HAMPSHIRE, PORTSMOUTH, SOUTHAMPTON, NEW FOREST NATIONAL PARK & SOUTH DOWNS NATIONAL PARK

Local Aggregate Assessment 2019

Hampshire Minerals and Waste Plan

November 2019
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Summary – Hampshire County Council 2019 (for the calendar year 2018)

<table>
<thead>
<tr>
<th></th>
<th>2018 Sales (Mt)</th>
<th>Average (10-yr) Sales (Mt)</th>
<th>Average (3-yr) Sales (Mt)</th>
<th>Trend (10-yr sales)</th>
<th>Trend (3-yr sales)</th>
<th>LAA Rate (Mt)</th>
<th>Reserve (Mt)</th>
<th>Landbank (years)</th>
<th>Capacity (Mtpa)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Sand</td>
<td>0.23</td>
<td>0.15</td>
<td>0.22</td>
<td>↓</td>
<td>↑</td>
<td>0.23</td>
<td>0.634</td>
<td>2.76</td>
<td>0.64</td>
<td>Sales are improving. However, landbank issues remain (below NPPF requirement).</td>
</tr>
<tr>
<td>Sharp Sand &amp; Gravel</td>
<td>0.96</td>
<td>0.77</td>
<td>0.81</td>
<td>↑</td>
<td>↑</td>
<td>0.92</td>
<td>8.433</td>
<td>9.17</td>
<td>1.24</td>
<td>Sales have increased in 2018. However there continues to be landbank issues when compared against the plan rate for Hampshire. Permissions granted in 2019 will alleviate this issue.</td>
</tr>
<tr>
<td>All Sand &amp; Gravel</td>
<td>1.18</td>
<td>0.93</td>
<td>1.03</td>
<td>↑</td>
<td>↑</td>
<td>1.15</td>
<td>9.067</td>
<td>7.88</td>
<td>1.88</td>
<td></td>
</tr>
<tr>
<td>Crushed Rock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hampshire does not have an indigenous supply of crushed rock.</td>
</tr>
<tr>
<td>Recycled / Secondary Aggregates</td>
<td>0.72</td>
<td>0.85</td>
<td>0.77</td>
<td>↑</td>
<td>↓</td>
<td>0.85</td>
<td></td>
<td></td>
<td>2.37</td>
<td>Sales have reduced for the 4th year running.</td>
</tr>
<tr>
<td>Marine Sand &amp; Gravel</td>
<td>1.42</td>
<td>1.33</td>
<td>1.49</td>
<td>↑</td>
<td>↓</td>
<td>1.49</td>
<td></td>
<td></td>
<td>1.58</td>
<td>Limited data due to low response rate. Therefore, remaining capacities were produced by sales/estimated</td>
</tr>
<tr>
<td>Rock Imports by Sea</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only one site imported crushed rock into Hampshire by sea in 2018 therefore this has been omitted for confidentiality.</td>
</tr>
<tr>
<td>Rail Depot Sales (Sand &amp; Gravel)</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rail depots are mainly used to import crushed rock to Hampshire. Although there has been import of some sand and gravel this year.</td>
</tr>
<tr>
<td>Rail Depot Sales (Crushed Rock)</td>
<td>0.69</td>
<td>0.44</td>
<td>0.60</td>
<td>C</td>
<td>1.2</td>
<td>Sales have improved this year by approximately 100,000 tonnes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
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<td>-----</td>
<td>-------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td>Sales of sand and gravel have increased which places pressure on the current permitted capacity. 2018 was the first year of operation for Forest Lodge Home Farm and Mortimer Quarry, an application for an extension of 760,000 tonnes at Downton Manor Farm was approved. There are anticipated applications which will increase the landbank figure for Hampshire. A significant increase in planned infrastructure has been identified in the medium term. Trends are determined by same year sales comparisons.</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Executive Summary

Introduction

This is the Local Aggregate Assessment (LAA) for Hampshire and covers the administrative areas of Hampshire County Council, the New Forest National Park Authority, the South Downs National Park Authority, and the Unitary Authorities of Southampton City Council and Portsmouth City Council.

The purpose of the LAA is to detail the current and predicted situation in Hampshire with respect to all aspects of aggregate supply.

Land-won Aggregate

Hampshire’s geology gives rise to sharp sand and gravel, soft sand, and silica sand. Aggregates are sourced from land-won resources, recycled aggregate and imports by rail.

There were eleven active permitted quarries in 2018, with a further extension permitted to Downton Manor Farm in the year.

Soft sand resources are scarce and concentrated in a small number of areas, in comparison sharp sand and gravel resources are much more prolific and spread out within Hampshire. In 2018, there was an insufficient landbank for both aggregates. However, in 2019 planning permission was granted for Roeshot Quarry and there are other planning applications in the pipeline which, if permitted, would help rectify the shortfall.

Total sales of sand and gravel rose in 2018. The overall trajectory since 2012 shows a steady increase in sales which suggests a recovery from the 2008 economic downturn. The past three years sales average helps to demonstrate this increase in sales.

Recycled & Secondary Aggregate

There was a reduction in sales of recycled and secondary aggregate in 2018 of 5% to 0.72Mt. Over the past ten years sales increased to a peak in 2014 of 1.1Mt and since have continued to fall year on year.

The total capacity for recycled or secondary aggregate processing in Hampshire is estimated to be greater than 2.37Mt.

Marine Sand and Gravel

Marine-won sand and gravel sales showed a significant drop in sales in 2018. Marine imports are received at six wharves within Hampshire. There is potential for a lack of capacity to serve an increase in demand at the current time but evidence is limited.
**Crushed Rock**

Hampshire has no crushed rock resources of its own and therefore relies on imports, predominantly from Somerset, who have confirmed that they cannot foresee any issues with ongoing supply.

Supply is imported to rail depots running along the east of Southampton. On occasion, a small percentage is imported into Hampshire’s wharves.

**Future Aggregate Supply**

There are a number of housing and transport projects planned between 2018 and 2022. This indicates growth which is expected to manufacture increased aggregate demand within Hampshire.

Current permitted reserves at 31 December 2018 (not including anticipated planning applications) total 9.067Mt with a landbank of 7.88 years.

To be able to meet this further demand Hampshire will greatly need to increase its land-won aggregate landbank. Should the applications in the pipeline be permitted, the landbank for Hampshire would increase to 11.36 years based upon the 2018 LAA Rate. However, this reduces to 8.38 years when compared to the local requirement detailed within the Hampshire Minerals and Waste Plan (2013).

The Hampshire Minerals & Waste Plan was adopted in 2013. Government policy requires the Plan to be reviewed after 5 years of adoption to determine whether the policies need to be updated. A Review of the Hampshire Minerals & Waste Plan has been undertaken and published. There is a commitment to undertake a further review in 2020.

**Conclusions**

It is considered that Hampshire’s local aggregate provision will not impact the wider South East region as a whole. Whilst it is recognised that Hampshire is not meeting the required landbank based on its local requirement, based on the 2018 LAA Rate, the minimum requirements are met.

Hampshire benefits from a variety of sources of supply. Sales of marine, recycled and secondary aggregate have been declining in recent years. However, in contrast land-won sand and gravel and imports of crushed rock have increased which has resulted in an overall increase in aggregate supply.

Hampshire’s reliance on other mineral planning authorities for supplies of crushed rock will need to be taken into consideration in the review of mineral local plans (e.g. Somerset) through the duty to cooperate.
1. Introduction

1.1 The purpose of this Local Aggregate Assessment (LAA) report is to detail the current and predicted situation in Hampshire with respect to all aspects of aggregate supply.

1.2 The National Planning Policy Framework (NPPF)\(^1\) sets out the requirement for local authorities to produce an annual LAA, stating that ‘Minerals planning authorities should plan for a steady and adequate supply of aggregates by preparing an annual Local Aggregate Assessment, either individually or jointly by agreement with other mineral planning authorities based on a rolling average of 10 years sales data’.

1.3 Hampshire County Council (HCC), Portsmouth City Council (PCC), Southampton City Council (SCC), the New Forest National Park Authority (NFNPA) and the South Downs National Park Authority (SDNPA) adopted the Hampshire Minerals & Waste Plan (HMWP) in October 2013 which was produced in partnership. The HMWP provides minerals (and waste) planning policy in Hampshire until 2030.

1.4 This is the Local Aggregate Assessment (LAA) for Hampshire and covers the administrative areas of the partner Authorities.

1.5 It is important to note that the data used in the preparation of this report predominantly comes from the annual monitoring of aggregates sales by the Hampshire Authorities including the SDNPA on behalf of the South East England Aggregate Working Party (SEEAWP). The Aggregate Monitoring (AM) survey collects annual sales data from active mineral extraction sites, minerals wharves, minerals rail depots and recycled aggregate processing sites.

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\(^1\) National Planning Policy Framework (2018) (Para. 207(f):

Hampshire Minerals & Waste Plan: Local Aggregate Assessment 2019
2. Land Won Aggregate

Geology of Hampshire

2.1 The geology of Hampshire is currently characterised by four main geological regions:
- Chalk Downlands – comprising Upper Chalk
- Hampshire Basin
- London Basin
- Wealden Edge

2.2 In terms of aggregates, Hampshire’s geology provides sharp sand and gravel and soft sand.

2.3 The geology of Hampshire also has sand with silica properties which has the potential for industrial uses. Whilst not an aggregate, the supply of silica sand is also considered within this Local Aggregate Assessment (see Appendix A).

2.4 Hampshire has the capability of supplying aggregates from a number of sources including:
- Land-won extraction;
- recycled and secondary aggregate;
- dredging sand and gravel from the sea bed (marine-won); and
- importing aggregate (via rail depots and wharves)\(^2\).

2.5 Further information regarding the detailed geology within Hampshire can be found in the following reports which were produced to support the Hampshire Minerals & Waste Plan:
- Minerals in Hampshire: Background Study\(^3\); and
- Soft Sand Topic Paper\(^4\).

\(^2\) Estimate of imports by road can be found in the AM 2014 National Collation.
\(^3\) Minerals in Hampshire: Background Study (V7), 2013:
http://documents.hants.gov.uk/mineralsandwaste/HMWP100bMineralsinHampshirev7-SubmissionRevisedFeb2013.pdf
\(^4\) HMWP – Soft Sand Topic Paper:
Permitted Sites Producing Sand and Gravel in Hampshire

2.6 Historically much of Hampshire’s land-won aggregate production has come from south-west Hampshire. Figure 1 shows the location of the active quarries in Hampshire in 2018.

Figure 1: Location of active quarries in 2018

2.7 South-west Hampshire traditionally supplies sand and gravel to west Hampshire, Bournemouth and Poole market areas. Increased availability of alternative sources of aggregate, such as rail and marine dredged imports and recycled aggregates has helped to supplement land-won production.

2.8 Reserves of soft sand in Hampshire are very scarce and are concentrated in a small number of areas. This is highlighted in Table 1 by the clusters of quarries of soft sand, most notably in north-east Hampshire and the New Forest area.

2.9 In contrast, sharp sand and gravel resources are more widely distributed throughout Hampshire. Table 1 provides details of the aggregate extracted at each permitted extraction site.
Table 1: Permitted quarries in Hampshire, 2018

<table>
<thead>
<tr>
<th>Site</th>
<th>Operator</th>
<th>Aggregate</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badmiston Farm, Fawley</td>
<td>Mid Hants Ltd</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Blashford Quarry, Ringwood</td>
<td>Tarmac Ltd</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Bleak Hill Quarry, Ringwood Forest</td>
<td>CEMEX</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Bramshill Quarry (Warren Heath)</td>
<td>CEMEX</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Downton Manor Farm, Milford on Sea</td>
<td>New Milton Sand and Ballast Sharp</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Forest Lodge Farm</td>
<td>TJ Transport Ltd</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Frith End Quarry</td>
<td>Grundons</td>
<td></td>
<td>Active</td>
</tr>
<tr>
<td>Kingsley Quarry</td>
<td>Tarmac Ltd</td>
<td></td>
<td>Active</td>
</tr>
<tr>
<td>Marchwood Quarry</td>
<td>Marchwood Aggregates</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Mortimer Quarry</td>
<td>Hills Quarry Products Ltd</td>
<td>✓</td>
<td>Active</td>
</tr>
<tr>
<td>Roke Manor Quarry</td>
<td>Raymond Brown Aggregates</td>
<td>✓</td>
<td>Active</td>
</tr>
</tbody>
</table>

Sand and Gravel Production and Sales

2.10 The sales of land-won sand and gravel in Hampshire are shown in Table 2. The overall trend is of decline. However, since 2016 the figures show a trend of improving sales.

2.11 The sales of soft sand remained level in 2018 at 0.23 Million tonnes (Mt). This shows an increase of 130% since 2009. There was a substantial increase in sales of soft sand in 2016 that has remained at a similar level through to 2018 which suggests an ongoing trend. The sales in 2018 have had the effect of raising the 3-year average to 0.22Mt, which reflects this trend.

2.12 Sales of sharp sand and gravel increased by 30% from 0.73Mt in 2017 to 0.96Mt in 2018. Whilst this indicates a return to the levels shown in 2009 it cannot yet be considered to show a trend.
Table 2: Land-won soft sand and sharp sand and gravel sales in Hampshire, 2009-2018 (Million tonnes)

<table>
<thead>
<tr>
<th>Year (yr)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Last 10 yr average</th>
<th>Last 3 yr average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Sand Sales*</td>
<td>0.1</td>
<td>0.14</td>
<td>0.12</td>
<td>0.16</td>
<td>0.12</td>
<td>0.11</td>
<td>0.12</td>
<td>0.2</td>
<td>0.23</td>
<td>0.23</td>
<td>0.15</td>
<td>0.22</td>
</tr>
<tr>
<td>Sharp Sand and Gravel Sales</td>
<td>0.95</td>
<td>0.84</td>
<td>0.71</td>
<td>0.58</td>
<td>0.73</td>
<td>0.78</td>
<td>0.71</td>
<td>0.75</td>
<td>0.73</td>
<td>0.96</td>
<td>0.77</td>
<td>0.81</td>
</tr>
<tr>
<td>Total Sales</td>
<td>1.05</td>
<td>0.98</td>
<td>0.83</td>
<td>0.75</td>
<td>0.85</td>
<td>0.88</td>
<td>0.83</td>
<td>0.95</td>
<td>0.96</td>
<td>1.18</td>
<td>0.93</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Footnotes
Source: Aggregate Monitoring Surveys, 2009-2018
*Please note soft sand figures before 2013 may include a small amount of silica sand (non-aggregate).
Please see Appendix A for further information on Silica Sand.

2.13 Figure 2 shows the sales of land-won sand and gravel in Hampshire since 1996 to date. The overall trend of a steady decline in sales from 1996 is shown on the graph, until 2012 where sales have gradually risen year on year. This increase has continued in 2018 with a substantial increase in sharp sand and gravel sales.

Figure 2: Sales of land-won sand and gravel in Hampshire, 1996-2018 (Million tonnes, Mt)

2.14 An important point to note is that 53% of the current sand and gravel reserve in Hampshire is contained in one site: Blashford Quarry (Plumley Wood). This could have implications for the future supply if any issues with extraction are encountered.
2.15 The land-won aggregate supply plan in Hampshire is based on sub-regional apportionment figures which have been retained as part of the Hampshire Minerals and Waste Plan. The apportionment figures represent the 'Local Requirement' and have been used to calculate the landbank for sand and gravel by dividing the permitted reserve of local land-won aggregate with the current apportionment figure.

2.16 Table 3 shows the total landbank for all land-won aggregate based on the 2018 LAA Rate for Hampshire is 7.88 years. The landbank for soft sand is calculated at 2.76 years based on the 2018 LAA Rate.

2.17 Using the 10- or 3-year average sales of sand and gravel as the determining figure sees a relative increase for soft sand, ranging between 2.88 and 4.14 years. Similarly, the landbank for sharp sand and gravel increases ranging from 10.9 to 10.54 years.

2.18 The landbank figures are expected to increase as future planning applications come forward, and permitted sites commence operations. Please see Section 6 for further information on the future of land-won aggregate and landbanks.

### Table 3: Hampshire reserves and landbank

<table>
<thead>
<tr>
<th></th>
<th>Permitted Reserve (mt)</th>
<th>Landbank based upon Local Requirement (Years)*</th>
<th>Landbank based upon 2018 LAA Rate (years)**</th>
<th>Landbank based upon 10yr average sales between 2009-2018 (years)</th>
<th>Landbank based upon 3yr average sale between 2016-2018 (years)</th>
<th>Landbank based upon 2018 sales (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Sand</td>
<td>0.634</td>
<td>2.26</td>
<td>2.76</td>
<td>4.14</td>
<td>2.88</td>
<td>2.76</td>
</tr>
<tr>
<td>Sharp Sand &amp; Gravel</td>
<td>8.433</td>
<td>6.59</td>
<td>9.17</td>
<td>10.90</td>
<td>10.54</td>
<td>8.78</td>
</tr>
<tr>
<td>Total***</td>
<td>9.067</td>
<td>5.81</td>
<td>7.88</td>
<td>9.75</td>
<td>8.80</td>
<td>7.68</td>
</tr>
</tbody>
</table>

Source: Aggregate Monitoring Surveys, 2009-2018
Please note: the silica sand landbank is incorporated into the soft sand landbank as the resources can be classed as either soft sand or silica
*Local Requirement for SS&G – 1.28, Soft Sand – 0.28, Total – 1.56 (mtpa)
**LAA Rate for SS&G – 0.92, Soft Sand – 0.23, Total – 1.15 (mtpa)
***In some cases, operators were unable to quantify the individual sharp sand & gravel and soft sand reserves and only provide a total reserve. This has been assumed to be Sharp sand and gravel as the only three quarries which produce soft sand in Hampshire provided reserve figures.
3. Recycled/Secondary Aggregates

3.1 Data pertaining to sales of recycled or secondary aggregates is collected yearly as part of the surveys carried out by mineral planning authorities. Figure 3 shows the location of all active recycled sites in operation in Hampshire during 2018 that were surveyed. It should be noted that whilst all sites were surveyed, not all responded. As such, the results should be used with caution to indicate a general trend of what is happening.

3.2 There are 31 sites which hold valid planning permission for the production of recycled and secondary aggregates in Hampshire. Of these sites, there was a response rate of 71% to the AM survey 2018, indicating a collective capacity of 2.37Mt\(^6\). The total capacity for recycled or secondary aggregate processing in Hampshire is likely to be higher than 2.38Mt when accounting for those sites which did not respond to the survey, temporary sites permitted, as well as the potential for unauthorised operations.

3.3 The sales figures of the recycled and secondary aggregate in Hampshire for the most recent 10-year period, 2009-2018 are shown in Table 4. Sales had been increasing up to a peak in 2014, where sales started to decline. Initially the decrease in 2015 was by 10.8%, this trend has continued and 2018 has seen sales decrease by a further 5.3% since 2017 to the lowest level of sales of secondary and recycled aggregates since 2009/10.

3.4 There were 594,224 tonnes of recycled aggregate sales in 2018 in comparison to 127,126 tonnes of secondary aggregate sales. This translates into split of 82% to 18% respectively for recycled and secondary aggregates sales.

Table 4: Recycled and Secondary aggregate sales in Hampshire, 2009-2018 (Million tonnes, Mt)

<table>
<thead>
<tr>
<th>Year (yr)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Last 10 yr average</th>
<th>Last 3 yr average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>0.6</td>
<td>0.79</td>
<td>0.93</td>
<td>0.81</td>
<td>0.93</td>
<td>1.11</td>
<td>0.99</td>
<td>0.83</td>
<td>0.76</td>
<td>0.72</td>
<td>0.85</td>
<td>0.77</td>
</tr>
</tbody>
</table>

Footnotes
Source: Aggregate Monitoring Surveys, 2009-2018

\(^{6}\text{31 sites were contacted. 22 responded but not all sites provided capacity data this was estimated for those sites that did not provide.}\)
Figure 3: Location map of active recycled and secondary aggregate sites in Hampshire, 2018
4 Wharves (Marine-won Sand and Gravel)

4.1 Hampshire has six existing wharves located on the south coast of Hampshire, the locations of which are shown in Figure 4. The mineral rights for marine sand and gravel are owned by the Crown Estate, up to the edge of the continental shelf. There are two dredging regions in proximity to Hampshire: South Coast (including Owers) and the East English Channel. As per the Marine Aggregates Capability and Portfolio 2018 from the Crown Estate, it is understood that there is 99.43Mt of good quality permitted reserves suitable for primary (construction) aggregate uses in the ‘South Coast’ region, and 62.15Mt of good quality permitted reserves suitable in the ‘East English Channel’ region.

4.2 The Crown Estate has indicated that based upon the 2018 10-year average annual extraction rate of 3.47mt and the licences within the South Coast region, the life expectancy of the good quality primary aggregate reserves, can be assessed as being over 25 years. In 2017, there was 3.77mt extracted from the South Coast region indicating reserves would last 26.3 years at that rate of extraction.

Figure 4: Location map of active wharves in Hampshire, 2018
4.3 The level of marine-won sand and gravel sales at wharves in Hampshire is shown in Table 5. In 2018 the level of sales recorded* was 1.42Mt which is above the 10-year but below the 3-year average sales. Please see section 6 for more information on future capacity and sales at wharves.

Table 5: Marine-won sand and gravel sales in Hampshire, 2009-2018 (Million tonnes, Mt)

<table>
<thead>
<tr>
<th>Year (yr)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017*</th>
<th>2018</th>
<th>10-yr average</th>
<th>3-yr average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>1.08</td>
<td>1.12</td>
<td>1.17</td>
<td>1.1</td>
<td>1.43</td>
<td>1.36</td>
<td>1.55</td>
<td>1.55</td>
<td>1.52</td>
<td>1.42</td>
<td>1.33</td>
<td>1.49</td>
</tr>
</tbody>
</table>

Footnotes
Source: Aggregate monitoring surveys, 2009-2018

*2017 data includes an estimated sales figure for Kendalls Wharf as data was not received this year
5 Crushed Rock

5.1 Hampshire does not have any natural hard rock resources and therefore relies on imports of crushed rock such as limestone and granite to meet demand for this type of aggregate.

5.2 Limestone is largely imported into Hampshire from quarries in Somerset by rail directly into three aggregate rail depots in the south of the county at Botley, Eastleigh and Fareham. In 2018, 662,077 tonnes of crushed rock imported from Somerset was sold at the rail depots. The location of the rail depots processing crushed rock imports is shown on the location map contained in Figure 5. In addition to that supplied to rail depots, crushed rock is imported into Hampshire by road, with a small amount imported by sea.

Figure 5: Location map of active rail depots in Hampshire, 2018

5.3 The crushed rock sales (from rail and sea imports) in Hampshire recorded over the last 10 years are detailed in Table 6. It is important to note that whilst crushed rock sales are imported into Hampshire by road, data is only available for the years 2009 and 2014, so for the purposes of this report, imports by road are not included. The 2009 and 2014 data suggest that a similar amount of crushed rock is imported by road to that that imported by rail.
5.4 The crushed rock sales in 2018 were recorded at 0.69Mt which is a substantial increase on the 10-year and 3-year average sales and are the highest reported sales in the past 10 years.

Table 6: Crushed rock sales from rail depots and wharves in Hampshire, 2009-2018 (Million tonnes, Mt)

<table>
<thead>
<tr>
<th>Year (yr)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016*</th>
<th>2017**</th>
<th>2018</th>
<th>Last 10 yr average</th>
<th>Last 3 yr average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>0.35</td>
<td>0.36</td>
<td>0.33</td>
<td>0.28</td>
<td>0.39</td>
<td>0.46</td>
<td>0.46</td>
<td>0.55</td>
<td>0.57</td>
<td>0.69</td>
<td>0.44</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Footnotes
Source: Aggregate Monitoring Surveys, 2009-2018, *2016 data has been updated to include data from Fareham Rail Depot, **2017 data includes estimates to account for the lack of response from Fareham Rail Depot.

5.5 In terms of exports of crushed rock, these are technically zero as Hampshire does not have its own source of crushed rock to export. However, it is understood that a small amount of rail imported crushed rock arrives at Hampshire rail depots, to then be sold on outside of Hampshire via road exports.

5.6 There was a substantial increase in 2016, which was concentrated through the two Aggregate Industries Rail depots. This increase was maintained through to 2017 and substantially built upon in 2018.

5.7 In 2018 Somerset County Council confirmed that they have sufficient reserves to meet current needs and do not foresee any likely issues that would affect the future supply of crushed rock to the South East Region, which includes Hampshire. Should future demand increase, the issue lies with the capacity of the rail depots to manage a higher level of imports, rather than with future supply. Please see Section 6 for further information on capacity at rail depots.
6 Overview of Aggregate Sales

6.1 The sales of land-won sand and gravel, marine-won sand and gravel, crushed rock imports and recycled/secondary aggregates have been amalgamated and can be seen in Figure 6.

6.2 The sales of aggregates appear to follow the same overall trend, with the exception of recycled/secondary aggregates and Marine won sand and gravel. All other sales decreased between 2007 and 2012, despite the overall trend being generally upward. Sales of Recycled and secondary aggregates however were increasing between 2007 and 2014, where upon sales have decreased year on year.

Figure 6: Overview of aggregate sales, 2009-2018 (Million tonnes, Mt)
7. Future Aggregate Demand

7.1 Infrastructure projects that are likely to place an additional demand of future aggregate demand in Hampshire relate to both housing and transport projects. There are in the region of 120,000 new homes planned within the Hampshire area over the next 15 years, of these some 6,000 homes are planned in the Welborne development in Fareham, 4,000 in the Whitehill & Bordon development in East Hampshire, and 3,850 in the Aldershot Urban Extension in Rushmoor.

7.2 Fawley power station is to be demolished and redeveloped to provide 1,500 homes. Whilst not large-scale development, the original turbine hall requires a great deal of infill material.

7.3 There are a number of bypass projects planned or under construction in Hampshire. In Fareham there is the £20 million Stubbington Bypass scheme in construction. In Eastleigh, Botley bypass is soon to start construction and is also expected to cost an estimated £20 million. Several major junction improvements are planned to the M27. To facilitate the Welborne development, Junction 10 of the M27 is to be upgraded, with construction planned to commence 2021. Junction 9 improvements costing £19,800,000 are listed in the capital programme for delivery commencing by 2021.

7.4 There are significant upgrades underway to the M27 to convert the road into a smart motorway with the same now proposed for the M3. A Nationally Significant Infrastructure Project to Junction 9 of the M3 joining the A34 is proposed.

7.5 There is a county council major highway improvement capital programme up to 2021, with a forecast investment of more than £112 million planned and a further programme of smaller schemes totalling £12 million.

7.6 All of these projects are of significant scale to require the future demand to be accounted for in future aggregate supplies, over and above the annual infrastructure delivery programme. The Hampshire Strategic Infrastructure Statement (2019) contains more information on the level of future development planned for the area, which cumulatively will place additional pressure on aggregate supplies.

7.7 In order to meet future aggregate demand, including the infrastructure projects discussed above, Hampshire needs to have a sufficient aggregate landbank and capacity available to import aggregate at rail depots and wharves. Greater emphasis should be placed on recycled and secondary aggregate sites to supply future demand.
7.8 To establish what impact future planned development is likely to have on aggregate demand and supply in Hampshire, figures for planned infrastructure have been reviewed. Table 7 shows the infrastructure delivered between 2011 and 2016. This is compared with the quantum of development planned between 2017 and 2022 and suggests a significant uplift in the level of development. Therefore, it should be anticipated that there will be an increase in the level of demand for aggregate.

7.9 Whilst there is some information available for the time period beyond 2022, this is not available for all infrastructure categories and over matching time periods. For this reason, it was considered appropriate to standardise the timeframe being reviewed for all infrastructure and provide a snapshot.

7.10 It should be noted that the figures contained within the years 2017 to 2022 are an estimate of future delivery and will be subject to potential changes in timescales as a result of external factors such as ‘Brexit’ and the current context of economic uncertainty. The effect of Brexit on industry and development is yet to be realised, but the potential to influence the rate of infrastructure delivery is acknowledged in terms of labour. The Mineral Products Association recognises the uncertainty surrounding ‘Brexit’ needs resolution to prevent the current skills shortages from being exacerbated\(^6\). The impact of skills shortages through a reduced labour force would likely reduce aggregate demand due to reduced infrastructure delivery.

Table 7: Levels of delivered and planned infrastructure

<table>
<thead>
<tr>
<th></th>
<th>2011-2016</th>
<th>2017-2021</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwellings</td>
<td>24,627</td>
<td>88,353</td>
<td>+</td>
</tr>
<tr>
<td>Schools</td>
<td>5 Primary</td>
<td>0 Secondary</td>
<td>14 Primary</td>
</tr>
<tr>
<td>Roads</td>
<td>£404,890,000</td>
<td>£467,535,000</td>
<td>+</td>
</tr>
</tbody>
</table>

Source: Dwellings – District Local Plans in Hampshire / Schools – Hampshire Infrastructure Assessment April 2019\(^7\) / Roads - ETE Capital Programme Monitoring (2019)\(^8\)

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\(^7\) Hampshire Infrastructure Assessment April 2019

\(^8\) ETE Capital Programme Monitoring, Executive Member for Transport and Environment Report 15 January 2019
7.11 The planned level of infrastructure construction appears to be significant uplift from the current build out rates and will require an increase in aggregate supply.

**Economic Forecast**

**Sand and Gravel**

7.12 A range of growth forecasting approached have been utilised to assess future demand.

7.13 When the MPA growth factor of 1.1% was applied to the 2018 sales figure, 3-year average and 10-year average, the forecasted figures over the 7-year supply period ranged between 0.83mt and 1.04mt in 2030. Similarly, when the construction growth rate of 1.4% was applied to the same set of figures, the forecast range in 2030 was between 0.91mt and 1.13mt.

7.14 A Population growth factor was also applied based on ONS figures for the Hampshire area. This growth factor forecast a rate in 2030 ranging between 0.81Mt to 1.01Mt in 2030. Finally, GDP was looked at with a 2% compound growth rate applied. This forecast a much higher range between 1.00Mt and 1.25 Mt in 2030.

7.15 Having modelled a range of growth forecasting approaches, the 2018 LAA Rate for sharp sand and gravel has been set at 0.92Mt. This is lower than the 'Local Requirement' set in the Plan of 1.28Mt but is considered to better reflect the future level of demand.

**Soft Sand**

7.16 When the MPA growth factor of 1.1% was applied to the 2018 soft sand sales figure, 3-year average and 10-year average, the forecasted figures over the 7-year supply period ranged between 0.17mt and 0.26mt in 2030. Similarly, when the construction growth rate of 1.4% was applied to the same set of figures, the forecast range in 2036 was between 0.18mt and 0.27mt.

7.17 A Population growth factor was applied based on ONS figures for the Hampshire area. This growth factor forecast a rate in 2030 ranging between 0.16Mt to 0.24Mt in 2030. Finally, GDP was looked at with a 2% compound growth rate applied. This forecast a higher range between 0.20Mt and 0.30 Mt in 2030.

7.18 Reviewing the different approaches, the 2018 LAA Rate of 0.23Mt has been set for soft sand. This is also lower than the Plan rate of 0.28Mt but is consistently more in line with future forecasts.
Marine won sand and gravel

7.19 A 2018 LAA Rate of **1.49Mt** has been set based on the 3-year average sales. Sales in recent years have been higher, but the last two years have seen a reduction in sales. The capacity factor at wharves exacerbated by the closure of some wharves supports the use of a lower LAA rate than that set in the Plan of 2Mt. When the Plan rate of 2Mt is projected to 2030 using MPA, Construction, GDP and population growth factors, it exceeds the highest of forecasted figures. The 2018 LAA Rate of 1.49Mt is also in line with most forecasts for 7-year supply, but slightly lower than those forecast for 2030.

Recycled and secondary aggregate

7.20 A 2018 LAA Rate of **0.85Mt** is set for recycled and secondary aggregates, based on the 10-year average sales. Sales have been decreasing over recent years. However, when applying the growth factors referred to above, the 2018 LAA Rate appears to be more representative when looking at 7-year supply figures. Over the course of the plan period, the proposed rate is lower than some forecasts such as GDP, but more representative when using MPA and construction growth forecasts.

Landbank

7.21 As reported in section 2, Hampshire does not meet the minimum seven-year landbank as required by the NPPF. However, permission was granted in early 2019 for the extraction of 3Mt of sharp sand and gravel at Roeshot. The quarry was an allocated site in the Hampshire Minerals & Waste Plan.

7.22 In addition, a planning application for an extension to Kingsley Quarry is yet to be determined. Although, the application is 1Mt of silica sand which would not necessarily contribute to local aggregate supply. However, the properties of the resource could be used for aggregate and its end use is a commercial decision by the operator.

7.23 Policy 20 (Local land-won aggregates) of the Hampshire Minerals and Waste Plan identified sites for local land-won aggregates. Table 8 lists the allocated sites which have not had applications yet, but which if implemented could contribute to the land-won aggregate supply in Hampshire, demonstrating a future available supply.
Table 8: Allocated sites for land-won aggregates

<table>
<thead>
<tr>
<th>Site</th>
<th>Amount (Mt)</th>
<th>Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleak Hill Quarry Extension</td>
<td>0.6</td>
<td>SS+G</td>
</tr>
<tr>
<td>Bramshill Quarry Extension</td>
<td>1.0</td>
<td>SS+G</td>
</tr>
<tr>
<td>Cutty Brown</td>
<td>1.0</td>
<td>SS+G</td>
</tr>
<tr>
<td>Hamble Airfield</td>
<td>1.5</td>
<td>SS+G</td>
</tr>
<tr>
<td>Purple Haze</td>
<td>4.0</td>
<td>SS and SS+G</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8.1</strong></td>
<td></td>
</tr>
</tbody>
</table>

Footnotes
Source: Hampshire Minerals and Waste Plan 2013
Key: SS+G = Sharp sand and gravel / SS = Soft sand.

7.24 The inclusion of Roeshot (and Kingsley Quarry Extension, subject to permission) in the reserves for Hampshire increases the landbank from 6.15 years to 9.63 years based on the LAA rate. If the allocated sites listed in Table 8 were included in the reserve figure, the landbank would increase to 16.67 years based on the LAA rate. Based on the 10-year sales average, the landbank figure increases to 20.83 years demonstrating that there is a future supply planned for Hampshire.

Table 9: Adjusted Landbank figures with future applications and allocated sites

<table>
<thead>
<tr>
<th></th>
<th>Permitted Reserve (mt)</th>
<th>Landbank based upon Local Requirement (years)*</th>
<th>Landbank based upon LAA Rate (years)**</th>
<th>Landbank based upon 10-yr average sales (years)</th>
<th>Landbank based upon 3-yr average sale (years)</th>
<th>Landbank based upon 2018 sales (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current SS+G Reserves</td>
<td>9.067</td>
<td>5.81</td>
<td>7.88</td>
<td>9.75</td>
<td>8.80</td>
<td>7.67</td>
</tr>
<tr>
<td>Current/Anticipated SS+G Applications***</td>
<td>4</td>
<td>2.56</td>
<td>3.48</td>
<td>4.35</td>
<td>3.93</td>
<td>3.50</td>
</tr>
<tr>
<td>SS+G Allocated sites</td>
<td>8.1</td>
<td>5.19</td>
<td>7.04</td>
<td>8.80</td>
<td>7.96</td>
<td>7.08</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21.17</strong></td>
<td><strong>13.57</strong></td>
<td><strong>18.41</strong></td>
<td><strong>22.90</strong></td>
<td><strong>20.70</strong></td>
<td><strong>18.25</strong></td>
</tr>
</tbody>
</table>

*Local Requirement for SS&G – 1.28, Soft Sand – 0.28, Total – 1.56 (mtpa)
**LAA Rate for SS&G – 0.92, Soft Sand – 0.23, Total – 1.15 (mtpa)
***Current/Anticipated Applications include Kingsley Quarry 1Mt, Roeshot 3Mt
Key: SS+G = Sharp sand and gravel / SS = Soft sand.

7.25 In addition, to support a steady future supply of aggregate in Hampshire, Policy 18 (Recycled and secondary aggregates development) of the Hampshire Minerals and Waste Plan states that the production of recycled and secondary aggregate production will be supported by encouraging investment and further
infrastructure to maximise the availability of alternatives to marine-won and local land-won sand and gravel extraction. This will help to address the current landbank figures. However, whilst the market share of recycled and secondary aggregates has increased overall, the Mineral Products Association view is that the use of these aggregates may be nearing their full potential in Britain and that there will still be a reliance on land-won and marine-won aggregates. As such, there will be a need to plan for infrastructure to sustain the demand for recycled and secondary aggregates, as well as land-won and marine-won aggregates.

7.26 The Hampshire Minerals & Waste Plan was adopted in 2013. Government policy requires the Plan to be reviewed after 5 years of adoption to determine whether the policies need to be updated. A Review of the Hampshire Minerals & Waste Plan was undertaken in 2018.

7.27 The 2018 Review concluded that the policies are working effectively to achieve the Vision and there is no requirement to update the Plan. The landbank and permitted reserves of sand and gravel, silica and brick-making clay are not meeting their required levels. However, review of the mineral supply policies has highlighted that these do not exclude further development proposals to come forward and would be supported where a shortfall in supply is identified. The allocations in the Plan are coming forward as well as unplanned opportunities. The landbank is being impacted by a delay in decision-making and not the result of policy.

7.28 A commitment was made to review the effectiveness of the Hampshire Minerals & Waste Plan in 2020 to test whether the delays in decision-making can be overcome, the remaining allocations are submitted as applications and the implications of Brexit are better understood.

Capacity

7.29 This is the third year a site capacity question was included as part of the Aggregate Monitoring survey. By understanding current capability of sites, through capacity, it is hoped that this information can be used to assist planning for future demand. The results of this are shown in Table 10. This is the first year it has been possible to establish a trend.

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7.30 Capacity has broadly stayed consistent over the 3 years, with just relatively small deviations in certain areas. Capacity at wharves appears to be lower in 2018 than over the 3-year average. Whereas capacity at all other sources of supply appears to be higher in 2018.

7.31 Comparing sales with capacity provides an understanding of void production capacity in Hampshire. Table 10 indicates that for land-won aggregate, there is the potential for sales to be higher than currently recorded, with sites currently producing at an average rate of 63% capacity. This is particularly the case for soft sand. However, land-won sales are dictated by the needs of industry.

7.32 There is currently capacity to accommodate an increase in demand, particularly on recycled and secondary aggregates which has the potential to provide almost an additional 1.6Mt over the current demand of 0.72Mt. In 2018, it is shown that there was additional capacity of 70% for managing recycled and secondary aggregate.

7.33 It is worth noting that not all operators returned information on capacity, and therefore the capacity data provided is not 100% accurate. This is stressed with wharf capacity, as with only 1/6 sites returning capacity information it appears that the wharves are already working at 94% capacity. However, due to the lack of information provided by the operators in the survey, this cannot be assumed to be correct. Sales figures have been used to estimate capacity where capacity data was not provided.

Table 10: Total sales and estimated production capacity, 2018 (Million tonnes, Mt)

<table>
<thead>
<tr>
<th></th>
<th>Sales</th>
<th>Capacity</th>
<th>% Sales/ Production</th>
<th>Capacity 3 yr Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land-won Aggregate</td>
<td>1.18</td>
<td>1.875</td>
<td>63%</td>
<td>1.67</td>
</tr>
<tr>
<td>SS</td>
<td>0.23</td>
<td>0.637</td>
<td>36%</td>
<td>0.50</td>
</tr>
<tr>
<td>SS+G</td>
<td>0.96</td>
<td>1.237</td>
<td>78%</td>
<td>1.18</td>
</tr>
<tr>
<td>R/S sites</td>
<td>0.72</td>
<td>2.368</td>
<td>30%</td>
<td>2.18</td>
</tr>
<tr>
<td>Wharves*</td>
<td>1.45</td>
<td>1.547</td>
<td>94%</td>
<td>1.64</td>
</tr>
<tr>
<td>Rail Depots</td>
<td>0.68</td>
<td>1.2</td>
<td>57%</td>
<td>1.07</td>
</tr>
</tbody>
</table>

Footnotes
Source: Aggregate Monitoring Survey, 2018. Please note that capacity data collection is still in the early stages, and as such, results should be treated with caution. Where capacity data has not been made available sales have been used. *Wharf Capacity Data is based upon sales.
7.34 Capacity information will become increasingly important in future years, particularly pertaining to wharves and rail depots. A recent study by the Mineral Products Association suggested that nationally, there could be a decrease in the demand for land-won aggregates over time, substituted instead by marine-won aggregate. Hampshire is considered to fit this scenario based on recent sales data, so it will be vital to ensure that the capacity of wharves and rail depots in Hampshire is able to keep pace with sales. Currently the rail depots would appear to have sufficient capacity to cope with an increase. However, based on the survey responses received, wharves do not appear to have the same tolerance.

7.35 The initial study work undertaken as part of the plan-making process indicated that there was sufficient capacity at wharves to accommodate a substantial increase in sales, as at the time of the study work sales at wharves had dropped considerably lower than those of previous years. However, this recent survey indicates this is not the case. This places greater emphasis on the need to monitor the sales and capacity to ensure that the Hampshire Minerals and Waste Plan can respond positively to any changes in supply or demand. In doing so, there may be a potential need to identify new wharf infrastructure, as outlined in Policy 34 (Safeguarding potential minerals and waste wharf and rail depot infrastructure) of the Hampshire Minerals and Waste Plan to ensure a steady supply of aggregate.

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8. Conclusions and review of the Local Aggregate Assessment

8.1 This LAA has shown that Hampshire's local aggregate provision will not impact on the wider South East region as a whole. Whilst it is recognised that Hampshire is not meeting the required landbank based on its local requirement, based on the 2018 LAA Rate, the minimum requirements are met.

8.2 Hampshire benefits from a variety of sources of supply. Sales of marine, recycled and secondary aggregate have been declining in recent years. However, in contrast land-won sand and gravel and imports of crushed rock have increased which has resulted in an overall increase in aggregate supply.

8.3 Hampshire’s reliance on other mineral planning authorities for supplies of crushed rock will need to be taken into consideration in the review of mineral local plans (e.g. Somerset) through the duty to cooperate.

8.4 This document highlights that although there is generally a surplus in aggregate handling capacity there may be a need for additional infrastructure, particularly with regard to meeting Hampshire’s needs for land-won mineral extraction and wharf capacity up to 2030 and beyond. The need for any additional infrastructure, such as the further requirement for land-won extraction, will be identified through the LAA and the HMWP monitoring indicators which will highlight any developing issues.
Appendix A – Silica Sand

Silica sand (also referred to as ‘industrial sand’) is used in industrial processes, not in the construction industry. For this reason, silica sand sales have been excluded from the assessment of land-won aggregates.

Table A lists the permitted sand and gravel quarries in Hampshire, with only two quarries providing Silica sand; Frith End Quarry and Kingsley Quarry. It is acknowledged that resources at Kingsley and Frith End quarries have properties with silica sand uses. Historical data identified the quarries as sources of soft sand only. This means that the sites are included in the data of previous years’ LAA reports for soft sand.

Table A - Permitted silica sand quarries in Hampshire

<table>
<thead>
<tr>
<th>Site</th>
<th>Operator</th>
<th>Aggregate</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frith End Quarry, Sleaford</td>
<td>Grundon</td>
<td>✓</td>
<td>✓*</td>
</tr>
<tr>
<td>Kingsley Quarry, Kingsley</td>
<td>Lafarge Tarmac</td>
<td>✓</td>
<td>✓*</td>
</tr>
</tbody>
</table>

* Resources have been traditionally identified as soft sand. These resources can now be classified as silica sand as well as soft sand.

Source: Aggregates Monitoring Survey 2018

Paragraph 207 of the National Planning Policy Framework (NPPF) states that ‘Minerals planning authorities should plan for a steady and adequate supply of industrial minerals by:…c) maintaining a stock of permitted reserves to support the level of actual and proposed investment required for new or existing plant, and the maintenance and improvement of existing plant and equipment’. In terms of individual silica sand sites, the NPPF\(^\text{13}\) states that this should be for ‘at least 10 years’.

In addition, the Minerals National Planning Practice Guidance (2014) states that ‘The required stock of permitted reserves for each silica sand site should be based on the average of the previous 10 years sales. The calculations should have regard to the quality of sand and the use to which the material is put.’\(^\text{14}\)

On the basis of current national planning guidance outlined above, silica sand reserves for Hampshire have been calculated and are shown in Table B.

As only two sites provide sales data for silica sand, for reasons of commercial confidentiality, sales data can only be published as a 3-year average. For the period

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13 NPPF (2019) – footnote 68
2016-2018, the 3-year sales average for silica sand in Hampshire was 91,818 tonnes. This is an increase from the previous 3-year average (2015-2017) of 90,435 tonnes. An increase in non-aggregate sales at Frith End and Kingsley is likely to lead to a more rapid depletion of soft sand reserves as resources at these locations can be classed as both soft sand and silica sand. More information on soft sand and silica sand supply options is set out in the ‘Minerals in Hampshire’ Report\(^\text{15}\).

**Table B - Hampshire Permitted Reserve (years)**

<table>
<thead>
<tr>
<th>Permitted Reserve (Mt)</th>
<th>Date (when permitted reserve recorded)</th>
<th>Reserve (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Based upon Local Requirement*</td>
</tr>
<tr>
<td>Silica Sand</td>
<td>c</td>
<td>c</td>
</tr>
<tr>
<td></td>
<td>31.12.2018</td>
<td></td>
</tr>
</tbody>
</table>

*Please note that the Silica Sand permitted reserve is incorporated into the Soft Sand landbank as the resources can be classed as either Soft Sand or Silica.

**Source:** Aggregates Monitoring Surveys and Hampshire Minerals & Waste Plan (2013)

\(^{15}\) HMWP – Minerals in Hampshire: [http://documents.hants.gov.uk/mineralsandwaste/HMWP100bMineralsinHampshirev7-SubmissionRevisedFeb2013.pdf](http://documents.hants.gov.uk/mineralsandwaste/HMWP100bMineralsinHampshirev7-SubmissionRevisedFeb2013.pdf)