potential for increased road imports.

Land-won sand and gravel

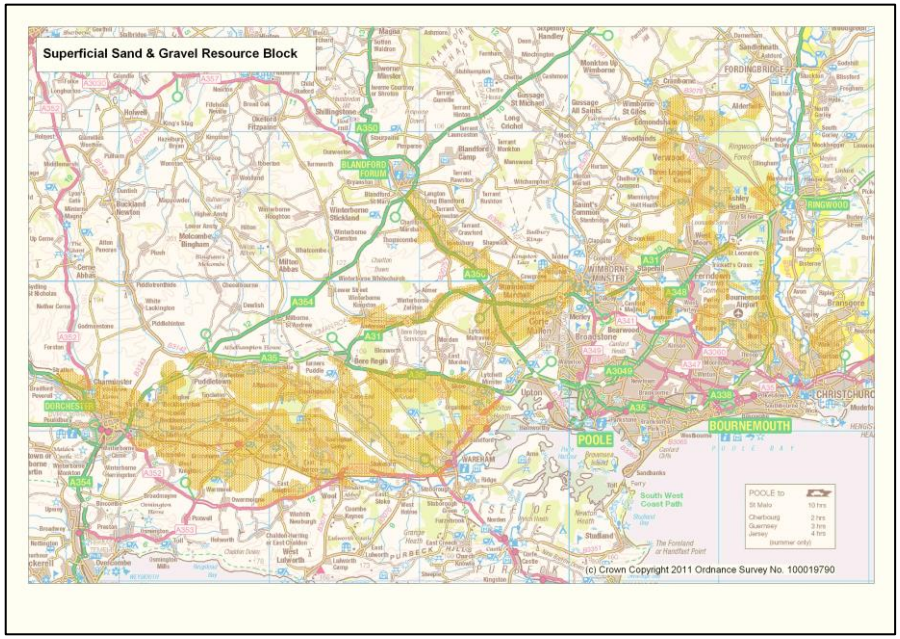
Background

1.49. 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. 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.

1.50. 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.

1.51. 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, alongside or after, the ball clay extraction. This sand and gravel, both above and below the clay, is treated as a primary aggregate in BDP. The 2014 Minerals Strategy restricts the extraction of this sand and gravel resource associated with ball clay within the Dorset AONB.

1.52. The Bedrock and Superficial Resource Blocks, as designated through the Bournemouth, Dorset and Poole Minerals Strategy 2014, are shown below in Figure 4. These are the areas where future aggregate extraction will be located.



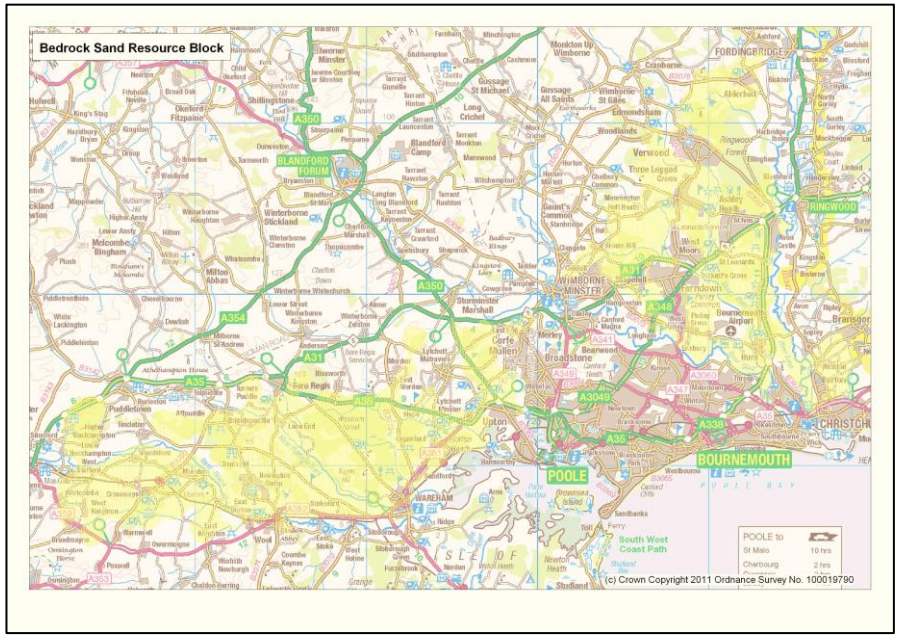


Figure 4: Superficial and Bedrock Resource Blocks

1.53. Overall land-won sand and gravel production for the south west sub-national area has declined from 5,791,000 tonnes in 20019 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 reason for Dorset's maintenance of production, compared with the fall outside of Dorset, is not clear but could be due to various factors including levels of construction activity in the main markets (Dorset, Hampshire, London, Devon, Somerset), the county's large landbank of permitted reserves and productive capacity.

1.54. For land won sand and gravel Dorset continues to be the main producer, a position it has held since the early 1990s with production generally exceeding 1.5 mt each year between 1994 and 2008 but peaking at 1.8 mt in 2001. Dorset continues to be the main production area and in 2012 accounted for about 46% of sales. In 2012 approximately 56% of the South West's reserves were held at sites in Dorset which had a landbank of about 14 years[10]. Sand and gravel from Dorset is supplied to south-east England, including London, and elsewhere in the south-west.

1.55. Sidings at Wool serve as a railhead to load sand extracted at Warmwell Quarry near Dorchester to be sent to London. 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.

Demand

1.56. The general trend has been for fairly steady levels of production with consistently higher levels of production of Poole Formation sand over River Terrace sand and gravel. As shown in Table 5 below, production fell to its lowest level of only 1.26 mt in 2009 but recovered to 1.41 mt in 2010 and then rose again to 1.52 mt in 2011, only to fall back to 1.43 mt in 2012, a decrease of approximately 90,000 tonnes. For 2013, production rose to 1.6 mt, consisting of 0.49 mt for sharp sand and gravel and 1.11 mt for Poole Formation. The figure of 1.6 mt is in excess of the 10 year average of 1.56 mt.

Table 5: Land Won Sand and Gravel 1999 – 2013 (million tonnes)

Aggregate sources	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	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	0.49	**0.54**	**0.46**
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	1.11	**1.02**	**1.05**
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**	**1.60**	**1.56**	**1.52**

Source: *Aggregate Monitoring Surveys, 1999-2013*

[9]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.

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

Supply

1.57. For sand and gravel, total sales during the period 2004 to 2013 (the last 10 years) amounted to approximately 15.62 mt, an average of 1.56 mt. The 'rolling basis' of the methodology means that the appropriate annual supply for sand and gravel will be regularly revised by the Mineral Planning Authority through the LAA. To maintain the necessary level of provision, Policy AS1 of the Bournemouth, Dorset and Poole Minerals Strategy states that:

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

1.58. The 'agreed local annual supply requirement' is currently the rolling 10 year average, assessed through the LAA each year. At the end of 2013, there were just over 16.5 mt of permitted sand and gravel reserves in Dorset. At the current 10-year average level of production (1.56 mtpa) this would last approximately 10.6 years if no further permissions were granted:

Permitted Reserves / Level of Provision = Remaining landbank

16.5 mt / 1.56 mtpa = 10.6 years

1.59. The overall sand and gravel landbank at the 10 year average rate of production is 10.6 years. For comparison purposes, at the rate of the 3 year average (1.52 mtpa) the landbank would be:

16.5 mt / 1.52 mtpa = 10.9 years

1.60. And at the rate of supply for 2013 (1.6 mtpa) which is in excess of the 10 year average, it would be:

16.5 mt / 1.6 mtpa = 10.3 years

1.61. At the start of 2014 the Dorset landbank was over 10 years, but if production continues at or near current levels then this figure will fall unless more permissions are granted.

River Terrace and Poole Formation landbanks

1.62. 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.

1.63. At the end of 2013, estimated reserves for River Terrace aggregate were approximately 8 mt and estimated reserves for Poole Formation aggregate were approximately 8.5 mt. The average annual supply figure of 1.56 mt for 2004-2012 can be split pro rata as follows, on the basis of average production levels between 2004 and 2013:

- 34.6% for river terrace/plateau sand and gravel (1.56 x 34.6% = 0.54 mtpa)
- 65.4% for Poole Formation sand (1.56 x 65.4% = 1.02 mtpa)

1.64. When these separate provision levels are applied to the 2013 reserves of Poole Formation and River Terrace aggregate, this gives indicative landbanks of around 14.7 years for River Terrace sand and gravel and 8.3 years for Poole Formation sand. This exercise will be repeated annually to identify possible shortfalls in provision, as required by Policy AS 2 of the 2014 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.

Imports and Exports

1.65. Table 6 illustrates exports from BDP and Table 7 imports to Bournemouth, Dorset and Poole **for 2009**. 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.

1.66. 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.

Table 6: Exports of sand and gravel from Bournemouth, Dorset and Poole (based on 2009[11] data.)

Destination of exports from Bournemouth, Dorset and Poole	Relative proportions exported
Somewhere in Greater London	c. 5%
West London	
Berkshire	<1%
Hampshire and IOW	c. 7% (102,000)
Kent and Medway	0.0%
Oxfordshire	<1%
Surrey	0.0%
West Sussex	<1%
Somewhere in South East	<2%
Avon	<5%
Cornwall	<1%
Devon	<10% (92,000 t)
Dorset	c. 47% (640,000 t) remains in Dorset
Gloucestershire	<2%
Somerset	c. 20% (290,000)
Wiltshire	c. 3% (37,000)
Somewhere in South West	<2%
Shropshire	<1%
South East Wales	<1%
Remainder of South Wales	
1,350,165 tonnes land-won sand and gravel were produced in Bournemouth, Dorset and Poole in 2009	

[11] 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.

Table 7: Imports of sand and gravel to Bournemouth, Dorset and Poole (based on 2009[12] data.)

Imported from	Relative proportions imported
Somewhere in Greater London	0%
West London	
Berkshire	0%
Hampshire and IOW	9.8% (68,000)
Kent and Medway	0%
Oxfordshire	0%
Surrey	0%
West Sussex	c. 2%
Elsewhere in South East	?
Avon	0%
Cornwall	0%
Devon	<1%
Dorset	c. 90% of sand and gravel used in Dorset is locally sourced
Gloucestershire	c. 2%
Somerset	0%
Wiltshire	<1%
Somewhere in South West	?
Shropshire	0%
South East Wales	0%
Remainder of South Wales	
696,000 tonnes land-won sand and gravel were consumed in Bournemouth, Dorset and Poole in 2009	

[12] 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.

Capacity and Constraints

1.67. 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 2014 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.

1.68. 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.

Meeting future demand

1.69. In the short term, demand will be met through continued production from the existing sites. The existing permitted reserve stood at 16.5 mt at the end of 2013. In February 2014 a new permission for ball clay extraction at Doreys was issued, including permission for the removal and sale of some 720,000 tonnes of sand and gravel. At the current annual production rate of 1.56 mtpa this equates to almost 6 months' supply. The sand and gravel landbank remains well above 10 years.

1.70. The sand and gravel landbank remains above the requisite 7 years. The 2014 Minerals Strategy sets out the commitment to maintain landbanks at 7 years and the emerging Mineral Sites Plan will test whether this can be achieved.

1.71. Future demand will be met through sites to be identified in the emerging Mineral Sites Plan. The amount of sand and gravel that will need to be provided for through this Plan can be calculated as:

Annual production figure x Years of the plan (2014 to 2030[13]) - Existing Permitted Reserves at end of 2013 = Requirement for new sites

(1.56 mt x 17 years) – 16.5 mt = 10.02 mt

1.72. Using the 2013 level of production of 1.6 mtpa, there would be a requirement to provide for a larger amount of aggregate:

(1.6 mt x 17 years) – 16.5 mt = 10.7 mt

1.73. Therefore there will be a need to identify new sand and gravel sites containing at least 10.02 mt (or 10.7 mt) in the Mineral Sites Document if the end-date of that document is taken as 2030. An end-date of 2030 gives just about a 15 year plan period. If the end-date of 2028 is used, to tie in with the Minerals Strategy 2014, the amount to be found will be less.

[13] **NB:** End-date to be confirmed.

(1.56 mt x 15 years) – 16.5 mt = 6.9 mt

1.74. At the 2013 rate of production, this would be:

(1.6 mt x 15 years) – 16.5 mt = 7.5 mt

1.75. Given the range of potential sites that have been nominated for consideration for inclusion in the Mineral Sites Plan following two separate 'Calls for Sites' and the resources potentially contained within these sites, it is considered possible that this total level could be achieved, despite the high level of environmental constraints affecting mineral working. However, this will not be known until further assessments, particularly Conservation Regulations Assessment (CRA) has been carried out on all the site nominations.

1.76. Deliverability of annual aggregate supply, at the agreed level of supply, will be the key issue and the Mineral Sites Plan must demonstrate with reasonable certainty that the appropriate annual level of production can be achieved. The Mineral Planning Authorities do not propose to simply identify enough sites that would be capable of meeting the total shortfall identified above. The Mineral Sites Plan will seek to identify adequate capacity to meet the current agreed local annual supply on a year-by-year basis during the lifetime of the Plan, as referred to in Policy AS1 of the 2014 Minerals Strategy.

1.77. It is likely that the emerging Mineral Sites Plan, in addition to the allocated sites, will include an area of search for additional sand and gravel sites based on the Resource Blocks illustrated in Figure 2 of this LAA. The area of search will assist in demonstrating that the Mineral Sites Plan will be capable of meeting demand for sand and gravel, should the allocated sites not be capable of delivering the required amount. Work on the preparation of the Mineral Sites Plan is continuing and it is expected that the next consultation will be in Summer 2015 at which time the sites favoured by the Mineral Planning Authorities will be identified.

Possible Future Demand from Built Development

1.78. To help assess the future demand for aggregates, recent and proposed housing development and other major infrastructure proposed in the sub region where appropriate reviewed. The LAA area covers two Housing Market Areas (HMAs). The Bournemouth / Poole HMA covers the local authorities to the east of the county – including Bournemouth, Poole, Christchurch, East Dorset, North Dorset and Purbeck. The Weymouth / Dorchester HMA covers West Dorset and Weymouth and Portland local authority areas.

1.79. The need for housing across the area has been assessed through a joint Strategic Housing Market Assessment (SHMA) covering the two HMAs in 2007/8[14]. This was updated in 2011[15] and forms the basis of the planned housing proposals in the adopted Local Plans for Bournemouth, Poole, Christchurch and East Dorset (working jointly) and Purbeck Councils. North Dorset District Council published a pre-submission Local Plan in 2013 with housing proposals based on the updated assessment. West Dorset and Weymouth Councils, working on a joint plan, also based the housing proposals in their submitted Local Plan on this evidence. However, due to concerns expressed by the Inspector appointed to examine their Plan, West Dorset and Weymouth and Portland Councils have recently commissioned a new assessment of housing need based on the latest government guidance. They published revised housing figures for consultation in August 2014.

1.80. In view of the changes in government advice and in the economy since the last SHMA update, the authorities in the Bournemouth / Poole HMA have now also commissioned a new SHMA. This work is due to be complete by the end of 2014 and will advise reviews of the current Plans.

1.81. Built development and associated infrastructure is a significant user of the county's aggregates. Table 8 shows the levels of housing development proposed in the Councils' adopted Plans or latest versions in the case of North Dorset, West Dorset and Weymouth and Portland Councils. Although the plans cover different time periods they give a good indication of the levels of housing development anticipated over the next 12 years at least.

1.82. Across the area as a whole, at least 2,800 new dwellings are planned per annum. This figure may change, possibly rising in coming years as Plans are updated in line with the requirements of the National Planning Policy Framework to meet the "objectively assessed need" for housing in the area. This may take effect relatively soon in those authorities in the North and West of the County who do not yet have an adopted Plan.

Past Levels of Development.

1.83. Table 9 shows the historic levels of housing development in Dorset over the 10 years 2004 - 2014. The average annual level of net dwelling completions across the three authorities is 2,604 – slightly lower than the bottom end of the range of proposed future development.

1.84. When the figures are considered in more detail a sharp divide can be seen in the level of development pre and post 2009, when the housing recession really began to bite in Dorset. Completions pre 2009 were over 3,000 every year, hitting 3,700 in 2005/6, whereas from 2009 onwards they have fallen below 2000 dwellings per annum. The three year average rate of completions for 2011-2014 is just under 1,800 dwellings. This is some 30% down on the 10 year average.

1.85. The higher rates of development seen in the earlier part of the decade indicate that, if the level of housing development does rise again in the future, the aggregate industry may need to be able to accommodate levels of 3,500 dwellings per annum over a period of several years. It has met demand at this

[14] Final Evidence Base for Bournemouth/Poole and Dorchester/Weymouth Housing Market Areas. June 2008.
[15] Bournemouth/ Poole and Dorchester /Weymouth Housing Market Areas – 2011 SHMA Update. Jan 2012.

level in the past. However, it will be important to keep monitoring the situation so that adjustments can be made to the apportionment figures if this is shown to be necessary.

Table 8: Proposed Housing Development in Local Plans / Development Plan Documents in Bournemouth, Dorset and Poole

Local Authority	Local Plan / DPD	Status	Plan period	Total Proposed dwellings	Annual average rate (dwells per annum)	Comments
Bournemouth Borough Council	Bournemouth Core Strategy	Adopted 2012	2006 – 2026	14,600	730	
Borough of Poole	Poole Core Strategy	Adopted 2009	2006 – 2026	10,000	500	Core Strategy review underway.
Christchurch Borough Council + East Dorset District Council	Christchurch and East Dorset Core Strategy	Adopted 2014	2013 – 2028	8,490	566	
North Dorset District Council	North Dorset Local Plan Part 1	Pre-submission 2013	2011 – 2026	4,200	280	Consultation on an alternative site in Blandford which will increase housing supply by 150 dwellings (10 dwellings per annum, dpa) concluded in September 2014.
Purbeck District Council	Purbeck Local Plan Part 1	Adopted 2012	2006 - 2027	2,520	120	Local Plan Part 1 Review underway
West Dorset District Council + Weymouth and Portland Borough Council	West Dorset, Weymouth and Portland Local Plan	Submitted 2013	2011 – 2031	12,340 - 13,220	617 – 661	Consultation on a revised strategy which will increase housing supply to 13,175 dwellings between 2011– 2028, (775 dpa) concluded in September 2014. The figures will be considered in the examination into the Plan.
Bournemouth, Dorset and Poole				**52,150 - 53,030**	**2,813 - 2,857**	**53,135 (2,981 dpa) including revisions.**

Source: Dorset County Council Spatial Planning - BDP Local Plan/Core Strategy Monitoring, September 2014.

Table 9: Historic Housing Development in Bournemouth, Dorset and Poole, Net Completions April 2004 – March 2014

Local Authority	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2004/5-2013/14	10 Year Average	2011/12 2013/14	3 Year Average
Christchurch	92	132	128	190	101	102	103	62	71	149	1,130	113	282	94
East Dorset	225	172	128	163	116	70	157	107	61	156	1,355	136	324	108
North Dorset	489	554	270	194	207	192	272	375	144	227	2,924	292	746	249
Purbeck	83	161	187	208	194	164	77	107	79	72	1,332	133	258	86
West Dorset	530	564	517	345	383	204	330	377	366	259	3,875	388	1002	334
Weymouth & Portland	290	359	188	275	410	150	130	169	204	113	2,288	229	486	162
DORSET	**1,709**	**1,942**	**1,418**	**1,375**	**1,411**	**882**	**1069**	**1197**	**925**	**976**	**12,904**	**1,290**	**3098**	**1033**
Bournemouth	1,096	960	1,089	1,534	1218	622	492	555	639	394	**8,599**	860	1588	529
Poole	413	828	666	619	685	421	257	187	208	257	**4,541**	454	652	217
Totals	**3,218**	**3,730**	**3,173**	**3,528**	**3,314**	**1,925**	**1,818**	**1,939**	**1,772**	**1,627**	**26,044**	**2,604**	**5,338**	**1,779**

Source: Dorset County Council, Spatial Planning - Residential Land Monitoring Records, September 2014.

Other infrastructure projects potentially significant to Bournemouth, Dorset and Poole.

1.86. The National Infrastructure Plan 2013 indicates that there are no proposed major infrastructure proposals identified within Dorset in the National Infrastructure Plan (December 2013), although it is noted that the Weymouth Relief Road was completed in the last 3 years. Table 10 indicates projects in neighbouring authorities and other areas that could possibly impact on future demand for aggregates in Dorset.

Table 10: Proposals in neighbouring areas.

Proposal	Location	Dates
Major Railway Station improvements	i) Reading, Berkshire	Started – completion due 2015.
	ii)Temple Meads, Bristol	To be confirmed.
Electricity Generation - Nuclear	Hinkley Point C, Somerset	Planned construction 2015 - 2023
Electricity Generation – Wind	Navitus Bay, off Hampshire/Dorset coast	**Still under assessment/consideration**
Highways Agency	Improvements to the hotspots of the A303, A30 and A358.	No date specified.
Local Authority Major Transport Schemes	A380 South Devon Link Road	Started – completion due 2015.

1.87. Both the Strategic Economic Plan "Transforming Dorset" prepared by the Dorset Local Enterprise Partnership and the Implementation Plan 2 (2014 – 17) of the Bournemouth, Dorset and Poole Local Transport Plan 3 highlight two major infrastructure projects planned in the next five years:

- Unlocking the potential of “Aviation Park” at Bournemouth Airport - a 59 hectare site for employment use with the potential to create 16,000 new jobs, by improvements to the A338 Spur Road and other local road improvements;
- Completion of the regeneration of the Port of Poole with the potential to accommodate 5,000 jobs and 2,000 homes by improvements to the highway network to supplement the completion of the Twin Sails Bridge in 2011, including improvements to the port and regeneration area.

Future Demand and Supply

1.88. 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 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.

1.89. The ability to deliver the levels of aggregate provision identified in the Minerals Strategy 2014, 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 2014 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. The LAA will specifically monitor aggregates production and landbanks. If monitoring indicates that Policy AS1 is failing to meet demand, this could trigger a review of the Minerals Strategy or the relevant parts of it.

Aggregate supply – current production and possible capacity

1.90. In Bournemouth, Dorset and Poole, in 2013, aggregate was sourced from:

- Recycled (12.8%)
- Marine dredged (3.6%)
- Crushed rock - both local land-won (7.8%) and road and (historically) rail imports
- Land-won sand and gravel (75.8%)

1.91. Total production in 2013 was 2.11 million tonnes, an increase of 800,000 tonnes over the 2012 figure of 2.03 million tonnes - even without any rail imported crushed rock. The 8 year average (taking account of the data availability for recycled aggregates) was 2.16 million tonnes and the three year average 2.08 million tonnes (See: Table 1 and Figure 1).

Recycled aggregate

1.92. In 2013 recycled aggregate production showed a decline. The reason for the decline is not known, but it is expected that production will increase again, provided the market for the product exists and a supply of CDE waste is available. As noted, production is likely to be higher than is indicated by recording production from permitted sites.

1.93. Maximum production during the time that production has been recorded was in 2012, when production was 320,000 tonnes. In the absence of any other indicator, this can be used as a proxy for maximum production. Permitted capacity is far in excess of this. Since production in 2013 was only 270,000 tonnes this indicates there is scope for an increase of at least 50,000 tonnes per annum and it is expected this could be higher.

Marine dredged sand and gravel

1.94. In 2013, the wharf at Poole imported approximately 80,000 tonnes of aggregate. Indications are that it could import more if demand existed. The highest amount imported since figures were recorded in 2003 was 110,000 tonnes in 2008. The 10 year average figure is 90,000 tonnes per annum. This indicates capacity for increased importation of at least 30,000 tonnes per annum.

Crushed rock – land-won

1.95. In 2013 some 160,000 tonnes of locally produced crushed rock was produced. For crushed rock, the 10 year average production level is 220,000 tonnes per annum. The highest level of annual production since 1999 was 440,000 in 2001. This indicates there is capacity to increase production by at least some 60,000 tonnes per annum. The landbank is far in excess of 10 years and it is considered that production could increase if demand was there and subject to other constraints such as access between quarries and markets.

Crushed rock – rail imported

1.96. In 2013 the Hamworthy rail depot was not in use and no crushed rock was imported from Somerset or elsewhere. The maximum amount imported since 2003 was 160,000 tonnes in 2004. The 10 year average, measured from 2003 to 2012, was some 90,000 tonnes per annum. Should imports resume, this indicates that there is capacity to import at least 90,000 tonnes per annum and this could increase provided demand existed and subject to other constraints.

Crushed rock – road imported

1.97. This is covered in paragraphs 1.40 and 1.41 of this LAA. The amount of crushed rock imported by road, primarily from Somerset, is unknown with any certainty but indications are that it is at least 300,000 tonnes per annum. There are no planning restrictions on the amount that can enter Dorset this way and Somerset's landbank is adequate to maintain production so subject to other constraints (e.g. traffic volumes) it is expected that supply will increase to meet demand.

Land-won sand and gravel

1.98. Land-won sand and gravel, particularly Poole Formation sand, is by far the highest proportion of the 'mix' of supply of aggregate for Bournemouth, Dorset and Poole and the markets supplied from Bournemouth, Dorset and Poole. The analysis presented indicates that land-won sand and gravel shows steady levels of production, with an increase in 2013. Production in 2013 exceeded both the 10 year average and the 3 year average. This is likely to be a response to a general upturn in development in a strengthening economy. It is also noted that the rate of housing completions, one possible measure of future demand, is likely to increase in the future although no sharp, short-term increases are expected. There are no other projects likely to lead to sharp, sudden changes in demand. However, as economic improvement continues, demand is expected to continue to rise. There is no certainty that the upturn in economic activity will continue.

1.99. Future production will be met from existing permitted reserves together with the sites and areas to be identified and allocated through the emerging Mineral Sites Plan.

1.100. If demand for land-won sand and gravel remains at a sustained high level then production could remain above the 10 year average, 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

2005 production was 1.71 mt and in 2008 production was 1.67 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 2014 Minerals Strategy.

1.101. If production continues to exceed the 10 year average, the Mineral Planning Authority can either continue to use the 10 year average figure to estimate the size of the landbank and wait to see if the level of increase is maintained or falls off; or, use the actual, current production figure to determine the landbank or some other approach could be adopted such as adding a contingency figure (e.g. 10%) to the 10 year average or even returning to the most-recent aggregate apportionment. For land-won sand and gravel for Dorset, this was 1.97 mtpa.

1.102. When the 2013 production figure is used, the landbank remains above 10 years and is not much less than when the 10 year average figure is used. All the other sources of aggregate demonstrate capacity for some increase, should demand increase. The Mineral Planning Authorities have therefore decided at this time to continue to use the 10 year average figure of 1.56 mtpa as the locally agreed figure to establish the landbank for land-won sand and gravel. Production levels will be reviewed when the 2014 figures are available and the next iteration of the LAA is being prepared.

Next 4-year survey

1.103. A detailed 4-yearly survey is expected in 2015 and this will provide more detailed information on aggregate supply and demand.