



Essex County Council Authority Monitoring Report 2017/18

Baseline for Construction, Demolition & Excavation Waste
Generated in Essex & Southend on Sea Update 2017

Report: Final Issue

Version 1.2

Issued: 31st May 2019

BPP Consulting Document Control

Project: Essex County Council AMR

Report: Baseline for Construction, Demolition & Excavation Waste Generated in Essex & Southend on Sea Update 2017

Version Description: Post Client Review

Version No.: 1.1

Date: 31.05.2019

Version No.	Version Description	Author	Date	Reviewed	Date
0.1	Draft for Internal review	Alan Potter (Partner)	30.04.2019	David Payne (Partner)	01.05.2019
1.0	Client review	Alan Potter (Partner)	01.05.2019	Gemma Bright (Client Contact)	20.05.2019
1.1	Post Client Review	Alan Potter (Partner)	29.05.2019	David Payne (Partner)	30.05.2019
1.2	Final Issue	Alan Potter (Partner)	31.05.2019		

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Note to the reader: While data entries may be to 2 decimal places in the source datasets, there is a requirement to avoid 'spurious precision'. Therefore the data has been rounded to the nearest whole through Excel. This means that there may be some deviation between values arrived at, and simple addition of contributing values shown.

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Abbreviations and Glossary of Terms

Abbreviations

C & I	Commercial & Industrial Waste
C, D & E / CDEW	Construction, Demolition & Excavation Waste
DEFRA	Department for Environment, Food and Rural Affairs
DM	Development Management
EA	Environment Agency
ECC	Essex County Council
EWC	European Waste Catalogue
HWDI	Hazardous Waste Data Interrogator
LACW	Local Authority Collected Waste
nPPG	national Planning Practice Guidance
NPPW	National Planning Policy for Waste
WDI	Waste Data Interrogator
SoS	Southend on Sea
WNA	Waste Needs Assessment
WPA	Waste Planning Authority
WRAP	Waste & Resources Action Programme

Glossary of Terms

Commercial Waste	Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding municipal and industrial waste.
Controlled Waste	Waste subject to controls emanating from the EU Waste Framework Directive.
DEFRA	The Government department responsible for developing national waste management policy.
Environment Agency	The body responsible for the regulation of waste management activities through issuing permits to control activities that handle or produce waste. It also provides up-to-date information on waste management matters and deals with other matters such as water issues including flood protection advice.
European Waste Catalogue (EWC)	Comprehensive listing of wastes, divided into 20 chapters, largely based on industry sector origin such as Chapter 17 Construction, or Chapter 19 Waste management, while some are based on material types such as Chapter 15 Packaging. Each waste type is assigned a unique six-digit code.. The EWC is transposed into UK law through <i>The List of Wastes (LOW) Regulations</i> .
Hazardous Waste	Waste requiring special management under the Hazardous Waste Regulations 2005 due to it posing potential risk to public health or the environment (when improperly treated, stored, transported or disposed). This can be due to the quantity, concentration, or its characteristics
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).
Landfill (including land raising)	The permanent disposal of waste to land, by the filling of voids or similar features, or the construction of landforms above ground level (land-raising).
Non Inert Waste Landfill	A landfill permitted to accept non-inert (biodegradable) wastes e.g. municipal and commercial and industrial waste and other non-hazardous (including inert) wastes. May only accept hazardous waste if a special cell is constructed.
(The) Plan Area	The geographical area administered by the commissioning WPA. In this case the combined area of Essex and Southend on Sea..
Recovery	Subjecting waste to processes that recover value including recycling, composting or permanent deposit to land for beneficial purposes.
Waste Planning Authority (WPA)	The local authority responsible for waste development planning and control. In this case Essex County Council and Southend on Sea Borough Council.

1. Introduction

This report is concerned with updating the baseline value for Construction, Demolition & Excavation (C, D & E) Waste arising in Essex & Southend on Sea.

The Glossary of the adopted *Essex & Southend on Sea Revised Waste Local Plan* (rWLP) defines C, D & E waste as follows:

" Arises from the construction, repair, maintenance and demolition of buildings and structures. It mostly includes brick, concrete, hard core, subsoil and topsoil, but can include timber, metal and plastics and occasionally special hazardous waste materials. "

The approach taken and the results are described in detail in the following sections.

2. Estimating C, D & E Waste Baseline Arisings

2.1. Context

There is no requirement on businesses active in the Construction, Demolition & Excavation sector to submit records of waste produced and hence estimating quantities of Construction, Demolition & Excavation waste (C,D & E) arisings for a specific county, with any degree of accuracy, is a challenge. The Waste Needs Assessment¹ for this waste stream that underpinned the adopted Essex & Southend on Sea rWLP was based on EA Waste Data Interrogator (WDI) data for 2014. This generated a baseline arisings value for C, D & E waste in Essex & Southend on Sea for 2014 of 3.3M tonnes

Methodology

The methodology used to derive an arisings figure for 2017, is based on the methodology developed by Defra for estimating annual waste generation from the Construction, Demolition and Excavation (C, D & E) Sectors for England to report on progress made towards meeting the revised Waste Framework Directive (rWFD) target². The methodology uses information from four key management routes:

- (1) Waste managed at transfer and treatment facilities (reporting through EA WDI)
- (2) Waste managed by landfill (reporting through EA WDI)
- (3) Waste managed under exemptions
- (4) Waste recycled as aggregate (from a national estimate by the Mineral Products Association)

¹ *Waste Topic Paper No 1: Waste Capacity Gap Update Essex & Southend on Sea Waste Local Plan*, dated December 2015
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² Methodology for estimating annual waste generation from the Construction, Demolition and Excavation (CD&E) Sectors in England
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwi69aP3hcHiAhW5TxUIHVt-AZgQFjAAegQIARAC&url=https%3A%2F%2Fwebarchive.nationalarchives.gov.uk%2F20130123162956%2Fhttp%3A%2Fwww.defra.gov.uk%2Fstatistics%2Ffiles%2FCDE-generation-methodology.doc&usg=AOvVaw14se3t0FHL2YD4NBTJe_wj

To assess C, D & E waste arisings in Essex & Southend on Sea, the national methodology was modified to take into account local circumstances. In particular:

- Values for Essex & Southend on Sea waste classed as C,D & E waste managed through permitted sites in 2017 as reported in the WDI, with steps taken to, (a).deduct possible double counting, and (b). capture wastes assigned a different European Waste Catalogue (see report Glossary for explanation) code i.e. reclassified, as a consequence of processing through intermediate sites. In particular, the need to account for the change in status of residues from the treatment of C, D & E derived skip waste at 'intermediate sites', commonly referred to as 'trommel fines'. Previously, much of this material was classed as soils (17 05 04). However, since the clarification of definition of 'active' waste by HMRC for the purposes of the Landfill Tax, a significant quantity of this material is now classified as residues from mechanical processing (EWC19 12 12). Since C, D & E waste is primarily defined under Chapter 17 of the EWC, a proportion of outputs formerly captured as C, D & E waste (being 17 05 04) is now classified as under EWC 19 12 12 , a code not normally assigned to the C, D & E waste stream. To account for this 'loss', a proportion of waste assigned to this code that left intermediate sites located in the Plan Area that received C, D & E waste is included within the calculation.
- The quantity managed at exempt waste sites registered in Essex & Southend on Sea by establishing the number of relevant exemptions registered with the Environment Agency and applying an estimated value for the quantity of waste managed at the sites registered under the principal exemption managing C, D & E waste (U1) from the WRAP 2013 report³
- Estimating the quantity of waste converted to recycled aggregate in Essex & Southend on Sea by apportioning the national value generated by the Minerals Product Association using construction activity statistics.

³ WRAP, 2013, Review of the Factors Causing Waste Soil To Be Sent To Landfill; 2007 to 2011. Produced by Symonds principal contractor to DCLG on the national survey of C,D &E waste arisings 2001-2005.

2.1.1. Inputs of Essex & Southend on Sea C, D & E waste to permitted facilities (within and beyond Essex & Southend on Sea)

The principal source dataset used is the Environment Agency WDI 2017 (WDI). This was interrogated using the following Steps:

Step 1: Calculate the tonnage of non-hazardous inert/C, D & E waste from Essex & Southend on Sea sent to permanent deposit (landfill & recovery to land) and intermediate sites outside Essex & Southend on Sea (ceasing to be identified as Plan Area waste and hence regarded as going to a final fate for the purposes of this exercise);

Step 2: Calculate the tonnage of non-hazardous/inert C, D & E waste from Essex & Southend on Sea which is treated in Essex & Southend on Sea (and hence may either be subject to double counting or re-classification).

Step 1

Step 1a: Calculate the tonnage of C, D & E waste from Essex & Southend on Sea sent to final fate (landfill & recovery to land) and intermediate sites outside Essex & Southend on Sea (ceasing to be identified as Essex & Southend on Sea waste). This to include the following categories of waste as per List of Waste/European Waste Catalogue:

- (1) Chapter 17 (Construction & Demolition Waste) including timber, metals and glass from construction and demolition sources.
- (2) 19 12 09 (minerals such as sand, stones)
- (3) 20 02 02 (soil and stones).

The WDI 2017 reports that total non-hazardous⁴ C, D & E waste from Essex & Southend on Sea managed within through permitted sites amounted to 3.1 million tonnes. The breakdown and management routes are shown in Table 1 below.

Table 1: Management of C, D & E Waste from Essex & Southend on Sea through Permitted Sites (tonnes)

Source: WDI 2017

	Permanent Deposit to Land			Transfer	Treatmnt	Metal Recycling Sites	Grand Total
	Non Inert Landfill	Inert Landfill	Recovery to Land ⁵				
Plan Area to Plan Area	614,314	383,457	251,544	396,596	608,786	83,037	2,337,734
Plan Area to elsewhere	71,378	116,042	78,038	126,162	327,404	51,603	770,626
Totals	685,691	499,499	329,582	522,758	936,190	134,640	3,108,360

⁴ Hazardous waste is excluded as it is specifically taken account of separately

⁵ C, D & E waste managed by 'Recovery to Land' is waste reported as being managed at sites which are either registered as in the 'on/in land' or the 'use of waste' reporting category of the WDI. This is waste deposited for beneficial purposes.

2.1.2. Inputs of Essex & Southend on Sea C, D & E waste to permitted facilities in Essex & Southend on Sea

Step 1b: Calculate the tonnage of C, D & E waste from Essex & Southend on Sea in the Environment Agency WDI which is considered to have gone to a final fate.

Waste managed by 'Landfill' and that managed through 'Recovery to Land' involve its permanent deposit, and therefore is regarded as having reached its final fate, and so these values are taken as final values regardless of whether the destination site is within or outside Essex & Southend on Sea. 685,691 (non-inert) +499,499 (inert) +329,582 (to land) = 1,514,772t.

The value for the C, D & E waste managed at intermediate sites 'out of Essex & Southend on Sea' is also taken as a final value, since once this waste enters an intermediate facility outside the county, it is regarded as waste arising from the WPA area hosting that facility, as any resultant residue coming out will be attributed to the host WPA and not Essex & Southend on Sea. 126,162 (transfer) +327,404 (treatment) +51,603 (metals recycling) = 505,168t.

An initial arisings value which is comprised of the values for waste which has reached its final destination and that which is managed beyond Essex & Southend on Sea is calculated as follows: 1,514,772 (permanent deposit to land) + 505,168 (transfer, treatment & metals recycling)= 2.02Mt.

Table 2: Essex & Southend on Sea non hazardous C,D & E waste regarded as going for final fate

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	1,514,772	1,514,772
Out of Plan Area Intermediate	505,169	2,019,941

Table 3: Management of non hazardous C, D & E Waste from Essex & Southend on Sea through Permitted Sites

Source: WDI 2017

	Permanent Deposit to Land	Transfer	Treatment	Metal Recycling Sites
Plan Area to Plan Area	1,514,772	396,596	608,786	83,037
Plan Area to elsewhere		126,162	327,404	51,603

Step 2

Step 2a accounting for waste arising managed at intermediate sites within Essex & Southend on Sea

Having established the quantity of Essex & Southend on Sea C, D & E waste going to a final fate or leaving the county as 2.02 million tonnes (Table 3), the inputs to intermediate sites in Essex & Southend on Sea need to also be accounted for. These are the remaining entries shown in the amber cells in Table 3 above, totalling 1.09 million tonnes.

These need to be further interrogated to ensure that this value does not:

1. double count inputs to intermediate sites that subsequently get managed at another site as Essex & Southend on Sea waste and hence over-report arisings; nor
2. misses C, D & E waste that may have been re-classified following processing through these sites and hence under-report arisings. This is because waste leaving an intermediate site may be reclassified as a waste from a waste management process (the relevant EWC chapter is 'Chapter 19'). This is explained by the following example:

'Intermediate' Site 1 in Essex & Southend on Sea receives 100 tonnes of Essex & Southend on Sea C, D & E waste.

Following treatment e.g. sorting and some processing, the 100 tonnes gets split into:

- 25 tonnes of soil (classed as Chapter 17 waste) which is moved onto for Recovery to Land Site 2; The 25 tonnes of soil is therefore also recorded at the point of input to the Recovery to Land site as waste arising in Essex & Southend on Sea (regardless of whether Site 2 is within or outside Essex & Southend on Sea).
- 50 tonnes of recycled aggregate, sold directly. This is counted under the recycled aggregate value generated through the method described earlier;
- 25 tonnes of waste classed as Chapter 19 waste due to the incoming waste having been processed and then reclassified as waste from waste management processes.

This is illustrated in Figure 1 below:

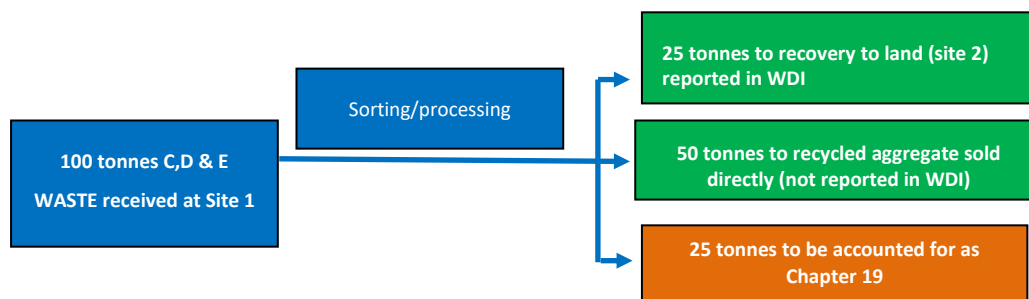


Figure 1: Schematic of Intermediate site outputs.

Therefore, that element of Chapter 19 waste that came from intermediate sites in Essex & Southend on Sea that may have arisen from C, D & E waste coming from Essex & Southend on Sea

needs to be estimated. This is done by identifying each intermediate site that received C, D & E waste from Essex & Southend on Sea that also reported Chapter 19 waste as an output. The proportion of the Chapter 19 output that might be attributed to the input C, D & E waste from the Plan Area was determined as follows

1. Does the site receive C, D & E waste from Essex & Southend on Sea?
2. Does the site have outputs classed under Chapter 19?
3. Does the total of C, D & E waste outputs amount to less than the C, D & E waste inputs?
4. What is the difference/shortfall and can that be accounted for by Chapter 19 waste?

NB: Where the shortfall can't be accounted for this may indicate that tonnages of C, D & E Waste are converted into recycled aggregate which is not generally declared on the permit waste returns (captured in Step 3 below).

Applying this method to Plan Area Intermediate sites identified as both receiving C, D & E waste from Essex & Southend on Sea and producing Chapter 19 waste in 2017 yields the following.

Q1 & 2: 16 sites identified as receiving C, D & E waste from the Plan Area and having outputs classed under Chapter 19. Of these 8 had a deficit of 1,000t or more between inputs and outputs of C, D & E waste which may be accounted by Chapter 19 waste.

Q 3 & 4: Findings as in Table 4:

Table 4: Intermediate Sites within Essex & Southend on Sea managing Non-hazardous C,D & E Waste from the Plan Area and producing Chapter 19 waste for which a C,D & E Waste input /output shortfall of >1,000t exists (Step 1)

Facility Type	Site Name	C, D & E Waste inputs	C, D & E Waste outputs	Shortfall (tonnes)
Waste Transfer Station	Bob's Skips	11,711	9,638	2,074
	Dunmow Skips	85,055	49,889	35,166
	Ecologic Yard	38,513	15,742	22,770
	GBN Services	28,071	16,202	11,869
	Hovefields Avenue	6,710	3,164	3,546
	Widdington Pit	17,467	3,191	14,277
Treatment	Clear-a-way Recycling	108,750	16,184	92,566
	EWD Depot Martell's Quarry	39,002	21,219	17,784

A number of the intermediate sites in the Plan Area receiving C, D & E waste also receive C&I waste. Therefore, a proportion of the Chapter 19 output may be attributable to the non C,D & E waste input as illustrated in Figure 2 below:

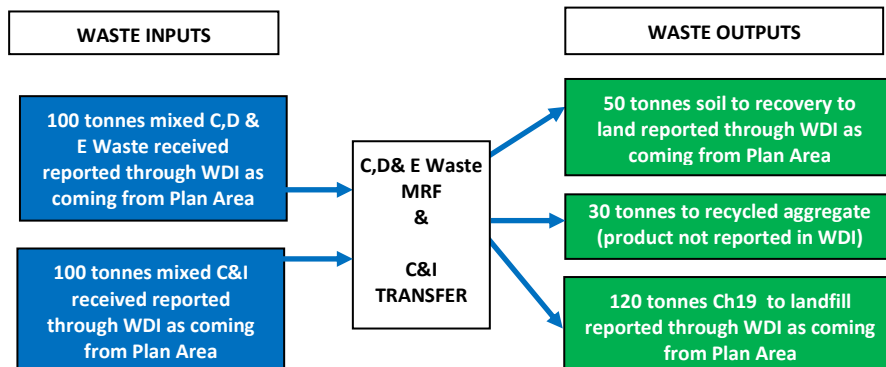


Figure 2: Schematic of Flows to & from Intermediate sites receiving C, D & E waste and C&I waste.

This adds a further layer of complexity to the computation. Where the Chapter 19 output attributed to inputs of C,D & E waste from the Plan Area (% of total C,D & E waste received from the Plan Area) exceeds the C,D & E waste shortfall value, only the shortfall value is taken. The remaining Chapter 19 is taken to be attributable either to non-Plan Area C,D & E waste input or the non C,D & E input (mixed C&I waste) from either the Plan Area or outside. Where the shortfall exceeds the Chapter 19 output that may be attributed to inputs of C,D & E waste from the Plan Area, then the Chapter 19 value is adjusted to reflect the % C,D & E waste input arising from the Plan Area has been taken. This situation only applies in one case in Table 5 - Clear-a-way Recycling - where the shortfall exceeds the Chapter 19 output attributable to the Plan Area.

Table 5: Chapter 19 waste make up for permitted Intermediate Sites within Essex & Southend on Sea managing Non- hazardous C, D & E Waste from Essex & Southend on Sea (Step 2)

Facility Type	Site Name	Shortfall (tonnes) (Table 4)	Net Ch 19 output (tonnes)	% C, D & E Waste from Essex & Southend on Sea	Make Up (tonnes) Shortfall vs Ch19 x% from Essex & Southend on Sea
Waste Transfer Station	Bob's Skips	2,074	11,892	94%	2,074
	Dunmow Skips	35,166	25,211	100%	25,211
	Ecologic Yard	22,770	21,605	100%	21,605
	GBN Services	11,869	13,624	100%	11,869
	Hovefields Avenue	3,546	52,931	100%	3,546
	Widdington Pit	14,277	6,253	0	0
Treatment	Clear-a-way Recycling	92,566	94,563	92%	86,998
	EWD Depot Martell's Quarry	17,784	3,687	100%	3.687

This gives a total Chapter 19 makeup of **154,990 tonnes**.

Step 2b: Add WDI Inputs to Plan Area sites not attributed below regional level.

Some sites within the Plan Area received just under 65,000 (64,625t) tonnes of waste in 2017 that was not attributed below East of England region level, i.e. was not attributed to a specific Plan Area origin. Of this, 57,141t was classed as non-hazardous C, D & E waste, all of which went to sites classed as intermediate sites, so has been added to the total on the assumption that C,D & E waste will tend to be managed at the nearest facility and hence, even though non-attributed, the waste actually arose within Essex & Southend on Sea.

Table 6: Essex & Southend on Sea C,D & E Waste Running Total (Table 3 plus Chapter 19& Unattributed)

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	1,514,772	1,514,772
Out of Plan Area Intermediate	505,169	2,019,941
In Plan Area Intermediate Chapter 19	154,990	2,174,931
In Plan Area Unattributed	57,141	2,232,072

2.1.3. Recycled Aggregate Production

Step 3: Data for recycled aggregate production.

This section sets out how the calculation accounts for the quantity of C, D & E waste arising in Essex & Southend on Sea that is used to produce recycled aggregate.

Given the absence of recent local comprehensive survey data the methodology applied to generate the 2014 estimate of just over a million tonnes of recycled aggregate has been replicated instead. This takes the value for UK wide recycled aggregate production presented in the Mineral Products Association document *From waste to resource*⁶ released in February 2019 and apportions it down to Plan Area level by utilising construction activity⁷ data. This arrives at a value of 1.30 Mt. As shown in Table 7, this results in an overall value for C, D & E waste production in Essex & Southend on Sea of c 1.29 mt.

⁶ *From waste to resource* a UK Minerals Products industry success story
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&cad=rja&uact=8&ved=2ahUKewihlaHVksHiAhXCVBUIHZxAAfAQFjADegQIBBAC&url=https%3A%2F%2Fmineralproducts.org%2Fdocuments%2FMPA_Inert_Waste_Feb2019.pdf&usg=AOvVaw07XePwOqeybYrDZB-DeGL

⁷ Data on housing completions as "best available" data with granularity down to County level.
<https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>

Table 7: Essex & Southend on Sea C,D & E Waste Running Total (Table 6 plus Recycled Aggregates)

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	1,514,772	1,514,772
Out of Plan Area Intermediate	505,168	2,019,940
In Plan Area Intermediate Chapter 19	154,990	2,174,930
In Plan Area Unattributed	57,141	2,232,071
Recycled Aggregate	1,295,652	3,527,723

2.1.4. Essex & Southend on Sea C, D & E Waste managed at Exempt sites

Step 4: Estimate the quantity of waste managed by exempt waste management activities in Essex & Southend on Sea.

The national Planning Practice Guidance (PPG) advises that: "...when forecasting construction and demolition waste arisings, the following may be relevant:

- the fact that a sizeable proportion of construction and demolition waste arisings are managed or re-used on-site, or exempt sites, so it is critical that some provision is made for unseen capacity in this way." (emphasis added)

Paragraph: 033 Reference ID: 28-033-20141016

Regulations were introduced in 2011 by Government and administered by the Environment Agency which significantly reduced the quantities of waste that could be managed through activities for which exemptions rather than environmental permits could be relied upon, As a result the quantity of C, D & E waste managed through exempt activities has reduced substantially. However, it is still appropriate to give consideration to the contribution some activities may make to management of this stream, and hence to the calculation of arisings.

Exempt activities registered under Paragraph U1 (use of waste in the construction) potentially account for the management of the most significant quantities of C, D & E waste by exempt activities. A report produced for WRAP⁸ estimated a mean value for the quantity of waste managed by an activity registered under U1 as 600 tonnes.

⁸ WRAP, 2013, *Review of the Factors Causing Waste Soil To Be Sent To Landfill*; 2007 to 2011.

The following steps ensure that management of C, D & E waste managed by activities registered under paragraph U1 is taken into account in the assessment of C, D & E waste arisings in Essex & Southend on Sea.

While exemption registrations are valid for 3 years, and hence the number of active sites could be taken to include any site registered in Jan 2015 to Dec 2017 an unpublished survey of exempt activities undertaken by Surrey County Council in 2017 indicated that those registered under paragraph U1 exemptions tend to be used as 'one-off' only. Therefore, the number registered for 2017 has been taken as representing the number of active U1 exempt activities in Essex & Southend on Sea. This amounted to 50 sites involving non agricultural waste not on a farm.

From the number of exempt activities registered under paragraph U1, and using a value of 600 tonnes per exemption, it is estimated that the total quantity of C, D & E waste managed by such activities in Essex & Southend on Sea is 30,000 tonnes. This value has been included in the calculation of C, D & E waste arising overall. As shown in Table 8, this results in an overall value for C, D & E waste production in Essex & Southend on Sea of 3.558 million tonnes.

Table 8: Essex & Southend on Sea C,D & E Waste Running Total (Table 7 plus Exemptions)

Component	Value (tonnes)	Cumulative Total
Permanent Deposit	1,514,772	1,514,772
Out of Plan Area Intermediate	505,169	2,019,941
In Plan Area Intermediate Chapter 19	154,990	2,174,931
In Plan Area Unattributed	57,141	2,232,072
Recycled Aggregate	1,295,652	3,527,724
Exemptions	30,000	3,557,724

2.1.5. Comparison with previous baseline arising estimates

The value of just under 3.56 million tonnes compares with a value of c.3.31 million tonnes for 2014. Given that the 2014 value did not include unattributed tonnages and estimation for exemptions the values for these elements are ignored for the sake of comparison. This gives a revised 2017 value of 3.47Mt which suggests an increase of just over 1.5% per annum over the three year period. Given that 2014 was within a period of low economic growth it is unsurprising to see a positive growth rate, however going forward the zero growth rate adopted in the WNA 2015 in line with advice in the national Planning Practice Guidance still remains valid. It is also notable that the predominant source of the growth is in recycled aggregate as illustrated in Figure 3 for which the Plan Area has consented capacity of c2.118Mtpa⁹ meaning the observed growth may not result in a management requirement actually emerging. That is to say, one might expect the spare capacity at Plan Area recycling plants to 'take up the slack'.

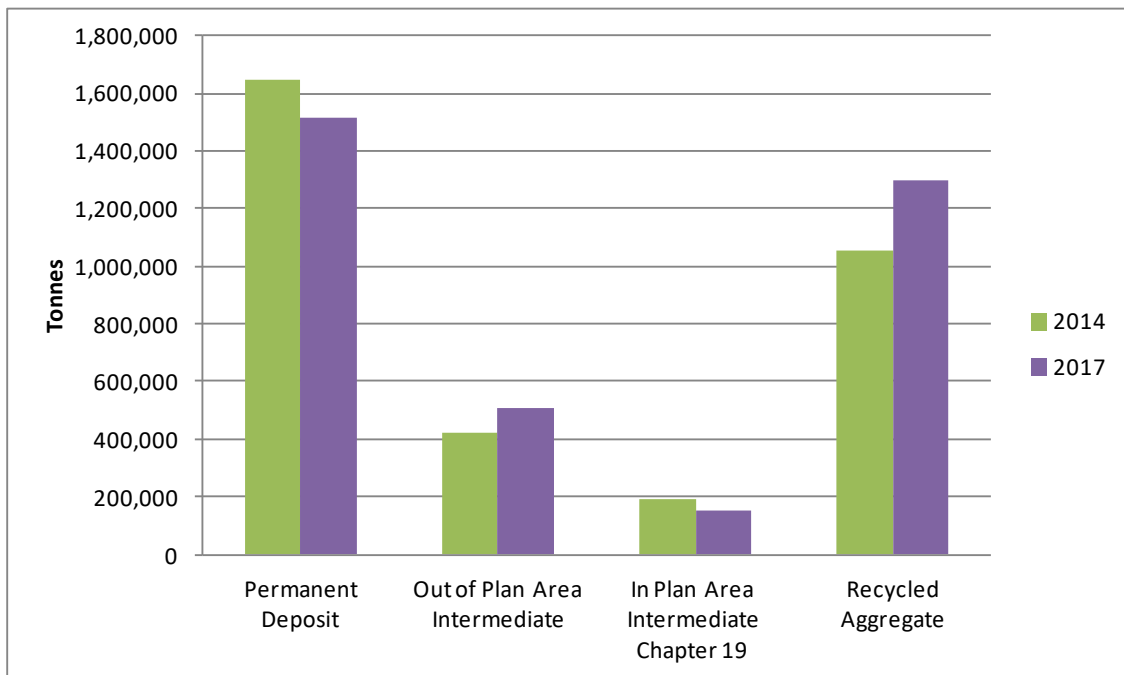


Figure 3: Comparison between Plan Area C,D & E Waste Baseline Management Profile 2014 & 2017
(values for unattributed and exemptions excluded)

⁹ Section 2.5.3 Topic Paper 1: Waste Capacity Gap Update December 2015 v1.2