



Essex Local Aggregate Assessment

October 2017



Essex County Council

EXECUTIVE SUMMARY

This is the fourth Local Aggregate Assessment (LAA) produced on behalf of the Greater Essex authorities¹. The purpose is to report annually on aggregate supply and demand. This LAA reflects the position at the end of 2016.

Extraction and Processing Facilities within Greater Essex

In December 2016, there were 27 sand and gravel quarries (21 of which are operational) across Greater Essex, of which one produces silica sand (therefore sales of this mineral are not reported due to commercial confidentiality). There are a further four dormant sand and gravel quarries (omitted from the landbank and permitted preserve calculations). There are no hard rock quarries within the Plan area. Brick clay and chalk are not classed as aggregates and therefore not reported on through an LAA.

In conjunction with primary extraction facilities, there are 36 processing facilities that add value to mineral products.

Sand and Gravel Sales

Sales of sand and gravel have generally decreased between 2007 and 2016, from 4.18 million tonnes (mt) to 3.40mt, although this decrease is not year-on-year. Within this ten-year period, the highest levels of sales were recorded in 2014 at 4.37 million tonnes whilst the lowest were recorded at 2.3mt in 2012. The ten-year average sales figure (3.27mt) and the three-year sales average (3.74mt) are both below the apportioned tonnage of 4.45 million tonnes per annum (mtpa) in the Essex Minerals Local Plan 2014 (MLP). The last three years of sales show an overall decrease from 4.47mt in 2014 to 3.40mt in 2016, representing a decrease in sales of 22%.

Sand and Gravel Permitted Reserves

There has been a reduction in permitted reserves over the last 20 years, from 67.28mt in 1997 to 35.57mt in 2016. Whilst there has been a general and continued decrease in permitted reserves, recently there has been a noticeable increase in permitted reserves following the granting of several planning permissions after the adoption of the Essex Mineral Local Plan 2014 (EMLP, 2014).

Sand and Gravel Landbank

The Greater Essex landbank has reduced over the last ten years. When the Greater Essex landbank is calculated using the apportioned figure adopted in the EMLP (2014) and the Thurrock Core Strategy and Policies for Management of Development (2015) (4.45mtpa across both authorities), this reduction is from 10.26 years in 2007 to 7.95 years at the end of 2016.

When calculated using the current ten-year sales average (3.27mt calculated at the end of 2016), the Greater Essex landbank stood at 14.02 years in 2007 and has subsequently reducing to 10.83 years in at the end of 2016. Under both calculation methodologies, the sand and gravel landbank is above the planned requirement of seven years.

Marine-Won Sand and Gravel

¹ Essex County Council, Southend-on-Sea Borough Council and Thurrock Council

Marine won sand and gravel landed in ports either within or in counties adjacent to Greater Essex (plus London) has increased between 2007 and 2016, from 7.44 million tonnes in 2007, to 8.7 million tonnes in 2016. This increase has been year-on-year since 2012.

Imports and Exports

Across Greater Essex, there are currently 5 mineral transshipment facilities.

In 2014, of the 4.3mt of sand and gravel consumed in Greater Essex, 60% - 70% of this came from Essex. A further 21% - 31% originated from Adjacent Authorities. A further nine mineral planning areas contributed less than 1% to the total amount consumed.

In 2014, of the 1.5mt of crushed rock consumed in Greater Essex, 60% - 70% came from Somerset. A further 10% - 20% originated from Leicestershire with the same amount also being imported from outside of England and Wales. Powys contributed between 1% - 10%. A further 11 mineral planning areas contributed less than 1% to the total amount of crushed rock consumed.

In terms of the export of sand and gravel, 20 – 30% of the material exported from Greater Essex went to East London. 10% - 20% was exported to Hertfordshire and another 10% - 20% was exported to Suffolk. A further ten mineral planning authorities received sand and gravel from Greater Essex.

Secondary and Recycled Aggregate

As of March 2016, the combined capacity of aggregate recycling facilities with planning permission in Greater Essex totalled 3.9mtpa. There are 47 operational facilities, one under construction and a further two have planning permission that has not yet been implemented. Operational capacity is recorded as 3.87mtpa. Some of these sites are located on active minerals and/or landfill sites and are therefore temporary in nature. In addition, some of the stand-alone facilities also have temporary planning permissions, which will expire in due course. As such, there will be a reduction in aggregate recycling capacity during the respective authorities plan periods.

DASHBOARD: Greater Essex, 2017

	Sales (Mt) 2016	LAA Rate APP* ¹ (Mt)	Av. (10y) Sales (Mt)	Av. (3y) Sales (Mt)	Reserve (Mt)	Landbank (Years)		Capacity (Mtpa)	Comments
						APP	10 yr Av.		
Sharp Sand									Data to this point has been reported as all sand & gravel (see next row) and not divided in to types of sand.
Building Sand									
Land-Won Sand & Gravel	3.40 ↓	4.45	3.27 ↓	3.74 ↓	35.37 ↑	7.95 ↑	10.83 ↑		Trend is increasing Landbank above 7 years
Secondary & Recycled Aggregate								3.9 ↓	Current capacity deficit of 1.5mtpa Issue compounded through time limited permissions
Marine-Won Sand & Gravel* ³	8.87* ⁴				12.8 ↓		39	Unknown* ⁵	Constraints focussed around dredger numbers and the capacity & location of wharves.
Rail Depot Sales (S&G) * ⁶	3.13								Constraints focussed around Network Rail Capacity and the capacity and location of rail depots.
Rail Depot Sales (Crushed Rock) * ⁶	1.53								

- Comments**
1. Land-won sand & gravel landbank is increase, following the adoption of the Essex Mineral Local Plan, which included site allocations. The short, medium and long-term outlook for this aggregate source is positive/resilient.
 2. Greater Essex reliant on hard rock imports, through the 5 rail depots. Constraints focussed around Network Rail Capacity and the capacity and location of rail depots. Therefore port facilities should be safeguarded from sensitive development to ensure continued supply.
 3. Secondary/Recycled aggregate is currently significantly under-provisioned, with further losses expected through re-development and time limited permissions. For this source of aggregate contribution further to supply, additional capacity is required in the short term. Resilience for this aggregate supply is poor in the mid to long term as time limited permissions expire.
 4. Marine-won aggregates are constrained through dredger numbers & the capacity/location of wharves. There are only ports accepting aggregate in Suffolk and Thurrock, in proximity to Greater Essex. Port facilities should be safeguarded from sensitive development to ensure continued supply. Additional information on wharf capacity is required to further analyse resilience, is required through the EMLP (2014).
 5. Significant development is expected in the short and long term, though both housing and infrastructure enabling schemes, both within Greater Essex, and Greater London.

Notes:

- *¹ LAA Rate is the LAA Provision Rate as determined by the MPA as the suitable measure for estimating the landbank for land-won aggregates . The default for MPAs is the ten year average sales, but this must be informed by the three average sales, MLP apportionment and other factors. In the case of Greater Essex, the relevant Local Plans are based on the Annualised Plan Provision (APP). APP = Annualised Plan Provision =- Apportionment based on National and Sub National Guidelines for Aggregates Provision in England documents, of which the latest covers the period 2005 – 2020
- *² As derived from the data for the Thames Estuary and East of England regions, contained within the Marine Aggregates – Capability & Portfolio 2016 (Crown Estate). The figures presented do not relate to the amount of marine-won aggregate that is used within Greater Essex, rather it is the amount of marine-won aggregate that is landed within or in proximity to Greater Essex and could be used within Essex, Thurrock, Southend, Kent, Suffolk, London and potentially further afield.
- *³ This is the amount of aggregate landed at wharves.
- *⁴ Currently awaiting development and publication of a wharf capacity study as part of the Authority Monitoring Report (Minerals Monitoring Indicator)
- *⁵ Based on the data from the Aggregate Mineral Survey (2014)

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1. INTRODUCTION

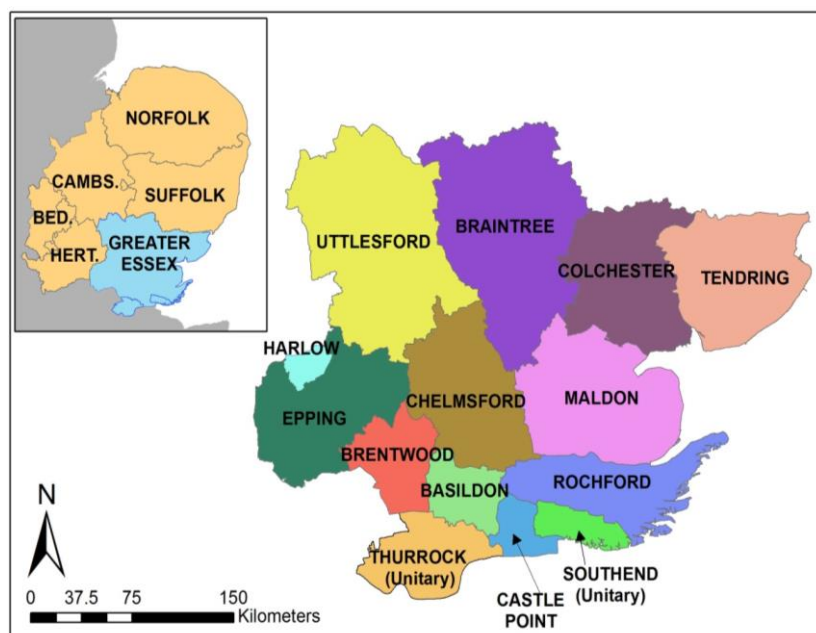
1.1. Background

- 1.1.1. The National Planning Policy Framework (NPPF) requires Mineral Planning Authorities (MPAs), to produce a Local Aggregate Assessment (LAA) annually. This is to aid in determining mineral provision to facilitate development, and to monitor this supply. This will ensure a steady and adequate provision of minerals is provided throughout the period covered by a Minerals Local Plan (MLP).
- 1.1.2. This is the fourth LAA covering Essex, Southend-on-Sea and Thurrock, detailing the position as of December 2016 (the latest available). Information relating to these three administrative areas is amalgamated due to the few workings taking place in Thurrock, which creates issues around commercial confidentiality, and the absence of mineral working in Southend-on-Sea due. Whilst data is amalgamated, the Plan Area pursuant to the Essex Minerals Local Plan (2014) covers Essex only. Southend-on-Sea and Thurrock have their own Local Plans relevant to their own administrative areas.

1.2. Spatial Context

- 1.2.1. 'Essex' consists of a two tier administrative system formed of the County Council and 12 District, Borough and City Councils. 'Essex' adjoins the two Unitary Authorities of Thurrock and Southend-on-Sea. Together, this area is known as Greater Essex (and will be referred to as such throughout this report) and is located within the East of England and to the northeast of London. Greater Essex borders the counties of Hertfordshire, Suffolk, Cambridgeshire and Kent as well as the London Boroughs of Enfield, Waltham Forest, Redbridge and Havering.

Map 1: Spatial Context of Greater Essex



Source: Essex County Council (2016)

1.3. Development Trends

- 1.3.1. All Local Plans produced within Greater Essex predict and support growth for both housing and infrastructure schemes. The level of demand for mineral resources are key considerations for the future of the county and will be primarily dependent on the level of expected housing growth and the construction of its enabling infrastructure. As such, it is crucial that the Mineral Planning Authorities are able to secure and aid the supply of sufficient mineral to realise this growth and maintain existing infrastructure whilst also preventing mineral sterilisation². Therefore, the respective Mineral Local Plans contain safeguarding policies to ensure mineral bearing land is not lost to non-mineral development before extraction can take place. The safeguarding policies also ensure that the operation of existing and allocated mineral developments are not compromised by proximal non-compatible development.
- 1.3.2. Significant infrastructure schemes either planned or programmed for Essex and/or adjoining authorities are identified in the Essex Economic Growth Strategy 2012 and in the Growth Deal and Strategic Economic Plan (2014) produced by the South East Local Economic Partnership (SELEP) include³:
- Significant housing is required within Greater Essex, which has been identified in the relevant adopted/emerging District, Borough and City Local Plans;
 - Major infrastructure investment on the regional strategic road network, there is also potential for improvements to the rail network;
 - Bradwell-on-Sea could be developed for future nuclear power generation. However, at present, the owner has indicated a preference to develop other sites prior to Bradwell;
 - Crossrail is being constructed; programmed for completion in 2018;
 - High Speed 2 is another significant rail infrastructure project that could require contribution from Greater Essex reserves;
 - Flood Defence upgrades;
 - A new Lower Thames Crossing between Greater Essex and Kent is a Nationally Significant Infrastructure Project, currently in the design process.

² Mineral sterilisation occurs when permanent, non-mineral development takes place over mineral bearing land before that mineral can be extracted. The mineral is considered to be 'sterilised' as it can no longer be worked in the future. Encroaching development may also compromise the operation of mineral infrastructure, particularly if the proposed development is sensitive to noise, such as residential dwellings.

³ Source: Authority Monitoring Report (01 April 2015 to 31 March 2016), (ECC) pages 4 and 6

2. EXISTING MINERALS SITES IN GREATER ESSEX

2.1. Geology

- 2.1.1. The geology of Greater Essex dictates where mineral resources will occur and consequently where extraction can take place. This geology provides for economically viable concentrations predominantly of sand and gravel, but also silica sand, brick clay and chalk.
- 2.1.2. Brick clay and chalk are not classed as aggregates, so therefore not reported on through a Local Aggregate Assessment. With regard to silica sand, there is only a single site in Greater Essex where this is extracted, so sales of this mineral are not reported on for reasons of commercial confidentiality. Therefore, figures within this report will relate to sand and gravel, as well as the crushed rock that is imported from outside the county.

2.2. Primary Land-won Aggregate Sites in Greater Essex

- 2.2.1. 'Primary' aggregates are sourced through extraction, either from the land (land-won) or the seabed (marine-won). An MPA plans for the amount of land-won mineral to be provided over the plan period, but has no jurisdiction over marine –won aggregate. Land won minerals are assessed in this section with an analysis of marine won minerals presented in Section 4.
- 2.2.2. As of December 2016, there were 27 sand and gravel quarries (21 of which are operational) across Greater Essex, of which one also produces silica sand. There are also a further four sand and gravel quarries which are currently dormant⁴. The location of active and inactive mineral sites across Greater Essex is shown in Map 2 below.

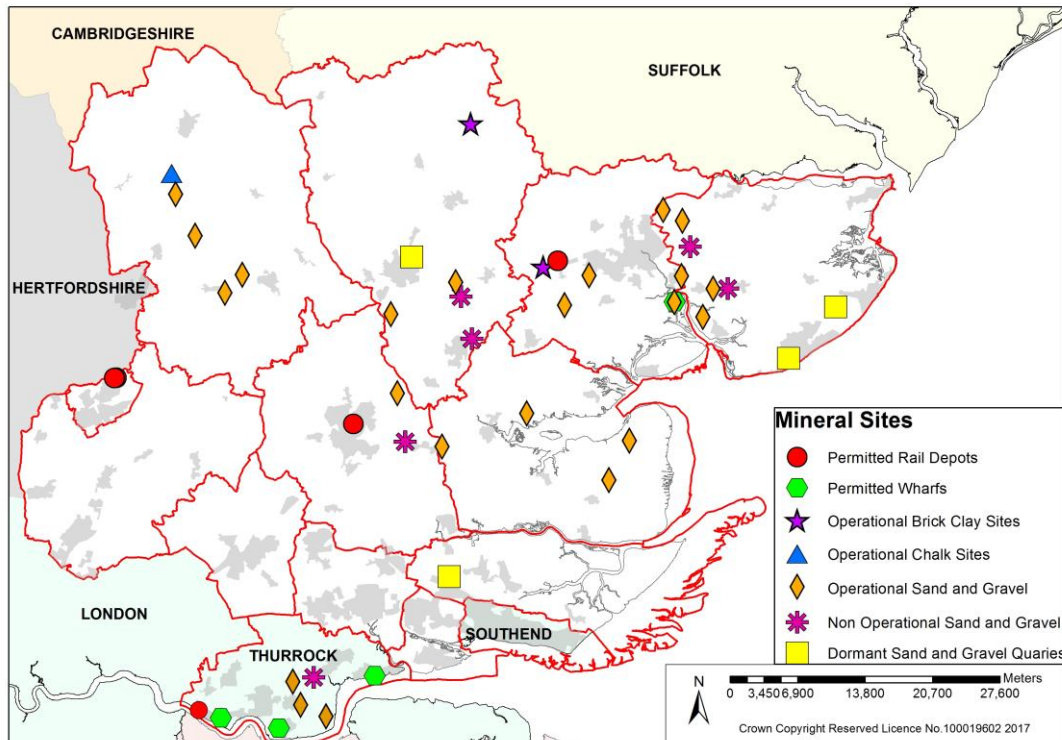
2.3. Mineral Transshipment Sites

- 2.3.1. A mineral transshipment site is an intermediate facility, where minerals are bought on to site then transported to another destination. These will typically be either a rail depot or a wharf, and allow for the sustainable long distance movement of minerals outside of the road network. There are nine mineral transshipment sites within Greater Essex⁵; also shown in Map 2 below.

⁴ These dormant quarries are omitted from the calculation of the 'landbank' and 'permitted reserves' contained within this report.

⁵ Further details of these sites are provided in Annex A.

Map 2: Mineral Extraction & Transhipment Sites (2016)



Source: Essex County Council (2017). The data that informs this table is in Annex A.

2.4. Processing Plants in Greater Essex

- 2.4.1. Primary processing can take a number of forms: Extracted material can be crushed or ground into smaller pieces, then sieved to ensure that particle sizes are within a certain classifications to produce a uniform product. A de-watering process can be used to both reduce the volume of extracted material and ensure it is fit to be turned into its final product. The extracted material can also be further concentrated through exploitation of its physical and/or chemical properties to increase the proportion of valuable mineral and thereby increasing the value of the final product.
- 2.4.2. Primary processing of the material on an extraction site enables a higher and more sustainable use of aggregates. Encouraging such on-site processing reduces lorry movements on the highway network. However, the importation of non-indigenous material for processing can increase vehicle movements and extend the overall life of a mineral development, thereby potentially prolonging industrial uses within the countryside. The Essex MLP (2014) states that all applicants will be required to demonstrate how extracted mineral is to be used in an efficient way by making provision for an on-site primary processing plant.
- 2.4.3. Secondary processing plant, such as for concrete batching, the manufacture of coated materials (eg asphalt), block/tile/brick making and other concrete products appear on mineral, industrial and transhipment sites and are currently well spread across Greater Essex. They allow for a greater range of products to be produced on site and contribute to the economic viability of mineral developments. Locating secondary processing plants on active quarries again has the benefit of reducing the amount of mineral miles on

Greater Essex infrastructure as processing can be carried out at the same location as extraction.

2.4.4. Within Greater Essex there are a number of processing facilities located within or that work in conjunction with primary extraction facilities. In total, there are:

- 16 Primary Processing facilities
- 4 Bagging facilities
- 6 Concrete / Mortar facilities
- 3 Asphalt Coating facilities
- 6 Aggregate Recycling facilities
- 1 Transshipment Facility.

2.4.5. Annex A provides additional details with regard to the processing plants associated with each of the quarry sites within Greater Essex.

3. LAND-WON SAND & GRAVEL

There is a statutory requirement for all Mineral Planning Authorities to have a seven-year landbank of sand and gravel. In determining whether the landbank meets this requirement, it is important to note that this figure is dependent on a calculation involving the amount of permitted reserve and is currently based on adopted local policy in Greater Essex.

There is however an increasing preference for another method for calculating landbanks, which uses the average ten year sales of sand and gravel as a replacement for an apportionment figure derived from a national calculation of need. Both methodologies (the apportionment and an average of ten year sales) are considered in turn within this section to derive the current landbank figure.

3.1. Annualised Apportionment

- 3.1.1. Prior to the establishment of the rolling ten year sales methodology, Aggregate Working Parties had the role in conjunction with MPAs of dividing regional apportionment figures into an annual apportionment for each MPA. The annual apportionment figure equated to the amount of mineral that was required to be extracted in the relevant planning area every year in order to support development.
- 3.1.2. These apportionment figures were underpinned by the 'National and Sub National Guidelines for Aggregates Provision in England documents, of which the latest covers the period 2005 – 2020. Greater Essex has been attributed with a number of different annual apportionment figures over time⁶, of which the latest is 4.45million tonnes per annum (mtpa) for Greater Essex. This is lower than previous requirements as the need for primary mineral has reduced through the use of more sustainable construction techniques and an increasing use of secondary and recycled material.
- 3.1.3. Through negotiation in 2003, it was agreed that of the 4.45mtpa of sand and gravel apportioned to Greater Essex, 4.31mtpa was to be provided from Essex and 0.14mtpa was to be provided by Thurrock, and allocations for new extraction sites are made on the basis of providing enough mineral to satisfy the apportionment across the lifetime of a Mineral Local Plan. Due to the small number of mineral operations in Thurrock and resultant need for commercial confidentiality, it is not possible to provide accurate sales statistics separately for Thurrock⁷. As such, a proxy is required to be used to estimate sales in this planning area. Therefore when assessing sales data across Greater Essex, it is assumed that every year the amount of mineral sold in the administrative area of Thurrock equates to the apportionment of 0.14mt, and actual sales figures are not used. Southend-on-Sea has no apportionment due to it being a constrained urban authority.
- 3.1.4. All statistics in this report will be at the Greater Essex level, in line with all other mineral reporting documents both nationally and sub-nationally.

⁶ as show in in the Annex D.

⁷ sales are used as an indicator of how much mineral has been extracted

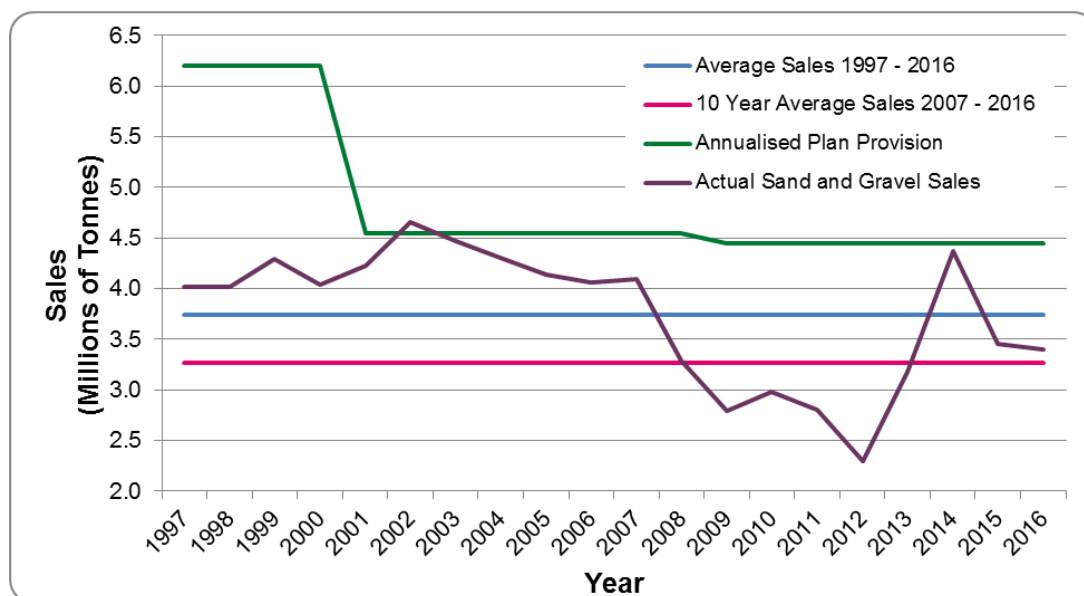
Land-Won Sales of Sand and Gravel

- 3.1.5. Information on aggregate sales is collected annually for all Mineral Planning Authorities (MPAs) in the East of England by the East of England Aggregates Working Party (EEAWP). This information is included in individual Annual Monitoring Reports (AMR) for each MPA.
- 3.1.6. The sales data is obtained through site operators filling in an annual mineral survey. The amount of sand and gravel sold is taken as being broadly analogous to that which is extracted. Given the commercial sensitivity of the data, it is necessary to present the data as amalgamated annual totals rather than on a site-by-site basis to ensure that individual operators are not identifiable. This is in accordance with Aggregates Working Party (AWP) requirements.

Historical Sales (1997 to 2016)

- 3.1.7. Greater Essex is the largest producer of sand and gravel in the East of England. Actual sales data for primary land won aggregate has been produced for the period 1996 to 2016, representing a period of 20 years inclusive. This is shown in Figure 1, below, which incorporates a 20-year sales average, a ten-year sales average as per the NPPF requirement and the combined annual plan provision for Greater Essex (as detailed in the adopted Essex Minerals Local Plan (2014) and the Thurrock Core Strategy (2011)).

Figure 1: Sales of Land Won Sand & Gravel within Greater Essex (1997 to 2016)



Source: Essex County Council Annual Monitoring Reports
The data that informs this table is located in Annex D.

- 3.1.8. There has been a general downward trend in sand and gravel sales across the period covered in Figure 1, although this downward trend has not been uniform. Sales in 1997, representing the start of this period of analysis, were recorded as 4.02 million tonnes. There then followed a period of fluctuating sales, which peaked in 2002 at 4.66 million tonnes. It is important to note that this peak was the only year that the actual sales were in excess of the

annualised plan provision (2% over the 4.55mt required). Following this peak, there was a relatively low year on year decrease in sand and gravel sales until 2007, after which there was a steep decline in sales until 2009. After a small recovery in 2010, sales again dipped, reaching 2.30 million tonnes in 2012, which represents the lowest level of sales across the period assessed. The years between 2009 to 2012 marks the only period where sand and gravel sales have dropped below 3mtpa.

- 3.1.9. Between 2012 and 2014 there was a steep recovery in sales, with the 2014 sales of 4.37mtpa being the highest sales figure since 2008. The sales in 2014 were the second largest peak in the period of study, representing 94% of those recorded in 2002. Sales in 2015 represents the biggest single annual sales reduction, with a continued slight reduction in 2016, resulting in a figure of 3.40 mt at the end of the period of analysis. Comparison of this to the ten-year and three year rolling sales is provided in Table 1, below.

An Assessment of the Last Ten Years of Sand and Gravel Sales

- 3.1.10. The National Planning Policy Framework (NPPF) abandons the apportionment method (as highlighted above) and states that landbanks are to be calculated based on an average of the last ten years of sales in the first instance. It is the case that the 'National and Sub National Guidelines for Aggregates Provision' remain a material consideration nationally and through the locally adopted minerals plans in Greater Essex commits Essex and Thurrock to the annualised apportionment.
- 3.1.11. It is noted that during its meeting in June 2016, members of the East of England AWP expressed concern that the 2020 figures for sub-regional apportionment were becoming outdated but are unlikely to be updated in the foreseeable future. Therefore, it was considered that sand and gravel provision in plans should be based upon the methodology expressed in the NPPF (paragraph 145) and Planning Practice Guidance (paragraphs 61 - 71).
- 3.1.12. The recession beginning in 2007 has had a marked effect on the sales of sand and gravel. After the reduction in the annualised plan provision in 2001 to 4.55mtpa and prior to the recession, sales were within 10% of the annualised plan provision, suggesting that this was a realistic basis for the provision of minerals within the plan areas making up Greater Essex.
- 3.1.13. Since 2007, sales fell until 2012, where sales then increased in 2013 and 2014 to the highest value over the ten-year period. Sales subsequently decreased to 3.40 million tonnes in 2016, but remain higher than that recorded between 2008 and 2013. The latest data point represents higher sales than provided by the 10-year average sales value by 130 thousand tonnes (or 4%). The MPAs of both Essex and Thurrock will continue to monitor the pattern of sales and establish whether the current annualised plan provision stated in their respective mineral policies remain an appropriate basis upon which to release mineral.

An Assessment of the Last Three Years of Sand and Gravel Sales

- 3.1.14. National Planning Policy Guidance (NPPG) states that MPAs should also consider the average of the previous three-year sales to identify the general trend of demand to assist in determining whether it might be appropriate to increase mineral supply. The three-years average sales should also be taken into account to ensure that the ten-year average remains at an appropriate level.
- 3.1.15. The last three years of sales show an overall decrease from 4.47mt in 2014 to 3.45 million tonnes in 2015 and then to 3.40 million tonnes in 2016. Overall this represents a decrease of 22% between 2014 and 2016. As stated, sales of sand and gravel will continue to be monitored to ascertain whether this downward trend continues.

Comparison between the Methods of Calculating Sand and Gravel Supply

- 3.1.16. Table 1 below identifies the differences between the annualised plan provision, ten year average sales and three year average sales data. It also includes the 20 year average (1997 to 2016) as shown in Figure 1 for reference. It also identifies how the various MPAs contribute to the Greater Essex apportionment figure in all three methods of calculation.

Table 1: Comparison of Sand & Gravel Landbank Within Greater Essex

	Annualised Plan Provision (Apportionment)	Ten Year Sales Average 2007-2016	Three Year Sales Average 2013 - 2016	20 year Sales Average 1997 - 2016
Greater Essex	4.45mtpa	3.27mt	3.74mt	3.75
Essex	4.31mtpa	3.13mt	3.60mt	3.61mt
Thurrock	0.14mtpa	0.14mt	0.14mt	0.14mt
Southend-on-Sea	0mtpa	0mt	0mt	0mt

Source: Essex County Council (2017)

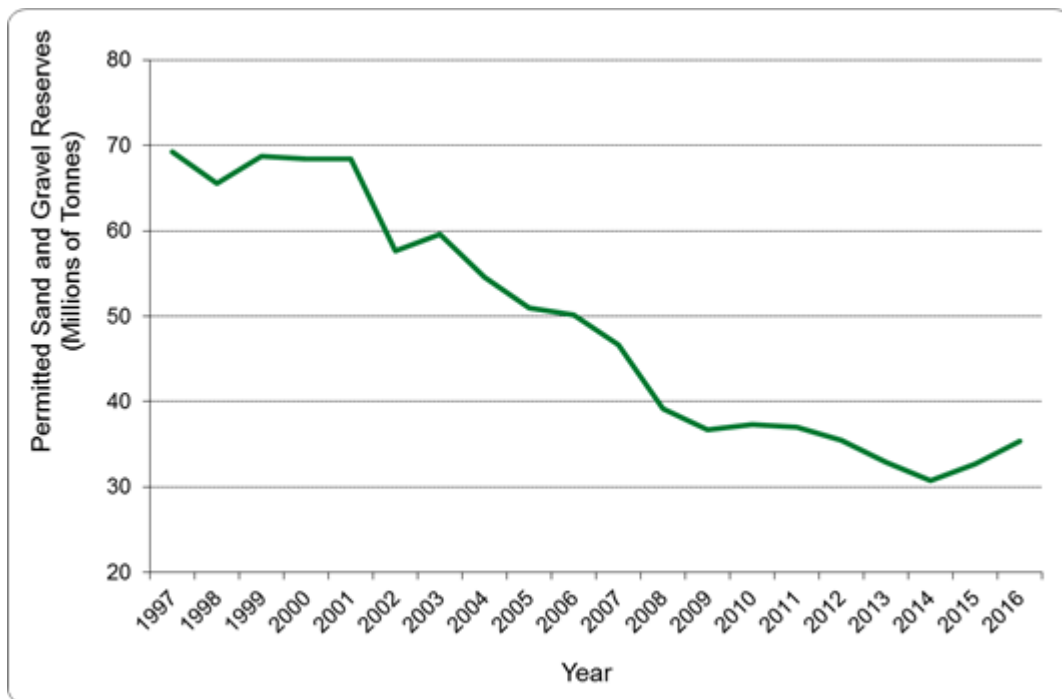
- 3.1.17. From Table 1 above, it can be seen that the ten-year average sales is a figure of 3.27mt. This is below the three-year average sales of 3.74mt. The three-year average sales figure is close to the average for the entire period of analysis (1997 to 2016 – 20 years in total) which stands at 3.75mt.
- 3.1.18. The annualised plan provision apportionment value is higher than either of the average sales values and has not been met in the period following 2009 when the current apportionment was set. However, the ten-year average sales figure of 3.27mt is below actual sales since 2013, which would question the appropriateness of adopting that figure as a basis for mineral provision, despite the last three years of sales showing an annual decrease.

- 3.1.19. The sales of sand and gravel will continue to be monitored to aid in any future revision of the Minerals Local Plan 2014 to ensure that an appropriate amount of mineral is permitted for extraction to support sustainable development.

3.2. Permitted Reserves of Sand & Gravel in Greater Essex⁸

- 3.2.1. The minerals accounted for in this section do not equate to the total mineral supply either required by Greater Essex or used within Greater Essex, as minerals are the subject of importation and exportation. Whilst an MPA can set the quantity of mineral that can be extracted, it has no jurisdiction over where this mineral is sold. Import and export of sand and gravel is assessed in Section 5. Contributions are also made by recycled aggregate that are assessed in Section 6.

Figure 2: Permitted Sand & Gravel Reserves in Greater Essex (1997 to 2016)



Source: Essex County Council (2017)

The data that informs this table is located in Annex C

- 3.2.2. There has been a clear reduction the mineral Greater Essex has permitted for extraction over the last 20 years. Permitted reserves were 69.28 million tonnes in 1997 and although there was an up-turn in 2015 that continued during 2016, the permitted reserve stands at 35.37 million tonnes at 31st December 2016. This equates to 47% of that recorded in 1996. The trend of a falling reserve results from sales being higher than the amount of material being added to the reserve by way of planning permissions. This reduction in permitted sand and gravel reserves is considered to be a national trend and not specific to Essex. The British Geological Survey report⁹ (2008) stated that this national downturn was due to insufficient

⁸ Dormant mineral developments are not included in the calculations in this section

⁹ BGS: Reasons for the Decline in Aggregate Reserves in England, 2008

planning applications for extraction being submitted for determination by mineral operators rather than too conservative an approach by Mineral Planning Authorities in awarding planning permissions. Furthermore, a reduction in permitted sand and gravel reserves is only significant when it results in the landbank falling below the national statutory minimum of seven years.

- 3.2.3. The Greater Essex upturn shown in the recent period (post 2015) could be a result of the adoption of the Essex MLP (2014), and the influx of planning applications for determination on the newly adopted MLP site allocations: Recently granted applications for extraction include Bradwell Quarry (ref: ESS/24/14/BTE) and Stanway Quarry Fiveways Fruit Farm (ref: ESS/23/14/COL) and later Colemans Farm (ref: ESS/39/14/BTE).

3.3. Sand and Gravel Landbank held in Greater Essex

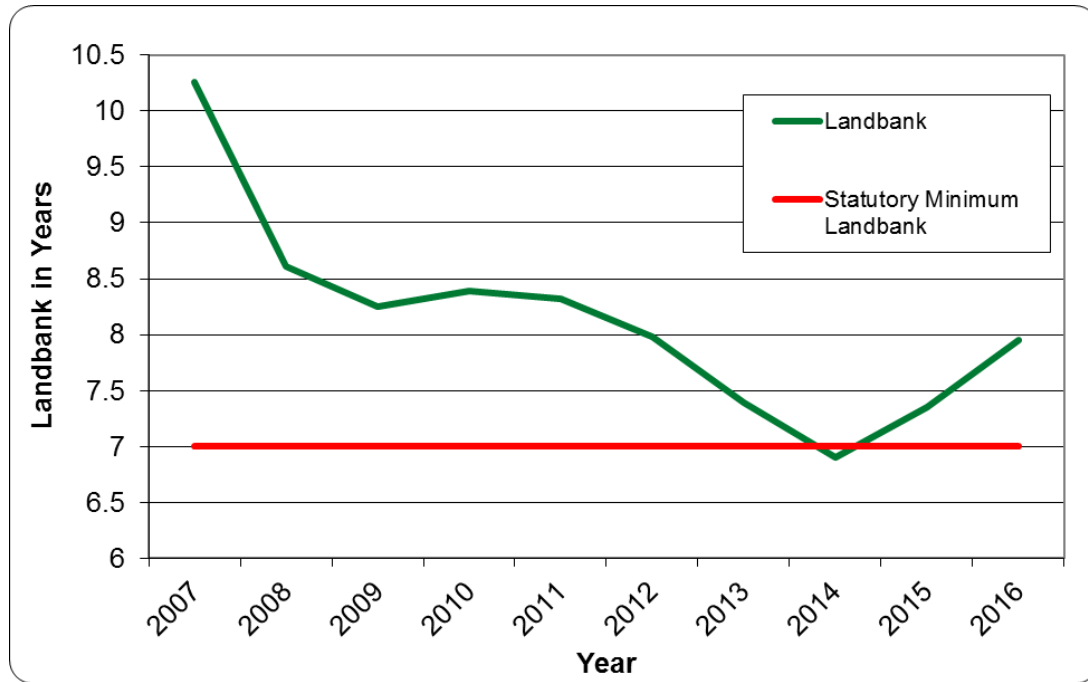
- 3.3.1. During the previous ten years, the annual apportionment operating in the Greater Essex area reduced from 4.55mtpa to 4.45mtpa and therefore the landbank is not directly comparable across the period of study. A lower annual apportionment equates to a lower assumed annual usage rate of the permitted reserves, which manifests as a larger landbank, as the landbank will last longer if the rate of use is lower. As such, whilst the amount of permitted reserves has fallen, Greater Essex has partly been able to maintain its seven-year landbank due to the annual apportionment figure reducing over time.
- 3.3.2. A landbank is calculated by dividing the total amount of permitted reserve by the annual amount of mineral permitted to be extracted, and is reported in years. This yearly value is the length of time that the landbank will last before it is exhausted, at the calculated rate of usage, and if no further mineral is permitted for extraction,
- 3.3.3. Should the landbank fall below the national statutory seven-year minimum (that is, it would be exhausted within seven years or less), planning applications could be bought forward on land not allocated within the Mineral Local Plan and be assessed in light of there being a need for the mineral that is not currently being provided for through existing sites. Such an approach leads to the weakening of the Plan-led system that is at the forefront of planning policy.

Annualised Plan Provision Sand and Gravel Landbank

- 3.3.4. The landbank as calculated through the Greater Essex annualised apportionment is shown below. This method reflects adopted policy in both the Essex and Thurrock mineral local plans. The graph below uses the appropriate annual apportionment figure for each yearly period¹⁰.

¹⁰ Prior to 2009 the apportionment was 4.55mtpa, and 4.45mtpa from 2009 onwards.

Figure 3: Annualised Greater Essex Landbank (2007 to 2016)



Source: Essex County Council (2017)

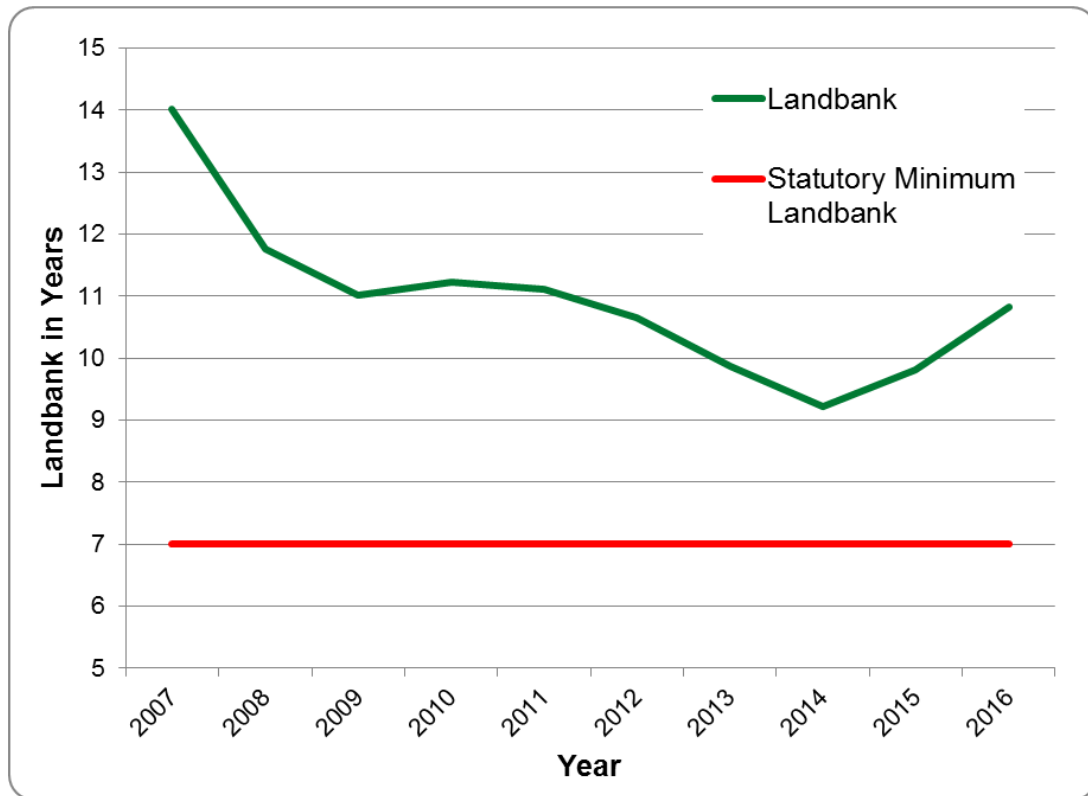
The data that informs this table is located in Annex D

- 3.3.5. The landbank within Greater Essex has reduced over the previous 10 years, from 10.26 years in 2007 to 7.95 years in 2016. The landbank reduced year on year until 2009 before a slight increase in 2010. This upturn is because of the granting of planning permissions, notably Crown Quarry in Ardleigh, (ref: ESS/57/04/TEN), and Lufkins Farm, Thorrington (ref: ESS/10/13/TEN). From 2011, the landbank again reduced yearly until 2014 where it was recorded at 6.90 years.
- 3.3.6. Although this resulted in a landbank below 7 years, this is considered to be a result of site operators not submitting planning applications for mineral extraction during the 2013 Examination in the Public for the Essex MLP., The submission of major new mineral applications in Essex may have been considered as being “premature” by the Mineral Planning Authority and placed on hold at this late stage of mineral plan formation. However, following adoption of the Essex MLP (2014), several applications have since been submitted and determined, resulting in additional permitted reserves and a landbank in 2016 of 7.95 years which is above the statutory minimum.

Ten Year Average Sales Sand and Gravel Landbank

- 3.3.7. In accordance with the NPPF requirements of using a ten-year average sales calculation as a starting point to base mineral provision, , a second landbank figure has been calculated based on the ten year rolling sales average of 3.27mtpa as shown below.

Figure 4: Greater Essex 10-Year Average Sales Landbank (2006 to 2016)



Source: Essex County Council (2017)

The data that informs this table is located in Annex D,

- 3.3.8. By calculating the landbank in this manner, it can be seen to be significantly higher than the statutory minimum figure of seven years across the period assessed above. The general trend is still one of a declining landbank across the last ten years, from 14.02 years in 2007 to 10.83 years in 2016. The 2016 figure continues an upturn from the 9.23 years reported in 2014.

Landbank Summary

- 3.3.9. It can be seen that there is a large difference between the landbank, when using the plan apportionment and the ten-year average sales method of calculation. When basing the landbank calculation on the apportionment contained in the Essex Minerals Local Plan, in 2014, it can be seen that the landbank dipped under the seven-year landbank requirement. However, when basing the calculation on the ten-year average sales, the landbank would have been 9.23 years in 2014 which is above the statutory minimum.
- 3.3.10. In either case, the current landbank stands in excess of the statutory minimum of seven years, meaning that the current level of permitted reserves is considered sufficient to contribute to sustainable development in the Plan area.

3.4. Summary of Sand and Gravel Sales Data and Consequences on Future Supply

- 3.4.1. In terms of future supply, sales have not increased beyond the annualised plan provision (apportionment) that Greater Essex policy is based upon in any of the last ten years.
- 3.4.2. If an average of the last ten-years sales is used as the basis of the rate of sales, the Greater Essex landbank stands at 10.83 years, which is comfortably above the statutory minimum of seven years.
- 3.4.3. As required by the NPPG, a quantitative check has been undertaken through considering the three-year average sales to identify whether the ten years average sales remains representative. Coupled with what is only a moderate decrease in sales over the previous three years, it is considered that the current rate of provision in both the Essex Minerals Local Plan 2014 and Thurrock Core Strategy 2015 is appropriate such that sufficient mineral is permitted to facilitate sustainable development within the Plan area.

3.5. Silica Sand Provision in Greater Essex

- 3.5.1. Silica sand in Greater Essex is produced at a single site (Martells Quarry, Ardleigh) and it is therefore not possible to provide sales data to protect commercial confidentiality. The currently extant permission for the site is planning permission reference ESS/46/14/TEN. There is a more recent permission (ref. ESS/23/15/TEN) although this is yet to be implemented on site.
- 3.5.2. In order to maintain the statutory ten-year minimum landbank for this mineral, an extension of the site was allocated at Slough Farm within the Essex Minerals Local Plan (2014).

4. MARINE-WON SAND & GRAVEL

- 4.1.1. Marine-won aggregates are an alternative to land won aggregates. Like land-won aggregate, marine-won minerals are used for a variety of construction purposes including mortar and road sub-base, reclaiming land from the sea and beach nourishment.
- 4.1.2. This section largely identifies the marine-won sand and gravel landed within the Thames Estuary region. A broad analysis of the importation of marine-won sand and gravel into Greater Essex is presented in Section 5.

4.2. Dredging Areas and Wharf Facilities Serving Greater Essex

- 4.2.1. Ports can be considered as ‘virtual quarries’ as mineral can be sold/distributed from these sites, whilst many ports have processing facilities allowing mineral to be graded. The marine-won sand and gravel landed in the East of England is mainly sourced from the Thames Estuary Licensed Area.
- 4.2.2. The East of England is a major point of entry for marine dredged aggregate, with the National and Regional Guidelines for Aggregate Provision in England 2005 – 2020 assuming 14 million tonnes of marine sand and gravel will be landed during that time. This equates to 0.93 million tonnes a year, although this is not apportioned to individual authorities.
- 4.2.3. Marine landed minerals contribute to the supply of minerals serving Greater Essex from elsewhere. Essex does not have a port that accepts marine landed aggregates and instead relies on marine landing points in adjoining authorities, namely Ipswich and the Thames Estuary. The aggregate landing ports serving Greater Essex are shown in Table 2 and Map 3, below. The Map also identifies the ports and eight licensed marine dredging areas closest to Essex, alongside two new dredging application areas and two exploration areas.

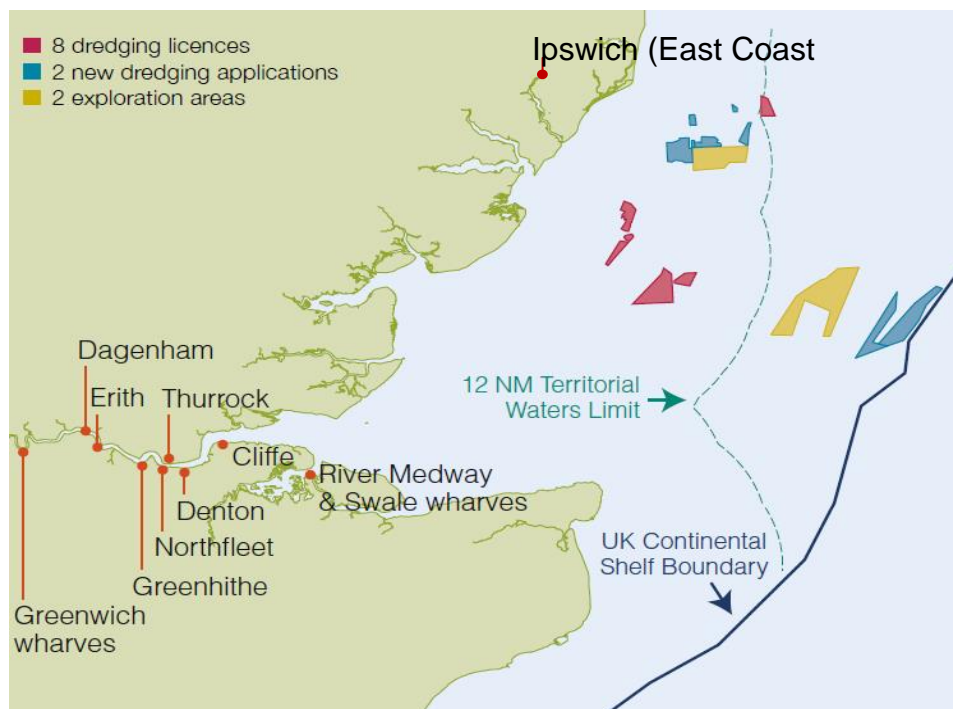
Table 2: Wharves with the Capacity to Serve Greater Essex (2016)

Thames Region	
Barking	Barking, Docklands Wharf
Cliffe	Alpha Wharf, Cliffe, North Sea Terminal
Dagenham	Hanson/ARC Dagenham, Dagenham
Denton	Denton, Denton B.A.D, Denton Sand, J Clubbs
Erith	Erith, Pioneer Wharf
Greenhithe	Greenhithe
Greenwich Wharves	Angerstein, Blackwall Wharf, Charlton, Delta Wharf, Greenwich, Murphy's Wharf, Phoenix Wharf, Victoria Deep Wharf
London Docklands Wharves (mostly disused)	Canning Town, Cargo Fleet Wharf, Clarence Wharf, East India Dock, Heron Quay, Millwall, Orchard Wharf, Peruvian Wharf, Rotherhithe, Silvertown, Thames Wharf, Thamesmead, Union Wharf, Victoria Wharf
Northfleet	Northfleet, Northfleet Brett, Robin's Wharf
River Medway & Swale Wharves	Queenborough, Ridham, Rochester, Rochester Hanson, Sheerness
Thurrock	Purfleet, Purfleet PAL, Thurrock

East Coast Region	
Ipswich	Hanson/ARC Ipswich, Ipswich

Source: The Crown Estate: Marine Aggregates Summary of Statistics (2016)

Map 3: Marine Dredging Areas in Proximity to Greater Essex (2016)



Source: Adapted from Crown Estate: [Marine Aggregates – Capability and Portfolio](#) (2016) pages 7 and 8

Note: Each landing port will have a number of associated wharves. For example, the landing port of West Thurrock includes the wharves of Purfleet and Thurrock as noted in Table 2 above.

- 4.2.4. Paragraph 143 of the NPPF states (inter-alia) that MPAs should safeguard existing, planned and potential rail heads, rail links to quarries, wharfage and associated storage, handling and processing facilities for bulk transport by rail, sea or inland waterways of minerals, including recycled, secondary and marine-dredged materials.
- 4.2.5. Within Thurrock there has been a reduction in the availability of wharves in the recent years. By 2016, one wharf was used to import marine dredged sand and gravel. This was the Lafarge Aggregates site to the immediate east of the QEII Bridge. The other wharf sites are used for other purposes (such as the importation of ash used in slag cement production, or used for coated roadstone production using aggregate delivered by road and rail).

4.3. Marine Aggregate Landings

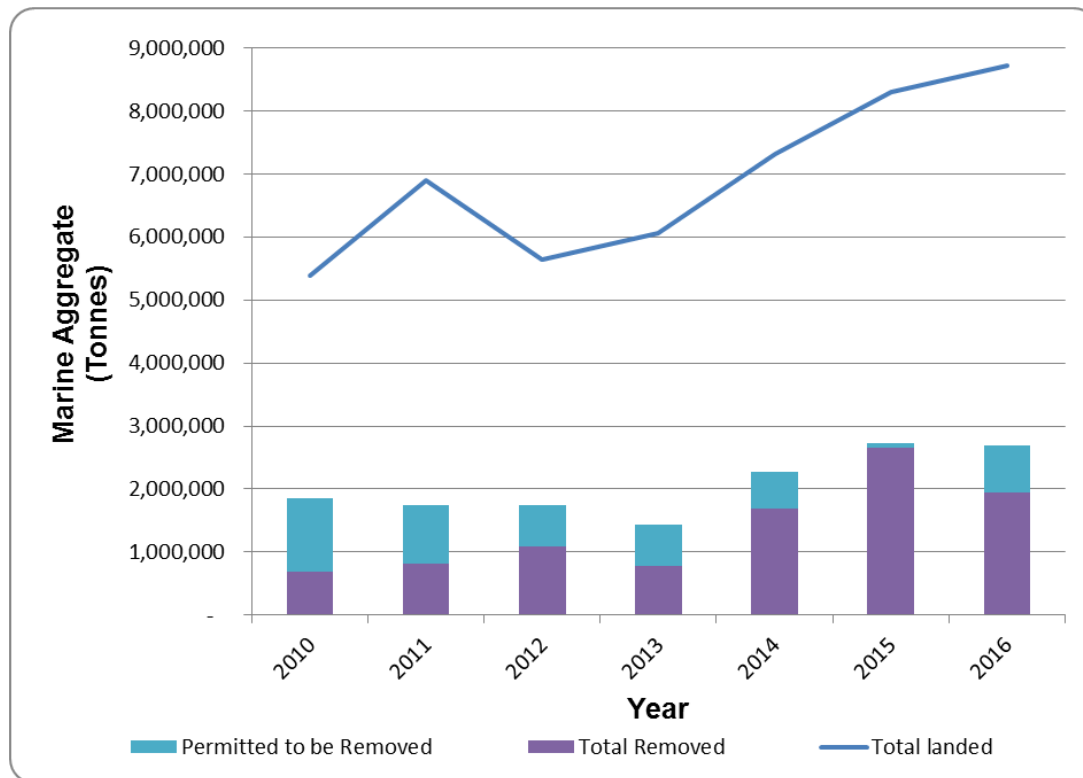
- 4.3.1. The Crown Estate collects statistics regarding marine-won mineral landed at each of its ports, although these statistics do not define the mineral's final destination. Therefore, the figures presented do not relate to the amount of marine-won aggregate that is used within Greater Essex, rather it is the amount of marine-won aggregate that is landed within or in proximity to Greater Essex and could be used within Essex, Thurrock, Southend, Kent, Suffolk, London and potentially further afield. However it can be said that

due to their mass, landed minerals do not have a large economically viable transportation distance, unless transported by rail, and as such minerals landed in the Thames Estuary region and Suffolk will be utilised in the surrounding vicinity. Studies carried out by the British Geological Survey suggests that the cost of a lorry load of primary aggregate doubles at a transportation distance of 40km, with 60km being the maximum typical trading distance by road. Consumption statistics are presented in Section 5.3.

- 4.3.2. The most recent Crown Estate report¹¹ stated that during 2015, 88.5% of material extracted from the Thames Estuary dredging areas was delivered to the Thames Estuary region ports, with the remainder going to the East Coast, South Coast, Humber and mainland Europe. The resources in the Thames Estuary consist of a variety of grade of sand ranging from fine to very coarse sands and fine to coarse gravels. Currently 3.7mtpa of material is permitted for extraction from the eight licences within this region. Current estimates suggest there are 24 years of primary marine aggregate production permitted within the Thames Estuary Region. There were four application/exploration areas for licences that could if approved, increase the permitted tonnage by 4.8 million tonnes.
- 4.3.3. A further Crown Estate statistical¹² Report identifies the dredging and landing statistics, which have been summarised for the Thames Estuary area. The figure below shows the total amount of marine aggregate that was extracted from the Thames Estuary Area, the additional amount that has permission to be extracted (removed) and the amount of marine aggregates that were landed at ports within the Estuary area.
- 4.3.4. It can be seen that a total of 1.9 million tonnes of marine aggregate were removed from the sea bed in 2016, although there was permission for an additional 759 thousand tonnes to be removed, meaning only 72% of the annually permitted extraction occurred. This is in contrast to 2015, where 96% of the permitted removal occurred, but is higher than the last seven year average of 62%.

¹¹ Marine Aggregates – Capability & Portfolio 2016 (Crown Estate)

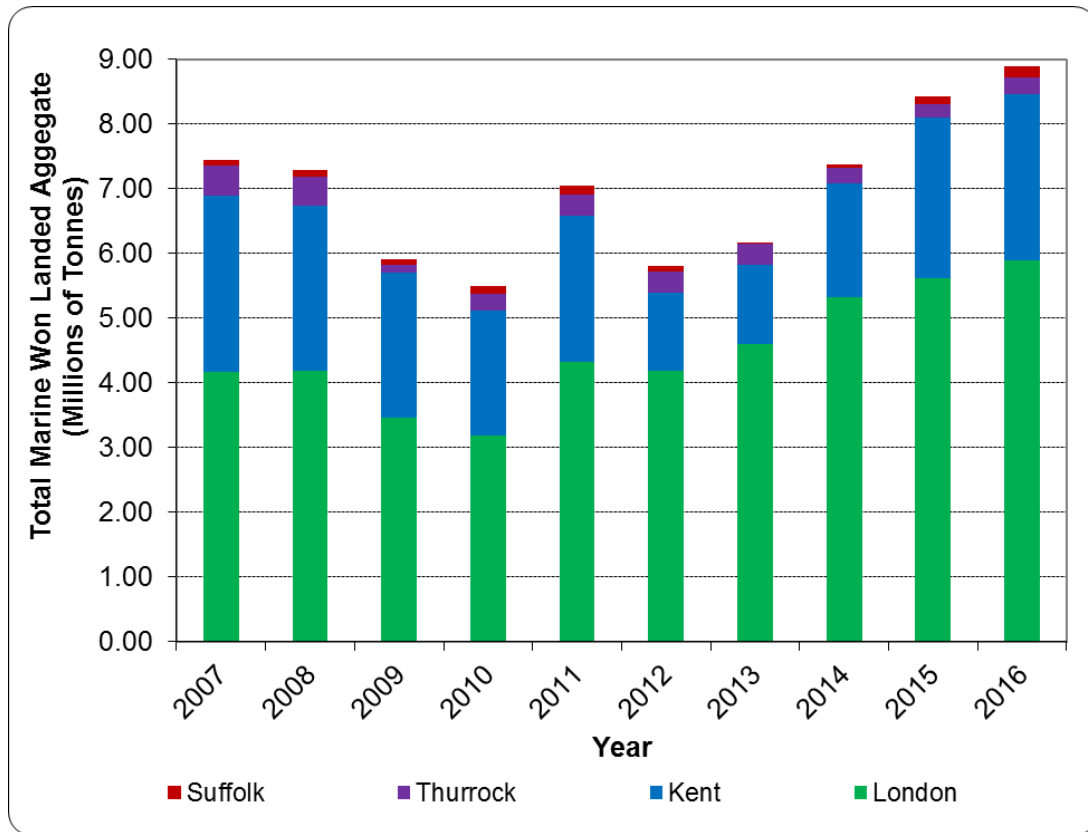
¹² Marine Aggregates - The Crown Estate Licences, Summary Of Statistics 2016 (Crown Estate)

Figure 5: Marine Aggregate Extraction in the Thames Estuary Region (2016)

Source: Essex County Council (2017), as derived from data contained within the Marine Aggregates - The Crown Estate Licences, Summary Of Statistics (Crown Estate) reports between 2010 and 2016.

- 4.3.5. From the above figure, it is interesting to note that there was a total of 8.7 million tonnes landed within the Thames Estuary area, which is significantly more than the total removed (1.9 million tonnes). This shows a significant quantity (6.8 million tonnes) was extracted from other licenced areas (such as the East Coast) and landed here, to assist with the significant amount of mineral required for development in the Greater London Area.
- 4.3.6. Regarding the East Coast Region in 2016, 90.7% of material extracted was delivered to the Thames Estuary region, 7% to mainland Europe and 2.3% to Humber and South Coast. The resources range from fine sand to very coarse sand and fine to medium gravel. Currently 9.1mtpa of material is permitted for extraction from the 12 licences, although there is only one wharf in the region that receives mineral. There were two application/exploration areas for licences that could, if approved, increase the permitted tonnage by 1.1 million tonnes.
- 4.3.7. Only 171 thousand tonnes were landed within the East Coast region, whilst 4.3 million tonnes were removed through extraction. This means that a significant amount was extracted but landed in other regions.
- 4.3.8. The following figure details the amount of marine won mineral landed in ports within London, Thurrock, Kent and Suffolk. It is considered that marine dredged minerals landed at these ports have the capacity to be used in Greater Essex.

Figure 6: Marine-Won Mineral Landed in Ports that Serve Greater Essex (2007 to 2016)



Source: The Crown Estate, Summary of Statistics, 2007 – 2016¹³
The data that informs this table is located in Annex F.

- 4.3.9. There have been fluctuations in the amount of marine-won aggregate landed between 2007 and 2016, but overall there has been an increase from 7.44 million tonnes to 8.89 million tonnes, representing an increase of 19%. Between 2007 and 2010 however, there was a year-on-year reduction from 7.44 million tonnes to 5.49 million tonnes before landings increased to 7.05mt in 2011. This figure reduced again in 2012 to 5.8 million tonnes, before increasing year on year to 8.89 million tonnes in 2016.
- 4.3.10. When ports are analysed by administrative region, there has been an overall increase in the marine-won aggregate coming into London ports, (42%) whereas there is more fluctuation within Thurrock, Kent and Suffolk. Kent, comprising of three wharves, has seen a reduction of 7% since 2007, whilst during the same time frame, Suffolk comprising of a single wharf, saw a doubling of the amount of aggregate landed and Thurrock comprising a single wharf saw a decrease of 43%.

4.4. Increasing the Proportion of Marine-won Sand to Offset Land-won Production

- 4.4.1. Increasing the proportion of marine won sand and gravel to offset the provision required from land won sources, is outside of the remit of Mineral

¹³ <https://www.thecrownestate.co.uk/energy-minerals-and-infrastructure/downloads/marine-aggregate-downloads/>

Planning Authorities, as marine extraction areas are leased by the Crown Estate, with licenses to dredge issued by the Marine Management Organisation (MMO).

- 4.4.2. Discussions with the MMO evidenced that production rates are approximately 50% of the permitted amount that is licensed to be removed. New applications are also proceeding through the licensing process. As such, it can be concluded that marine sources are not constrained by resource availability or by a limit on permitted reserves. Instead, the constraints are focussed around production capability limited by existing dredger numbers (and their production rate), and the ability to access the market, which is determined by the capacity and location of wharves and associated infrastructure.
- 4.4.3. MPAs can ensure that marine-won sand is able to make an important contribution to land-won mineral by ensuring that wharves and ports are safeguarded from the encroachment of incompatible development that may compromise the ability of these marine facilities to carry out their function. It is not however considered appropriate to reduce land-won reserves such that they are replaced by marine-won reserves as marine sources are constrained by productive capacity rather than demand.

5. IMPORTS & EXPORTS OF LAND-WON AGGREGATE

- 5.1.1. Historically, approximately 75% of the mineral extracted within Greater Essex has been used within the county, with the majority of that exported going to London. Greater Essex is heavily reliant on hard rock importation, which is used, for example, as a construction material and rail ballast as well as limestone, used in cement making. A pattern of long-distance supply to Greater Essex has emerged where mineral types are needed but are not indigenous to Greater Essex; Important sources of imports are the East Midlands for hard rock and limestone is sourced from the South West.

5.2. Methods of Mineral Transportation within Greater Essex

- 5.2.1. There are three bulk transport modes for the movement of minerals, which are road, rail and water. For internal, relatively short movements, the road network is the most effective and heavily used mode of transportation, as this offers route flexibility and the ability to deliver to any final destination. Evidence suggests it is more efficient to transport aggregate over short distances by road. Rail and water however provides the most effective long distance transshipment opportunities, despite involving 'double handling' i.e. loading and unloading of aggregate on to lorries at each end.
- 5.2.2. There are safeguarded mineral transshipment sites at the following locations within Essex and Thurrock:
- **Chelmsford Rail Depot**, used for the import of limestone and export of sand and gravel
 - **Harlow Mill Rail Station**, used for the import of limestone and export of sand and gravel
 - **Marks Tey Rail Depot**, used for the export of sand and gravel
 - **Ballast Quay, Fingringhoe**, a wharf for the export of sand and gravel originating from the associated quarry to London
 - **Jurgens Road, (Purfleet)**, used for coated roadstone production using aggregate delivered by road and rail. Historically, crushed rock was imported by river but Thurrock Council is not aware that it was ever used for the importation of sand and gravel. No use of the river is being made at present.
- 5.2.3. There is also some cross-boundary movement of aggregate by road into and from neighbouring areas, although exportation to London is predominantly by rail.

5.3. Land & Marine Won Sand & Gravel Consumed within Greater Essex

- 5.3.1. The following table identifies the total land and marine won sand and gravel consumed within Greater Essex. The most recent data set relating to this section was based on the national minerals survey undertaken in 2015 (based on consumption in 2014). This section has therefore not been amended since last years' edition of the Greater Essex LAA.

Table 3: Sand & Gravel Consumed by Administrative Area of Origin (2014)

Total Land and Marine Won Sand & Gravel Consumed within Greater Essex		4,329,000t
Administrative Area of Origin	Proportion (%)	Assumed Figure (t)
Essex	60-70	2,597,400 - 3,030,300
Greater London East	20-30	865,800 - 1,298,700
Thurrock	1-10	43,290 – 432,900
Kent	1-10	43,290 – 432,900
Hertfordshire	<1	<43,290
Central Bedfordshire	<1	<43,290
Suffolk	<1	<43,290
Norfolk	<1	<43,290
Cambridgeshire	<1	<43,290
Leicestershire	<1	<43,290
Wiltshire	<1	<43,290
Nottinghamshire	<1	<43,290
Staffordshire	<1	<43,290

Source: Aggregate Mineral Survey 2014, BGS

- 5.3.2. The majority of the total land and marine won sand and gravel consumed within Greater Essex was extracted within Essex, at between 60 – 70% of the total volume consumed. Greater London East was the second largest contributor, with between 20 – 30% of the total amount of land and marine won aggregate consumed originating from authorities within this sub-region. There are a further 10 mineral planning authorities through which Greater Essex received land and marine won sand & gravel, all of which provide <1% with the exception of Kent, which is between 1 - 10%. Dialogue will continue to take place with all of the Mineral Planning Authorities identified in the table above to ensure that the importation arrangements upon which Greater Essex currently depend can be maintained.

5.4. Land Won Sand and Gravel Consumed in Greater Essex

- 5.4.1. Land and marine won imports of sand and gravel can also be assessed separately and are shown in the tables below:

Table 4: Land-won Sand & Gravel Consumed by Administrative Area of Origin (2014)

Total Land Won Sand and Gravel Consumed within Greater Essex		3,133,000t
Administrative Area of Origin	Proportion (%)	Assumed Figure (t)
Essex, Southend & Thurrock	90 - 100%	2,819,007 - 3,133,000
Hertfordshire	1 - 10%	31,330 - 313,300
Cambridgeshire	<1%	<31,330

Imports & Exports of Land-Won Aggregate

Central Bedfordshire	<1%	<31,330
Kent	<1%	<31,330
Leicestershire	<1%	<31,330
Norfolk	<1%	<31,330
Nottinghamshire	<1%	<31,330
Staffordshire	<1%	<31,330
Suffolk	<1%	<31,330
Wiltshire	<1%	<31,330

Source: Aggregate Mineral Survey 2014, BGS

- 5.4.2. The majority of the total land-won sand and gravel consumed within Greater Essex in 2014 was extracted within Greater Essex, at between 90 – 100% of the total volume consumed. Hertfordshire was the second largest contributor, with 1 – 10% of the total amount of land-won aggregate consumed originating from this administrative area. There are a further nine mineral planning authorities through which Greater Essex received land-won sand & gravel, all of which provided <1% of the total consumed.

Table 5: Marine-won Sand & Gravel Consumed by Administrative Area of Origin (2014)

Total Marine-won Sand and Gravel Consumed Within Greater Essex		1,195,000t
Landing Port	Proportion (%)	Assumed Figure (t)
Greater London East	70 - 80	836,500 - 956,000
Thurrock	10 - 20	119,500 - 239,000
Kent	1 - 10	11,950 - 119,500

Source: Aggregate Mineral Survey 2014, BGS

- 5.4.3. The majority of the total marine-won sand and gravel consumed within Greater Essex in 2014 was landed in Greater London East, at between 70 – 80% of the total volume consumed. Thurrock was the second largest contributor, with 10 – 20% of the total amount of land-won aggregate consumed originating from this administrative area. The remainder of marine-won sand & gravel consumed in Greater Essex was landed in Kent, at 1-10% of the total.

5.5. Crushed Rock Consumed in Greater Essex

- 5.5.1. There are no natural occurrences of hard rock within Greater Essex. This area is therefore reliant on imports from other authorities for the provision of this mineral. The table below identifies where these imports were from.

Table 6: Crushed Rock Importation into Greater Essex by Administrative Area of Origin (2014)

Total Crushed Rock Consumed	1,525,000t	
Administrative Area of Origin	Proportion (%)	Assumed Figure (t)

Total Crushed Rock Consumed	1,525,000t	
Administrative Area of Origin	Proportion (%)	Assumed Figure (t)
Somerset	60-70	915,000 – 1,067,500
Leicestershire	10-20	152,500 – 305,000
Outside of England and Wales	10-20	152,500 – 305,000
Powys	1-10	15,250 – 152,500
Warwickshire	<1	<15,250
Derbyshire	<1	<15,250
Shropshire	<1	<15,250
Peak District National Park	<1	<15,250
North Somerset	<1	<15,250
Cambridgeshire	<1	<15,250
Gloucestershire	<1	<15,250
Kent	<1	<15,250
North Yorkshire	<1	<15,250
Northumberland National Park	<1	<15,250
Rhodda, Cynon, Taf (Taff)	<1	<15,250

Source: Aggregate Mineral Survey 2014, BGS

- 5.5.2. Greater Essex consumed 1,525,000 tonnes of crushed rock but none of this mineral originated from within the combined Minerals Planning Area of Greater Essex. This resource does not exist in Greater Essex and therefore Greater Essex is entirely reliant on the importation of this mineral. The single largest exporter to Greater Essex is Somerset who contributed 60% - 70% of the total proportion of crushed rock consumed. In total Greater Essex is reliant on 14 separate mineral planning areas for their crushed rock supply, with a further 10 – 20% coming from outside England and Wales. Dialogue will continue to take place with all of the Mineral Planning Authorities identified in the above table to ensure that the importation arrangements upon which Essex, Southend and Thurrock currently depend will be maintained. These discussions form the basis of the Duty to Co-operate programme undertaken in the planning areas of Essex and Thurrock.

5.6. Exportation of Land and Marine Won Sand & Gravel from Greater Essex

Table 7: Exportation Destination of Land and Marine Won Aggregate Originating from Essex (2016)

Destination	Proportion (%) ¹⁴
Essex, Southend and Thurrock	60-70
East London	20-30
Hertfordshire	10-20

¹⁴ A total exportation figure for land and marine won sand and gravel was not given, therefore only a percentage proportion has been provided

Destination	Proportion (%) ¹⁴
Suffolk	10-20
Norfolk	1-10
Bedfordshire (Central Beds, Beds and Luton)	1-10
Cambridge and Peterborough	1-10
Buckinghamshire and Milton Keynes	1-10
West Sussex	1-10
Unknown but somewhere in Greater London	1-10
Northumberland and National Park	<1
Berkshire	<1
Kent and Medway	<1
Oxfordshire	<1

Source: Aggregate Mineral Survey 2014, BGS

- 5.6.1. Between 60% – 70% of the sand & gravel extracted within Essex in 2014 was used within Greater Essex. The next largest users are neighbouring authorities, with the East London region recorded as receiving between 20% - 30% of the total sand & gravel extracted in Essex, and Hertfordshire and Suffolk both between 10% - 20%. The other higher percentage destinations (Norfolk, Bedfordshire and Cambridgeshire) are within the East of England, with a number of other authorities from further afield importing less than 1%.

6. SECONDARY & RECYCLED AGGREGATE

6.1. Introduction

- 6.1.1. Along with 'primary' aggregate, described in Section 2.1, there are also 'secondary' and 'recycled' aggregates. 'Recycled' aggregates are those derived via methods analogous to the traditional idea of recycling. Examples include the re-use of brick and concrete (obtained from construction and demolition) in new developments, rather than being disposed of in landfills. 'Secondary' aggregates are created as a by-product of a construction or industrial process. Examples include power station ash from combustion (fly ash) that can be turned into bricks and cement, and slag from iron smelting that can be manufactured into mineral wool and used as heating pipe insulation.
- 6.1.2. A large amount of recycled and secondary aggregate is processed on redevelopment and construction sites. These can be stand-alone permanent facilities on industrial estates or temporary facilities co-located with existing quarries, landfill sites and recycling sites that remain operational until such a time that quarrying or landfilling ceases.
- 6.1.3. The benefits for maximising the use of both secondary and recycled aggregate are two-fold. Firstly, the re-use of these aggregates reduces the need to extract primary material leading to a reduction in the need for quarries. Secondly, the re-use of aggregate reduces the amount of waste that needs disposal, thus reducing the need for landfill sites. Such a reduction in quarry and landfill sites has clear economic, environmental and social benefits.
- 6.1.4. Essex County Council, Southend-on-Sea and Thurrock Council positively encourage the re-use and recycling of Construction, Demolition and Excavation (CD&E) waste through development plans and policies¹⁵. Each authority enables and encourages the construction and mineral industries to invest in creating and maintaining an effective network of aggregate recycling facilities. However, this does not mean that increasing the importation of construction waste into Greater Essex to be recycled would always be acceptable.
- 6.1.5. A list of known aggregate recycling facilities across Greater Essex is provided in Annex G.

6.2. Recycled Aggregate Throughput and Capacity

- 6.2.1. The supply of recycled aggregate is largely an assumed supply, due in part to the difficulty that Essex County Council, Southend-on-Sea and Thurrock Council have had in obtaining existing throughput figures, which is an issue acknowledged nationally. The 'National and Sub-National Guidelines for Aggregate Provision in England 2005 – 2020' document proposes that the

¹⁵ Through the Essex MLP (2014), the Southend-on-Sea Development Management DPD (2015) and Thurrock Minerals and Waste Development Plan Document (MWDPD), as well as the joint Waste Local Plan (2017) for Essex and Southend-on-Sea.

East of England region should provide 117mt of alternative aggregate materials between 2005 and 2020, equating to 7.8mt a year. This is equivalent to 31% of the region's total aggregate supply, so the re-use of recycled and secondary aggregate is expected to be a major feature of mineral supply. There is however no apportionment of the 117mt figure to individual Mineral Planning Authorities in the region.

Total Capacity of Recycled Aggregate Facilities in Greater Essex

- 6.2.2. The most recent local update for Essex and Southend-on-Sea is contained in the BPP (2016) Topic Paper 1: Waste Capacity Gap Update¹⁶. This estimated in 2014 there were 3.311 mtpa million tonnes of CD&E waste arising within the Essex and Southend-on-Sea area that would need to be managed. Furthermore, it stated there was an immediate recycling/recovery capacity "shortfall of 1.5mtpa increasing over time as the time limited consents close" even with inert landfill making an ongoing contribution to management of this stream.
- 6.2.3. The following table details the capacity of CD&E waste recycling facilities within Greater Essex¹⁷ that process recycled aggregate, and/or screen soils¹⁸. Aggregate Recycling Centres have been divided into those which are operational, under construction and those which benefit from planning permission but have yet to be constructed. These are shown below in the table and map below:

Table 8: Total Aggregate Recycling Facilities in Greater Essex (31st March 2016)

Location	Facility Status	Number of Facilities	Total Estimated Capacity (tonnes)
Essex & Southend	Operational	39	2,461,328
	Under Construction	1	Capacity Unknown
	Just with the Benefit of Planning Permission	2	30,000
Thurrock	Operational	8	1,408,998
	Under Construction	0	0
	Just with the Benefit of Planning Permission	0	0
All Greater Essex Aggregate Recycling Centres		50	3,900,326

Source: As adapted from ECC (2017) Authority Monitoring Report (1st April 2015 – 31st March 2016) and information provided by Thurrock Council (2017).

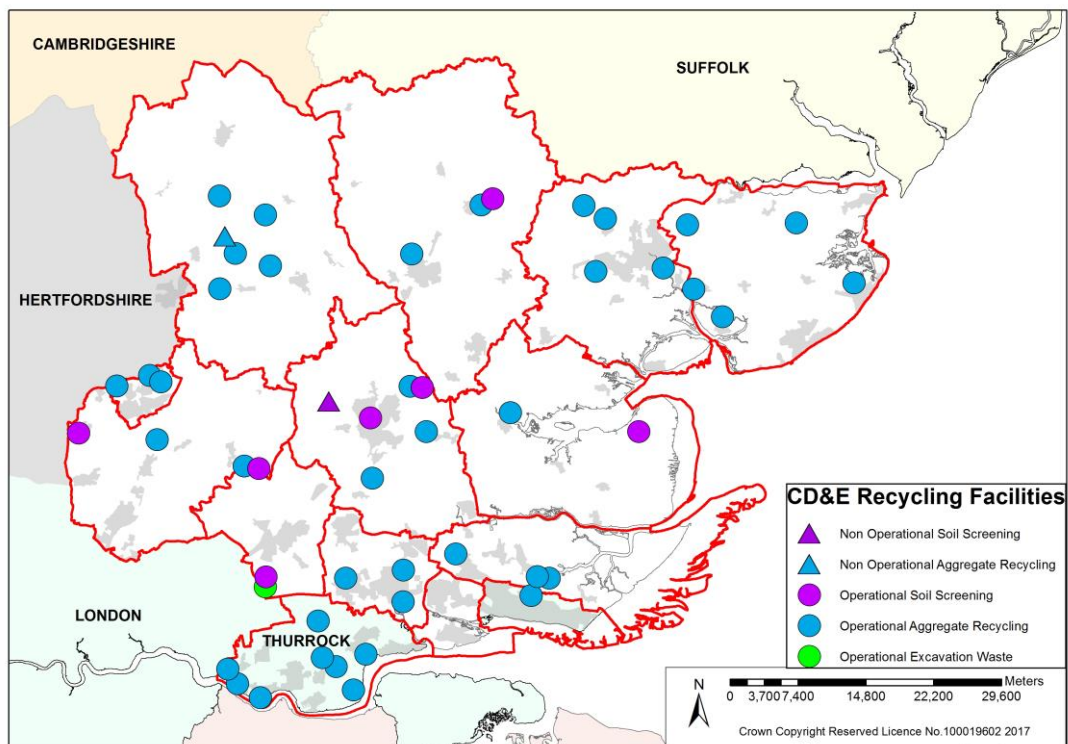
Note: A list of all recycled aggregate facilities in Essex, Southend-on-Sea and Thurrock are presented in Annex G.

¹⁶ BPP (2016) Topic Paper 1: Waste Capacity Gap Update page 25

¹⁷ Based on the BPP (2016) Topic Paper 1: Waste Capacity Gap Update and updates from Thurrock Council (2017)

¹⁸ As set out in the most recent and up to date Essex Authority Monitoring Report (1st April 2015 – 31st April 2016)

Map 4: Locations of CD&E Materials Recovery Facilities (31 March 2016)

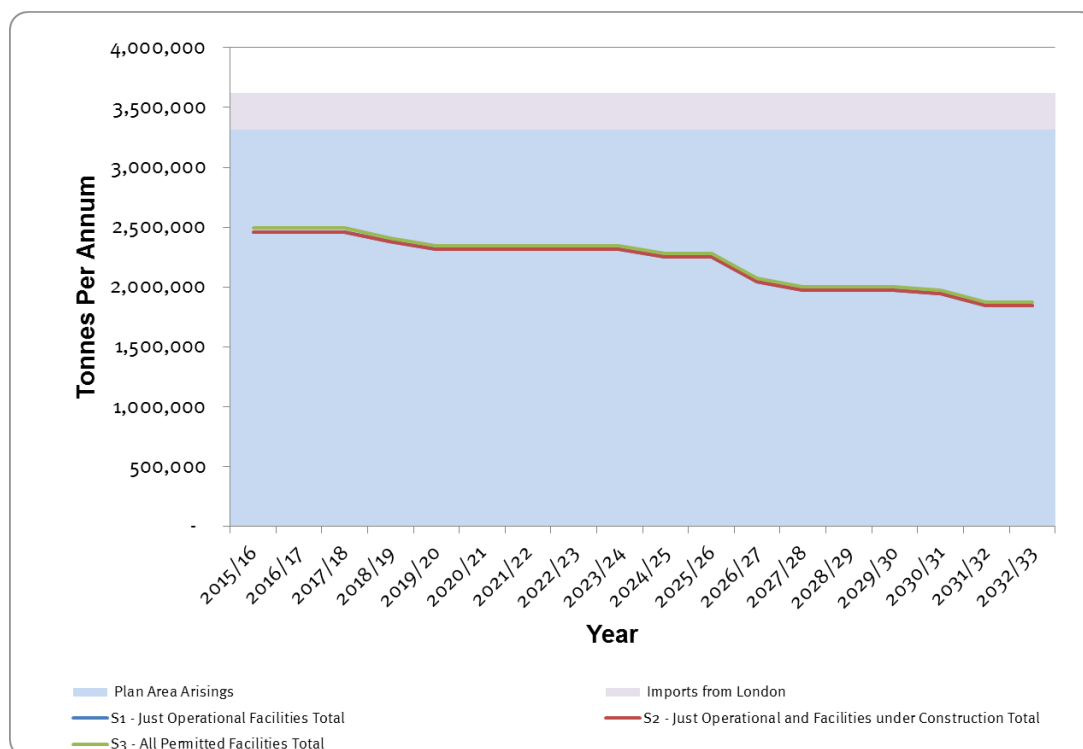


Source: As adapted from ECC (2017) Authority Monitoring Report (1st April 2015 – 31st April 2016) and information provided by Thurrock Council (2017)

Projected Arisings & Capacity of Recycled Aggregate Facilities in Essex & Southend-on Sea

- 6.2.4. There are a number of sources of Construction, Demolition and Excavation (CD&E) Waste, although the majority of these are within the plan area, it is also expected that there would be some importation of CD&E waste from the significant development occurring in Greater London. This is expected to total 3.62 million tonnes per annum, which includes nearly 311 thousand tonnes to be exported directly from Greater London for the duration of the plan period. This importation from Greater London constitutes 9% of the total projected arisings of CD&E waste annually.
- 6.2.5. In the face of this significant waste stream, at present, 36% of the currently operational capacity only has temporary planning permission. It is forecasted that by the end of the Essex and Southend-on-Sea Joint Waste Local Plan period (2032), there could potentially only be approximately 1.8mtpa of aggregate recycling capacity. This reduction in capacity caused by the expiration of temporary permissions, as well as the projected arisings, is presented in the figure below:

Figure 7: Projected CD&E Arisings & Capacity of Aggregate Recycling Facilities in Essex and Southend-on-Sea



Source: BPP (2016) Topic Paper 1: Waste Capacity Gap Update

Note: Three scenarios were presented in the BPP topic paper (2016). These were based on site status (S1 = Just Operational facilities, S2 = Just operational and Under Construction facilities and S3= All facilities with the Benefit of Planning Permission). S1 and S2 are the same value in the above graph

- 6.2.6. It can be clearly seen that there is an immediate shortfall of 1.5mtpa capacity increasing over time as planning permissions expire. It can be seen that 75% of all of the plan areas arisings could be managed within the permitted facilities (Scenario 3) or if also including London's importation, 69% could be accommodated. However, when considering the time limited capacity, by the end of the plan period (2032/33) only 57% of the plan area's own arisings could be managed, or 52% when also allocating some capacity for the import of London's waste, due to the expiration of temporary permissions.
- 6.2.7. The EU Framework Directive requires waste planning authorities to plan on the basis that over time there should be a significant reduction in the amount of CD&E waste that is sent to landfill. Given the current capacity gap, which will only increase upon the expiration of temporary permissions, it is important that additional CD&E waste recovery capacity is provided. As such, new CD&E recovery allocations have been included within the Essex and Southend-on-Sea Waste Local Plan (2017), to increase capacity. It is also important that existing and allocated sites are safeguarded to prevent losses to CD&E waste recovery capacity.

Projected Capacity and Throughput of Recycled Aggregate Facilities in Thurrock

- 6.2.8. Within Thurrock, there are eight authorised sites, which process recycled aggregate as well as screen soils associated with this type of aggregate. Of these eight sites, three are associated with mineral and landfill sites and are thus of a temporary nature, and five are 'permanent' sites. However, one of the latter (Kiloughery at Botany Way, Purfleet) is within an area proposed for comprehensive redevelopment and thus is likely to be lost at some time in the future. There are no non-operational sites. These facilities are also detailed in Annex G.
- 6.2.9. The Thurrock Waste Management Capacity Needs Assessment Update 2010 indicated that Thurrock had an oversupply of CD&E recycling capacity to meet its own waste arisings. It was forecast that Thurrock would fall short of capacity before 2015/16 but that this could be addressed with one or two new or retained sites. Since then the life of two of the temporary facilities has been extended such that this capacity shortfall will probably not occur as envisaged. Furthermore any undersupply would be reduced by the extent of recycling carried out on development sites by mobile crushers and screens. This latter type of capacity will fluctuate markedly depending on the number and type of development sites within Thurrock at any one time with marked results on total capacity. In theory the provision made for primary aggregate provision could be reduced to a degree to reflect the availability of recycled materials. It is noteworthy that provision of the latter is likely to be greater than the regional apportionment for sand & gravel of 0.14mtpa. However the CD&E recycling capacity from which this recycled material is derived is 'fueled' to a large degree by imports of waste, with London being in close proximity. Thus for Thurrock it would be inappropriate to reduce primary aggregate provision as perhaps suggested by the NPPF when the supply of recycled material is underpinned by imports of waste.

7. CONCLUSION AND FUTURE OF THE GREATER ESSEX LOCAL AGGREGATE ASSESSMENT

7.1. Conclusions

- 7.1.1. Greater Essex currently has sufficient permitted reserve and allocations to satisfy the assessed sand and gravel mineral requirement over the period of the current Minerals Local Plan. The current sand and gravel landbank is over the statutory minimum under both the plan apportionment (7.95 years) and rolling ten-year sales (10.62 years) calculation methods.
- 7.1.2. Sales of sand and gravel in 2016 in Greater Essex were recorded as 3.40 million tonnes. This is over the ten-year rolling sales value of 3.27 million tonnes per annum but below the apportionment value of 4.45mtpa that the Essex Minerals Local Plan (2014) and Thurrock Core Strategy (2015) were based on. Sales have not increased beyond the figure of 4.45mtpa across the previous ten years and the three-year average sales (3.74 million tonnes) all indicate there is currently no need to review the Essex Minerals Local Plan (2014) at this time in light of any potential undersupply.
- 7.1.3. It is not considered appropriate to seek to directly offset land-won primary aggregate through an increased reliance on marine or recycled / secondary aggregate. Mineral Planning Authorities have no jurisdiction in the marine environment and therefore have little ability to influence the amount of marine-won mineral that could be dredged. An absence of landing facilities in Essex also exacerbates this issue whilst it is considered that production capacity is constraining supply rather than demand.
- 7.1.4. With regard to recycled aggregate, the given the current significant gap between Construction, Demolition and Excavation waste arisings and recycling capacity, which will increased a existing permissions expire, it is important that additional CD&E waste recovery capacity is provided across Greater Essex.
- 7.1.5. The Mineral Planning Authorities will continue to ensure that existing wharf and rail transshipment facilities are safeguarded from incompatible development to ensure their continued operation.
- 7.1.6. The Mineral Planning Authorities will also continue to safeguard the aggregate recovery facilities from incompatible development to ensure their continued operation and maintain this source of aggregate for the market.

7.2. The Future of the Local Aggregate Assessment

- 7.2.1. The National Planning Policy Framework intends for the Local Aggregate Assessment (LAA) to be an annual document, which the authorities comprising Greater Essex are committed to update. .



Appendices



Essex County Council

ANNEX A FACILITIES WITHIN GREATER ESSEX

Table 9: Permitted Primary Aggregate Sites in Essex (31 December 2016)

Operator	Site Name	Cessation Date for Planning Permission	District /Borough
<i>Operational Sand & Gravel Quarries with Permitted Reserves</i>			
Brett Aggregates	Alresford Creek, Alresford	2042	Tendring
G&B Finch Ltd	Asheldham Quarry	2029	Maldon
Hanson Aggregates	Birch Quarry	2018	Colchester
Frank Lyons Plant Services Ltd	Blackleys Quarry, Great Leighs	2045	Chelmsford
Blackwater Aggregates	Bradwell Quarry, Silver End	2022	Braintree
Brett Aggregates	Brightlingsea Quarry	2026	Tendring
Hanson Aggregates	Bulls Lodge Quarry, Boreham	2030	Chelmsford
Sewells Reservoir Construction Ltd	Cobbs Farm	2019	Maldon
Tarmac Ltd	Colchester Quarry, Stanway	2042	Colchester
Sewells Reservoir Construction Ltd	Crown Quarry	2028	Tendring
Edviron Ltd	Crumps Farm, Gt Canfield	2029	Uttlesford
Dewicks	Curry Farm, Bradwell-on-Sea	End on site 2018, restoration by 2019	Maldon
Brett Aggregates	Elsenham Quarry	2030	Uttlesford
JJ Prior Ltd	Fingringhoe Quarry	2042 Extraction has ceased on site	Colchester
Sewells Reservoir Construction Ltd	Highwood Quarry, Little Easton	2026	Uttlesford
Danbury Aggregates	Royal Oak, Danbury	2029	Chelmsford
Carr & Bircher Ltd	Widdington Pit	2025	Uttlesford
Tarmac Ltd	Wivenhoe Quarry	2018	Colchester

Operator	Site Name	Cessation Date for Planning Permission	District /Borough
<i>Non-Operational Sand & Gravel Quarries with Permitted Reserves</i>			
Gent Fairhead & Co Ltd	Rivenhall Airfield (Waste Facility)	Planning Permission for waste management ESS/34/15/BTE was granted in February 2016.	Braintree
Danbury Aggregates	St Cleres Pit, Danbury	2016 ¹⁹	Chelmsford
Stephen Poole & George Wright	Lufkins Farm, Thorrington Road, Great Bentley	Commencement within 5 years from the date of ESS/41/15/TEN (15/11/16), cessation three years after commencement.	Tendring
R W Mitchell & Sons	Elmstead Hall	Commencement within 5 years from the date of ESS/24/15/TEN approval (Permission for 48 months from date of commencement	Tendring
Mr S Brice	Coleman's Farm	Commencement within 5 years from date of ESS/39/14/BTE approval (24/06/16). Permission for 17 years post commencement	Braintree

Operator	Site Name	Cessation Date for Planning Permission	District /Borough
<i>Dormant Sand & Gravel Quarries</i>			
S.R. Finch	Straits Mill		Braintree
-	Alton Park		Tendring
-	Hodgnells Farm		Tendring
Devernish Ltd	Hambro Hill		Rochford
<i>Operational Silica Sand Sites with Permitted Reserves</i>			
Sewells Reservoir Construction Ltd	Martells Quarry, Ardleigh	2026	Tendring

Operator	Site Name	Cessation Date for Planning Permission	District /Borough
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¹⁹ There is an application currently (Aug 2017) being determined for St Cleres which may affect this stated end date

Operational Brick Clay Sites with Permitted Reserves			
Bulmer Brick & Tile Co	Bulmer Brickworks	2027	Braintree
W H Collier Ltd	Marks Tey Brickworks	2042	Colchester
Operational Chalk Sites with Permitted Reserves			
Needham Chalks Ltd	Newport Chalk Pit	2042	Uttlesford

Source: Essex County Council (2017)

Table 10: Permitted Primary Aggregate Sites in Thurrock (31 December 2016)

Operator	Site Name	Cessation Date for Planning Permission	District /Borough
Operational Sand & Gravel Quarries with Permitted Reserves			
Rio Aggregates	Dansand Quarry, Stanford Road, Orsett	2025	Thurrock
S. Walsh & Sons Ltd	East Tilbury Quarry	2021 ²⁰	Thurrock
RJD Ltd	Mill House Farm, West Tilbury	2017	Thurrock
Non-Operational Sand & Gravel Quarries with Permitted Reserves			
Ingrebourn Valley Ltd	Orsett Quarry - Stanford-le-Hope	2042	Thurrock

Source: Thurrock Council (2017)

Table 11: Mineral Transhipment Sites in Essex (31 December 2016)

Operator	Site Name	District/Borough
Permitted Wharfs		
JJ Prior Ltd	Ballast Quay, Fingringhoe	Colchester
Permitted Rail Depots		
Aggregate Industries UK Ltd	Chelmsford Rail Depot	Chelmsford
Tarmac Ltd	Marks Tey Rail Depot	Colchester
Aggregate Industries UK Ltd/ Tarmac Ltd	Harlow Rail Depot x2	Harlow

Source: Thurrock Council (2017)

Table 12: Operational Mineral Transhipment Sites in Thurrock (31 December 2016)

Operator	Site Name	District/Borough
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²⁰ Date the majority of the site has to be restored by

Operator	Site Name	District/Borough
<i>Permitted Wharfs</i>		
Aggregate Industries UK Ltd	London Gateway, Berth 7, DP World	Thurrock
Thurrock Sand & Gravel, - Lafarge Aggregates Ltd	Thurrock Marine Terminal, Oliver Close, West Thurrock	Thurrock
Stema Shipping Ltd	Tilbury Docks	Thurrock
<i>Permitted Rail Depots</i>		
Aggregate Industries UK Ltd	Purfleet Rail Depot	Thurrock

Source: Thurrock Council (2017)

ANNEX B PERMITTED PROCESSING PLANTS IN GREATER ESSEX AS OF DECEMBER 2015

Operator	Quarry	Plants Present on Site					
		Primary Processing	Bagging	Concrete / Mortar	Asphalt Coating	Aggregate Recycling	Transshipment Facility
Aggregate Industries	Martells Quarry, Ardleigh	✓					
Blackwater Aggregates	Bradwell Quarry, Bradwell/Kelvedon	✓	✓	✓			
Brett Aggregates	Alresford Creek, Tendring	✓	✓				
	Brightlingsea Quarry, Tendring	✓					
	Elsenham Quarry, Uttlesford	✓				✓	
Carr and Bircher	Widdington Pit, Widdington	✓				✓	
Danbury Aggregates	Royal Oak, Danbury						
Dewicks	Curry Farm, Bradwell-on-Sea	✓					
Edviron	Crumps Farm, Great Canfield	✓					
Frank Lyons Plant Services	Blackley Quarry, Great Leighs	✓					
G&B Finch	Asheldham Quarry	✓		✓			

		Plants Present on Site					
Operator	Quarry	Primary Processing	Bagging	Concrete / Mortar	Asphalt Coating	Aggregate Recycling	Transshipment Facility
Hanson Aggregates	Birch Quarry, Birch	✓		✓			
	Bulls Lodge Quarry, Boreham	✓	✓	✓	✓		
JJ Prior Ltd	Fingringhoe Quarry						✓
Tarmac Ltd	Colchester Quarry, Stanway	✓		✓	✓	✓	
	Wivenhoe Quarry, Wivenhoe	✓			✓	✓	
S Walsh and Sons Ltd	East Tilbury Quarry					✓	
Sewells Reservoir Construction	Cobbs Farm						
	Crown Quarry, Ardleigh	✓		✓			
	Highwood Quarry, Little Easton	✓	✓			✓	

Source: Essex County Council (2016)

ANNEX C PERMITTED RESERVES IN GREATER ESSEX (1996 - 2016)

Permitted Sand and Gravel Reserves in Essex, Thurrock & Southend (Millions of Tonnes)	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	74.55	69.28	65.52	68.76	68.42	68.48	57.69	59.64	54.6	51.00	50.12

Permitted Sand and Gravel Reserves in Essex, Thurrock & Southend (Millions of Tonnes)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
	46.68	39.19	36.71	37.36	37.01	35.5	32.88	30.72	32.69	35.37	

Source: Essex County Council Annual Monitoring Reports and East of England Annual Monitoring Reports

Note: Dormant mineral developments are not included in the calculations in this section

Supporting: Figure 2, Permitted Sand & Gravel Reserves in Greater Essex (1997 to 2016), page 10

ANNEX D APPORTIONMENT & LANDBANK DATA

Table 13: Greater Essex Annual Sand & Gravel Apportionment Figures

Year Set	Period Covered by Guidelines	Apportionment (Millions of Tonnes Per Annum)
1989	1989 - 1994	6.9mt for Greater Essex
1994	1994 - 2003	6.2mt for Greater Essex
2003	2001 - 2016	4.55mtpa (4.41mtpa for Essex, 0.14mtpa for Thurrock)
2009	2005 - 2020	4.45mtpa (4.31mtpa for Essex, 0.14mtpa for Thurrock)

Source: East of England Aggregates Working Party, 2010 AMR

Table 14: Annualised Landbank held in Greater Essex (2006 – 2016)

Year	Permitted Reserve (a)	Annualised Plan Provision in mt (b)	Landbank in Years (a/b)
2006	50.12mt	4.55mt	11.02
2007	46.68mt	4.55mt	10.26
2008	39.19mt	4.55mt	8.61
2009	36.71mt	4.45mt	8.25
2010	37.36mt	4.45mt	8.40
2011	37.01mt	4.45mt	8.32
2012	35.5mt	4.45mt	7.98
2013	32.88mt	4.45mt	7.39
2014	30.72mt	4.45mt	6.90
2015	32.69mt	4.45mt	7.35
2016	35.37mt	4.45mt	7.95

Source: East of England Annual Monitoring Reports

Supporting: Figure 3, Annualised Greater Essex Landbank (2007 to 2016), page 12

Table 15: 10 Year Average Sales Landbank held in Greater Essex (2006 to 2016)

Year	Permitted Reserve (a)	10 years Average Annual Sales of Sand and Gravel (b)	Landbank in Years (a/b)
2007	46.68mt	3.27mt	14.02
2008	39.19mt	3.27mt	11.77
2009	36.71mt	3.27mt	11.02
2010	37.36mt	3.27mt	11.22
2011	37.01mt	3.27mt	11.11
2012	35.5mt	3.27mt	10.66
2013	32.88mt	3.27mt	9.87

Greater Essex Local Aggregate Assessment: 2017

2014	30.72mt	3.27mt	9.23
2015	32.69mt	3.27mt	9.82
2016	35.35mt	3.27mt	10.62

Source: East of England Annual Monitoring Reports

Supporting: Figure 4, Greater Essex 10-Year Average Sales Landbank (2006 to 2016),
page 13

ANNEX E SALES DATA

Table 16: Sales of Land Won Sand & Gravel within Greater Essex (1996 – 2016) (in millions of Tonnes)

Sand and Gravel Sales in Essex, Thurrock and Southend	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	4.18	4.02	4.02	4.30	4.04	4.23	4.66	4.47	4.30	4.14	4.07

Sand and Gravel Sales in Essex, Thurrock and Southend	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	4.09	3.29	2.79	2.99	2.80	2.30	3.18	4.37	3.45	3.40

Average Annual Sales 1997 to 2016 (20 years)	3.75mt
10 Year Average Annual Sales (2007 to 2016)	3.27mt
3 Year Annual Sales (2014 to 2016)	3.74mt

Source: Essex County Council Annual Monitoring Reports and East of England Aggregates Working Party Annual Monitoring Reports
Supporting: Figure 1, Sales of Land Won Sand & Gravel within Greater Essex (1997 to 2016), page 7

Table 17: Sales of Sand & Gravel within Greater Essex (2007 to 2016)

Year	Actual Sales (mt)	Annualised Plan Provision (mt)	10 Years Sales Average (mt)	10 Years Sales Average (mt)
2007	4.09	4.55	3.27	3.74
2008	3.29			
2009	2.79			
2010	2.99			
2011	2.80			
2012	2.30			
2013	3.18			
2014	4.37			
2015	3.45			
2016	3.40			

Source: East of England Aggregate Working Party Annual Monitoring Reports

ANNEX F MARINE-WON MINERAL

Table 18: Marine Won Mineral Landed In Ports With The Capacity To Serve Greater Essex In Tonnes (2007 to 2016)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
London	4,160,917	4,192,187	3,466,777	3,178,872	4,319,908	4,188,757	4,606,442	5,316,369	5,613,006	5,898,302
Thurrock	464,404	439,723	121,852	255,527	329,376	329,376	329,376	238,331	204,276	263,756
Kent	2,731,623	2,550,640	2,226,380	1,944,763	2,252,864	1,200,040	1,211,574	1,771,156	2,489,490	2,553,793
Suffolk	85,608	100,941	87,459	114,468	148,483	83,865	27,931	57,085	119,421	171,083
Total	7,442,552	7,283,491	5,902,468	5,493,630	7,050,631	5,802,038	6,175,323	7,382,941	8,426,193	8,886,934

Source: The Crown Estate, Summary of Statistics, 2007 – [2016](#)

Supporting: Figure 6 Marine-Won Mineral Landed in Ports that Serve Greater Essex (2007 to 2016), page 19

ANNEX G KNOWN OPERATIONAL AND NON- OPERATIONAL AGGREGATE RECYCLING FACILITIES WITHIN GREATER ESSEX 2016

Table 19: Essex Aggregate Waste Recovery Facilities

Site Name	Site Address	Specific Facility Type	Capacity ²¹	End Date?
Operational				
Codham Hall Farm	Unit A Codham Hall Lane Gt Warley Brentwood CM13 3JT	Excavation Waste Processing	80,000	30/08/2017
Pitsea	Pitsea Hall Lane Pitsea Basildon Essex SS16 4UH	Aggregate Recycling Centre	208,000	31/12/2015
Land Adjacent to Taylors Farm	Takeley Essex CM22 6LY	Aggregate Recycling Centre		Permanent
Loppingdales	Gaunts End, Elsenham Bishops Stortford CM22 6DR	Aggregate Recycling Centre	90,000	Permanent
Haven Road	Haven Quay Haven Road Colchester Essex	Aggregate Recycling Centre	75,000	Permanent
Wivenhoe Quarry,	Alresford Road Wivenhoe Colchester Essex CO7 9JY	Aggregate Recycling Centre	50,000	31/12/2015
Patterns Yard	Patterns Yard Nayland West Bergholt Colchester	Aggregate Recycling Centre	300	Permanent
Colchester Skip Hire		Aggregate Recycling Centre	15,000	Permanent

²¹ Capacity is either the maximum capacity stated in the planning permission, or if this is unavailable the average recorded on the Environment Agency's Waste Data Interrogator.

Site Name	Site Address	Specific Facility Type	Capacity ²¹	End Date?
Evans Thornwood	Marlow, High Road, Thornwood Common, Epping, CM16 6LU	Aggregate Recycling Centre	5,000	Permanent
Green Recycling	Quayside Industrial Estate, Bates Road, Off the Causeway Maldon, CM9 5FA	Aggregate Recycling Centre	5,000	Permanent
Essex Recycling Wix	Lane Farm, Harwich Road, Wix CO11 2SA	Aggregate Recycling Centre	50,000	Permanent
EWD Carters Haulage Yard	Morses Lane Industrial Estate Brightlingsea Colchester Essex CO7 0SD	Aggregate Recycling Centre	75,000	Permanent
Martell's Quarry	Slough Lane, Ardleigh, Colchester, Essex, CO7 7RU	Aggregate Recycling Centre	10,000	Permanent
Armigers Farm	Armigers Farm, Thaxted, Essex, CM6 2NN	Aggregate Recycling Centre	100,000	Permanent
Widdington Pit,	Hollow Road Widdington Saffron Walden Essex CB11 3SL	Aggregate Recycling Centre	65,000	Permanent
Hallsford Bridge	Plot 9 Hallsford Bridge Industrial Estate Stondon Road Stondon Massey Ongar Essex CM5 9RB	Aggregate Recycling Centre	1,534	Permanent
Hill Demolition & Skip Hire	1-3 Edinburgh Place Edinburgh Way Harlow Essex CM20 2DJ	Aggregate Recycling Centre	1,947	Permanent

Annex A: Facilities within Greater Essex

Site Name	Site Address	Specific Facility Type	Capacity ²¹	End Date?
Franklin Hire	Unit 1, Rawreth Industrial Estate Rawreth Lane, Rayleigh Essex, SS6 9RL	Aggregate Recycling Centre	1,050	Permanent
TJ Cottis	Cottis Yard, Welton Way, Rochford SS4 1LB	Aggregate Recycling Centre	7,098	Permanent
Silverton Aggregates	Devereaux Farm, Walton Road, Kirby Le Soken, CO13 0DA	Aggregate Recycling Centre	22,379	Permanent
The Yard	New Parsonage Lane, Gt Saling, Braintree CM7 5ER	Aggregate Recycling Centre		Permanent
GBN - Archer's Fields	Archers Fields, Burnt Mills, Basildon, SS15 6DX	Aggregate Recycling Centre		Permanent
C A Blackwell (Contracts) Ltd,	The Works, Stock Road, West Hanningfield, Chelmsford, Essex, CM2 8LA	Aggregate Recycling Centre		Permanent
Roydon Lea Farm	Roydon Road, Harlow, CM19 5DU	Aggregate Recycling Centre	17,344	00/01/1900
Stock Road Recycling Facility	SS2 5QG	Aggregate Recycling Centre	9,959	00/01/1900
Harlow Mill	Aggregate Depot, Station Approach, Old Harlow	Aggregate Recycling Centre		Permanent
Little Easton - Highwood Quarry	Little Easton Airfield Little Easton Gt Dunmow CM6 2BB	Aggregate Recycling Centre	70,000	25/03/2027
Halstead Highway Depot	CO9 2HG	Aggregate Recycling Centre	350	

Site Name	Site Address	Specific Facility Type	Capacity ²¹	End Date?
Bateman's Farm,	Great Leighs, Chelmsford, Essex, CM1 2QF	Soil Screening	25,000	Permanent
Curry Farm	New House Mill End Bradwell-Juxta-Mare, Maldon, CM0 7HL	Soil Screening	15,000	31/12/2018 Restoration by 31/12/2019
Woolmongers Lane BRW	The Elms Woolmongers Lane Blackmore, Epping Forest Essex CM4 0JX	Soil Screening	5,414	Permanent
Harvey Automobile Engineering	Payne's Lane, Nazing, EN9 2EX	Soil Screening	13,687	Permanent
Forefront Utilities	CM13 3JT	Soil Screening	95,921	00/01/1900
Land Adjacent To The Cock Inn Public House	CO9 2HG	Soil Screening	29,045	
Elsenham Recycling Facility	CM3 3AA	Soil Screening	6,124	
Bulls Lodge	Bulls Lodge Quarry, Generals Lane, Boreham, Chelmsford, CM3 3HR	Aggregate Recycling Centre	100,000	30/06/2030
Colchester Quarry (Colchester Recycling)	Warren Lane, Stanway, Colchester, CO3 0NN	Aggregate Recycling Centre	190,000	31/12/2037
JKS	Roach Valley Works, 53 Purdey's Way, Purdey's Industrial Estate Rochford, Essex, SS4 1LZ	Aggregate Recycling Centre	160,000	Permanent
Whites Yard	Archers Fields Close, Basildon, SS13 1DN	Aggregate Recycling Centre	25,000	Permanent
Under Construction				

Site Name	Site Address	Specific Facility Type	Capacity ²¹	End Date?
St Cleres	St Cleres Pit Main Road Danbury Essex CM3 4AR	Aggregate Recycling Centre		12 years from commencement
Just with the benefit of Planning Permission				
Elsenham Quarry,	Hall Rd., Elsenham, Bishops Stortford, CM22 6DJ	Aggregate Recycling Centre	30,000	10/05/2029
Roxwell	Brittons Hall farm Chignal St James, Chelmsford Essex CM1 4LT	Soil Screening		

Source: Essex County Council (2017) Authority Monitoring report 1 April 2015 – 31 March 2016

Table 20: Southend-on-Sea Aggregate Waste Recovery Facilities

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PLANNING PERMISSION / EA AVERAGE	END DATE
None				

Source: Southend-on-Sea Borough Council (2017)

Table 21: Thurrock CD&E Aggregate Recovery Facilities

SITE NAME	SITE ADDRESS	SPECIFIC FACILITY TYPE	PLANNING PERMISSION / EA AVERAGE	END DATE
Clearserve Rainbow Shaw ²²	Holford Road Linford Essex SS17 0PJ	CD&E Inert & Non Inert	74,999	2018/19

²² These recycling facilities on landfill/mineral sites and subject to the end of landfill operations and restoration of the site.

S Walsh and Sons East Tilbury Quarry ²³	Princess Margaret Road East Tilbury Essex RM18 8PA	CD&E Inert & Non Inert	759,000	2020
Rio Aggregates ²⁴	Dansand Quarry, Stanford Road, Orsett RM16 3BB	CD&E Inert	75,000	2024/5
Killoughery ²⁵	Beacon Hill Industrial Estate Botany Way Purfleet Essex RM19 1SR	CD&E Inert & Non Inert	75,000	n/a
Sims Milling Burrows Farm	Brentwood Road, Bulphan Essex RM14 3TL	CD&E Inert & Non Inert	24,999	n/a
Seales Road Haulage	Juliette Way Purfleet	CD+E +Non-Inert	250,000	n/a
Brocks Haulage	Watson Close West Thurrock	CD+E +Non-Inert	75,000	n/a
Squibb Group	Stanhope Industrial Estate, Wharf Road Stanford Le Hope	CD+E	75,000	n/a
Under Construction				
NONE				
Just with the benefit of Planning Permission				
NONE				

Source: Thurrock Council (2017)

²³ These recycling facilities on landfill/mineral sites and subject to the end of landfill operations and restoration of the site.

²⁴ These recycling facilities on landfill/mineral sites and subject to the end of landfill operations and restoration of the site.

²⁵ The Kiloughery site is located in an area proposed for comprehensive development and may therefore have a limited operational future on the site.

This document is published by

**Essex County Council Minerals and Waste Planning,
as part of the Minerals and Waste Development Framework**

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Published October 2017



Essex County Council