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1. Introduction

1.1. Background

1.1.1 The way in which waste generated in Greater Devon\(^1\) is managed will change significantly over the next year following the completion of two new energy from waste incinerators at Exeter and Plymouth.

1.1.2 The facility in Exeter, located on Marsh Barton Trading Estate, will process up to 60,000 tonnes of residual (black bag) local authority collected waste generated in Exeter, East Devon and a small part of northern Teignbridge. The facility in Plymouth, which is much larger with a capacity of 245,000 tonnes per annum, will deal with residual local authority collected waste under contract from Plymouth, Torbay and southern Devon (including the South Hams, West Devon and the remainder of Teignbridge not covered by the Exeter plant), together with commercial and industrial waste of a similar nature.

1.1.3 These facilities will play a vital role in diverting waste from landfill and driving waste up the waste hierarchy. Energy will also be created from the waste, including an element of renewable energy, reducing the reliance upon fossil fuels. In addition to production of electricity, heat is also a product of the process, and proposals to utilise this beneficially through space heating of buildings and/or using the heat for commercial processes are being pursued at Exeter and are an integral part of the development at Plymouth (to supply the adjacent Naval dockyard).

1.1.4 Other than energy, there are a number of outputs that are produced from the process of incineration. These include Incinerator Bottom Ash (IBA), Air Pollution Control (APC) residues and emissions to the atmosphere. Emissions represent approximately 70\%-75\% of the output from the original waste, and these are strictly regulated by the Environment Agency, with the controls set by the Industrial Emissions Directive, which has replaced the Waste Framework Directive. The APC residues, which include fly-ash, represent 2-6\% of the output, and are hazardous waste that requires suitable treatment or disposal. These outputs offer no scope to recycle and APC residue is a small proportion of the waste that will need to be exported to existing facilities. IBA represents 20-25\% of the original waste input by weight (about 10\% by volume) and, as outlined in this paper, is suitable for recycling.

1.2. Purpose and Structure of this report

1.2.1 The quantity of IBA that will be generated by the two new incinerators within Greater Devon, and the current lack of a facility within the county that is capable of recycling that residue, warrant the management of this waste stream being regarded as a strategic issue. Furthermore, the cross-boundary flows of the waste to be managed at the Plymouth incinerator, and the scope

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\(^1\) As explained in paragraph 1.2.4 of the Devon Waste Plan Pre-submission Consultation, the term ‘Greater Devon’ is used to denote the historic county of Devon, comprising the areas covered by four waste planning authorities (Devon County Council, Plymouth City Council, Torbay Council and Dartmoor National Park Authority) and part of a fifth, Exmoor National Park Authority. The term ‘Devon’ refers to the area for which Devon County Council is the waste planning authority.
for the IBA to be managed in Plymouth or Devon, mean that this is an issue on which the two authorities are required to cooperate in planning for its resolution.

1.2.2 The recent Pre-submission Consultation for the Devon Waste Plan attracted some responses that suggested a lack of reference in that Plan and its evidence base to IBA. This update to Waste Topic Paper 7 therefore outlines the nature, quantities and treatment methods for this material to assist consultees.

1.2.3 Plymouth City Council’s existing planning policy framework does not address the issue of IBA recycling, due to it arising following adoption of the relevant development plan documents. However, the emerging Plymouth Plan will be required to consider the management of the IBA waste stream.

1.2.4 To reflect the strategic cross-boundary nature of the issue, this paper has been prepared jointly by Devon County Council and Plymouth City Council to inform preparation and examination of both the Devon Waste Plan and the Plymouth Plan.

1.2.5 The paper will firstly discuss IBA in general terms, including its nature and potential uses. Secondly, the paper will consider the quantities of IBA to be generated within Greater Devon, the planning requirements for its recycling, and previous consideration of site proposals for management of IBA. Finally, the approaches taken by the Devon Waste Plan and the Plymouth Plan to its management will also be outlined.
2. **IBA – an overview**

2.1. **How is IBA produced?**

2.1.1 As noted in 1.1.4, IBA is the main solid output of the incineration process. The combustion of residual waste leads to the production of energy, carbon dioxide and water, if the waste is combustible, and non-combustible materials remain as solid residues, the major element of which is IBA.

2.2. **Composition of IBA**

2.2.1 IBA is a coarse-grained, heterogeneous material containing varying proportions of glass, ceramics, brick, concrete, grit and stones in addition to clinker, ash and metals. Metals, ferrous and non-ferrous, are estimated to be an additional 2%-6%, which can be recovered separately for recycling. Once the metal is extracted, the IBA can be recycled as a secondary aggregate.

2.3. **Nature of IBA**

2.3.1 Generally IBA is considered as non-hazardous; however, the Environmental Services Association (ESA) note there is the risk of some material being hazardous. Operators are responsible for classifying correctly the IBA that they produce, and IBA can be classified as either hazardous or non-hazardous depending on its properties.

2.3.2 To encourage a consistent approach to classifying IBA, in 2010 the ESA developed an IBA Sampling and Testing Protocol which sets out in detail how plants should sample and analyse IBA. Although following the Protocol is voluntary, ESA has discussed the Protocol extensively with the Environment Agency to ensure that it reflects good practice. Through these discussions, the Agency has also supported the use of the Protocol.

2.3.3 If the IBA is hazardous it must either be disposed of at a hazardous waste landfill site or go for further treatment. The nearest hazardous waste sites to Devon that treat and/or dispose of IBA are in Gloucestershire and Wiltshire.

2.3.4 If the IBA is non-hazardous it can be disposed of at a non-hazardous landfill site or processed into a secondary aggregate with a number of uses.

2.4. **Uses for IBA**

2.4.1 IBA can be recycled as a secondary aggregate in a variety of construction applications, and there has been research into its utilisation. IBA can be used in two major applications: unbound, it can be used for bulk fill and sub bases or, when bound, it is ideal for road paving, cement and construction blocks. It can also be used for landfill engineering and brownfield remediation.

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2.4.2 By 2000, over 40% of bottom ash from England’s 11 municipal waste incinerators was being recycled as aggregate – this was over 200,000 tonnes per annum.3

2.4.3 Approximately 1 million tonnes of IBA are currently produced in England and Wales each year. In 2011, 86% of IBA produced was reused (source: EA Pollution Inventory Returns & Waste Returns). The Environment Agency has predicted that the amount of IBA produced per year will increase to over 2 million tonnes per year by 2020.

2.5. How is IBA recycled?

2.5.1 IBA typically undergoes a conditioning stage by being stored in the open air, followed the recovery of ferrous and non-ferrous metals and then by processing with crushing and screening plant. While similar to the recycling process for (inert) construction and demolition waste, the non-hazardous nature of IBA will usually require additional measures to control potential emissions including impermeable surfaces and surface water management.

Figure 1: Example of open-air IBA processing and storage, Rainham4

2.5.2 Examples of IBA recycling plants in England include those operated by Ballast Phoenix5, which process between 50,000 and 175,000 tonnes. These sites occupy a range of location types, including industrial estates, a landfill site and a port, within urban and urban fringe locations. IBA recycling sites typically comprise an area of hardstanding for the storage of the ash for conditioning and for the stockpiling of the processed materials, with the processing sometimes undertaken within an enclosed or semi-enclosed building if warranted by the nature of the site.

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3 Source: http://www.foe.co.uk/sites/default/files/downloads/safety_incinerator_ash.pdf
4 Source: Ballast Phoenix http://www.ballastphoenix.co.uk/sites-locations/rainham-essex.html
5 http://www.ballastphoenix.co.uk/
2.5.3 As an indication of the extent of site required for the processing of IBA of a scale comparable to the output of the Plymouth incinerator, a planning application (approved in August 2013) for an IBA recycling facility at Ling Hall in Warwickshire provides the following scale/dimensions:

- annual throughput: 75,000 tonnes
- site area: 1 hectare
- area of hardstanding: 150m x 70m
- building length and width: 35m x 20m
- building height: 8m to eaves and 9m to ridge

2.6. Benefits of IBA recycling

2.6.1 Recycling of IBA presents many environmental benefits, including:

- it avoids landfilling, therefore leaving void space available for other wastes which cannot be treated further up the waste hierarchy;
- it reduces the carbon footprint of waste management by producing valuable secondary aggregate locally; and
- it reduces the use of natural resources such as quarried aggregates.

2.6.2 However, it should be acknowledged that IBA processing, like all waste management activities carries risks of harm to local communities and the environment if not properly managed.

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* Source: Ballast Phoenix [http://www.ballastphoenix.co.uk/sites-locations/billingham-teesside.html]
2.7. **Projects where IBA has been used beneficially**

2.7.1 There are a number of examples of projects across the country that have used IBA in a beneficial way, some which are outlined below. These case studies have been taken from the AggRegain pages of the WRAP website.

**Recycled asphalt and IBA in Stansted Airport car park surfacing**

2.7.2 The BAA Infrastructure team used a mix of 30% IBA and recycled asphalt containing IBA to surface 4,000 car park spaces at a new long stay facility at Stansted Airport. Approximately 54,000 tonnes of primary aggregate were replaced and cost savings of £20,000 achieved.

**The use of recycled and secondary aggregates for constructing access roads on a housing development in Billingham, Teesside**

2.7.3 This project involved the construction of 68 bungalows and access roads in Billingham on Teesside. Frank Haslam Milan Ltd, the contractor, had to submit an environmental statement that showed positive cost savings for the client. The use of recycled and secondary materials for the access roads was therefore investigated. Subsequently, a capping layer made from 4,000 tonnes of locally sourced construction, demolition and excavation waste was used. The Type 1 sub-base was made from a blend of recycled asphalt and processed IBA, totalling 1,200 tonnes; 600 tonnes of foamed asphalt was manufactured from Recycled asphalt planings and IBA.

**The use of processed IBA as a protection liner at Burnhills landfill site**

2.7.4 All landfill sites have to make sure that the waste deposited in the cells does not pollute the surrounding environment. This can be done by surrounding the cells with a clay liner or by using clay with the added protection of a plastic liner. To protect the plastic liner from the waste deposited, sand is the recognised product, usually 3 or 6 mm down. This project was undertaken to ascertain if primary aggregates could be replaced with recycled materials without any loss of engineering characteristics. No direct financial gains were proposed. At Burnhills landfill west of Newcastle upon Tyne, processed IBA aggregate was used as the protective sand layer. This was found to be lighter and with improved permeability compared to alternative primary aggregates. 6,000 tonnes of IBA aggregate was delivered to the site in June 2000 and was subsequently laid on the protective plastic layer. The Environment Agency were fully consulted and given access to all the technical data on the IBA aggregate and they gave permission for its use on this site.

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7 [http://www2.wrap.org.uk/applications/aggregain/casestudysearch/index.rm](http://www2.wrap.org.uk/applications/aggregain/casestudysearch/index.rm)
3. IBA production and management in Greater Devon

3.1. IBA Production in Greater Devon

3.1.1 The amount of IBA produced in modern energy from waste incinerators is typically 20%-30% of the total amount of waste input by weight, and only 10% by volume, depending on the level of pre-treatment the waste receives prior to incineration. Taking the mean of this estimated output, a figure of 25% can be assumed. The Exeter facility is therefore expected to produce up to 16,000 tonnes of IBA per year once it is fully operational, while the facility in Plymouth, which is much larger than the Exeter plant, will produce around 60,000 tonnes of IBA per year.

3.1.2 There are currently no additional proposals for energy from waste incinerators within Greater Devon. Whilst the Devon Waste Plan and Plymouth Local Development Framework identify the need for additional energy recovery provision, neither Plan is technology specific and therefore there is no certainty that any additional facilities will produce IBA, as incineration may not be the technology brought forward. However, other thermal treatment processes such as gasification produce similar residues that are capable of being processed for aggregate use, and similar considerations will therefore apply to these other technologies.

3.1.3 The energy from waste incinerator nearing completion at Exeter received planning permission in 2008, with an accompanying legal agreement requiring the operator “to use reasonable endeavours to market the bottom ash derived from the incineration process for use as a secondary aggregate”. It is understood that IBA from the Exeter facility will initially be disposed of at a non-hazardous landfill site within Devon prior to the operator developing a recycling facility.

3.1.4 The planning permission for the Plymouth energy from waste incinerator granted in February 2012 includes a condition requiring that “at least 95% of the IBA produced at the plant shall be recycled and not sent to landfill…The details shall also include the procedures that will be followed to try to secure the use of treated bottom ash as an aggregate for local infrastructure and engineering projects and the mechanisms for ensuring a landfill diversion factor of at least 95%”.

3.1.5 Following receipt of their permission, MVV submitted a method statement addressing recycling records, reporting and marketing in July 2012. This statement outlined the steps that MVV and their selected IBA processor would undertake to secure the use of the recycled material for use in local infrastructure and engineering projects. These include discussion with statutory undertakers, education of specification writers, seeking an increase in the level of recycled materials in specifications, working in protocols for the use of IBA, employing a marketing manager, using competitive pricing, and contact with local construction and civil engineering companies.

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3.1.6 To meet their obligations to secure the recycling of the IBA from their Plymouth facility, MVV UK submitted a planning application for an IBA processing facility (together with other development including the recycling of construction and demolition waste) at Whitecleaves Quarry near Buckfastleigh in Devon. This facility was intended to manage the IBA derived from MVV UK’s Plymouth incinerator, with the processing to be undertaken by the site operator, Gilpin Demolition Ltd.

3.1.7 This planning application was refused by Devon County Council in May 2012 on the grounds of impacts on the amenity of the local community and the lack of consideration of alternative sites. A subsequent appeal against this decision was dismissed in October 2013 on the grounds of potential harm to biodiversity and conflict with waste policy. Given the requirement of the planning permission for the Plymouth incinerator for at least 95% of the IBA to be recycled, the lack of a suitable processing facility within Greater Devon will currently require its transportation out of the county for recycling.

3.2. Potential markets for IBA from Greater Devon

3.2.1 As a potential construction aggregate, the main markets for recycled IBA will be in the areas that will experience the highest levels of residential, commercial and infrastructure development, where those areas are accessible to a processing location. Evidence submitted by or on behalf of MVV to the Whitecleaves Quarry appeal suggested that the major markets for the IBA from Plymouth are likely to be the main areas of growth and development within the County namely Plymouth, Exeter, Newton Abbot and Torbay, as well as the major urban areas north of the County such as Taunton, Bridgewater and Bristol. As such, the favoured location for a site lies within the A38 corridor between Plymouth and Exeter. Similar considerations would apply to IBA arising in Exeter.

3.2.2 A strong influence on the market for recycled IBA is the availability of other aggregate resources that would be in competition with IBA from Plymouth and Exeter. Devon currently produces around 400,000 tonnes each year of secondary aggregates derived from mineral waste, with around 90% of these coming from the Lee Moor china clay operations near Plymouth. A further source of secondary aggregates from mineral waste, again near Plymouth, will occur when tungsten and tin extraction commences at Hemerdon in 2015, with that site’s planning permission allowing for the sale of 150,000 tonnes of secondary aggregates per year. Significant quantities (estimated at around 900,000 tonnes per year) of recycled aggregates derived from construction, demolition and excavation waste are also generated from recycling facilities across Greater Devon.

3.2.3 The South West region does not currently have any processing capacity for IBA, with the nearest facility being in Hampshire. However, the energy recovery plant under construction at St Dennis in Cornwall will include an IBA processing facility, as will a further energy recovery plant at Avonmouth near

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11 Source: [http://www.devon.gov.uk/m74-rmiles-mvv-proof-of-evidence-23.05.13.pdf](http://www.devon.gov.uk/m74-rmiles-mvv-proof-of-evidence-23.05.13.pdf) (paragraph 8.4.7)
Bristol. These new facilities may limit the potential for recycled IBA from Greater Devon to be ‘exported’ to Cornwall and the Bristol area.

3.3. Investigation of potential sites within Greater Devon

3.3.1 As highlighted in 3.1.6-3.1.7, only one site has been proposed for IBA recycling in Devon, and that was refused planning permission. The subsequent appeal included consideration of a range of potential alternative sites within Plymouth and Devon, and these are listed in Appendix A together with a map showing their locations.

3.3.2 Appendix A includes a summary of the deliverability and other constraints identified for each site in the appraisal work undertaken by the appellant. These sites were drawn from those allocated in the adopted Devon County Waste Local Plan\(^\text{12}\) and the Plymouth Waste Development Plan Document\(^\text{13}\) that were considered to be well-located in relation to Plymouth or likely markets for the recycled aggregates, and with good access to the strategic road network. More detailed information on each site is available in the appeal documentation\(^\text{14}\). The Inspector’s decision also included comment on other locations that were suggested during the course of the inquiry, and these are also referred to in Appendix A.

3.3.3 The Inspector dismissed the appeal against the refusal of permission for Whitecleaves Quarry on grounds of biodiversity and non-compliance with the waste hierarchy. In considering alternative sites, the Inspector concluded that “the evidence...does not demonstrate that alternative sites are suitable, deliverable and developable”.

3.4. The Devon Waste Plan’s approach to IBA

3.4.1 The Devon Waste Plan has a strong commitment to the sequential application of the waste hierarchy (as stated in Objective 1 and Policy W2). Policy W5 (Reuse, Recycling and Materials Recovery) therefore positively provides for the necessary capacity for recycling and materials recovery, including at sites "located at or close to the source of the waste or opportunities for its beneficial use" (criterion 2(a)). Supporting text to this policy (paragraph 3.5.4) notes the generation of “residual materials [from energy recovery facilities] that are capable of recycling into new products such as aggregates”.

3.4.2 Policy W6 (Energy Recovery) supports Policy W5 by requiring “the maximum feasible level of reuse or recycling of the residual materials remaining after energy recovery”. In addition, Policy W7 (Waste Disposal) limits new non-hazardous disposal capacity to residual waste that is incapable of recycling or recovery”.

3.4.3 The Waste Plan’s spatial strategy (Policy W3) provides for the provision of strategic recycling facilities within or close to Exeter, Barnstaple and Newton Abbot. However, criterion 2(a) of Policy W5 provides the flexibility for the development of a recycling facility close to the source of the waste.

\(^\text{12}\) Available at [http://www.devon.gov.uk/waste_local_plan-2.htm](http://www.devon.gov.uk/waste_local_plan-2.htm)
\(^\text{13}\) Available at [http://www.plymouth.gov.uk/waste_dpd_4web.pdf](http://www.plymouth.gov.uk/waste_dpd_4web.pdf)
\(^\text{14}\) Available at [http://www.devon.gov.uk/whitecleaves-appeal.htm](http://www.devon.gov.uk/whitecleaves-appeal.htm)
3.4.4 It is considered that the policy context outlined above enables delivery of one or more IBA recycling facilities to manage the residual material arising from the forthcoming incinerators at Plymouth and Exeter. However, to provide additional clarification, Devon County Council is proposing, as a main modification to the Plan, an additional criterion to Policy W5:

“(e) achieve the recycling of incinerator bottom ash and/or other non-hazardous thermal treatment residues arising within Greater Devon.”

3.4.5 Further modifications are proposed to the Devon Waste Plan’s text to clarify the matter of IBA and the requirements for its recycling, and these are provided in Appendix B.

3.5. The emerging Plymouth Plan’s approach to IBA

3.5.1 Plymouth City Council’s policy on waste is currently contained in both the Core Strategy, (adopted 2007) and the Waste Development Plan Document, (adopted 2008). The Core Strategy establishes the strategic objectives and planning policy framework for delivering sustainable waste management in the City whilst the DPD focuses on providing site allocations and a decision making framework to ensure that the waste objectives are realised.

3.5.2 Plymouth City Council is currently working on the review of its Local Development Framework, rolling the Core Strategy and other DPDs into a new style Local Plan called the Plymouth Plan. The Plymouth Plan will incorporate all of the Council’s existing strategies – not simply the planning framework into a single plan for the city. It will therefore include a review of the Core Strategy and the waste DPD, and also a refresh of the Waste Strategy. The Council have commissioned an updated Waste Needs Assessment as key evidence supporting the Plymouth Plan and this is currently being developed.

3.5.3 The timetable for producing the Plymouth Plan is set out in a report considered by the Council’s Cabinet on the 25th March 2014, and this shows that the Plymouth Plan will be submitted early in 2016. Until the Plymouth Plan is adopted the Waste DPD will retain full weight as the development plan.

3.5.4 In Autumn 2014 a new Energy from Waste Plant at Devonport will be operational with a capacity of 245,000 tonnes. This was procured by the South West Devon Waste Partnership (SWDWP) and will handle municipal waste from Plymouth, and proportion municipal waste collected from the administrative area of Devon County Council and Torbay. The 25 year contract is operated by MVV.

3.5.5 The Energy from Waste Plant will produce Incinerator Bottom Ash. A requirement of the contract with SWDWP requires that 97% of the IBA is diverted away from landfill. Furthermore a planning condition (Number 8), attached to the planning permission for the plant requires that the IBA should not go to landfill. It also seeks to encourage the operator to process the IBA at a location that enables the product to be used to support building projects.
that help to deliver the Plymouth growth agenda. The condition does not indicate a site for the IBA processing to take place.

3.5.6 Within the Plymouth Waste DPD there are currently two sites identified for strategic waste purposes. These were identified for facilities to accommodate strategic waste facilities which would handle the city’s waste needs over the plan period. Since the adoption of the DPD, the Devonport Energy from Waste Plant, procured by the SWDWP, was granted consent on a site which came forward after the work had been completed on the DPD. The EfW facility is currently under construction and is expected to be operational later in 2014 or early in 2015.

3.5.7 The City Council have been reviewing the sites identified within the Waste DPD. The landowner of site W1 (Coypool), as identified in Appendix 1, has indicated that the site is no longer available for Strategic Waste uses. The second site identified as W2 (Ernesettle) has also been identified by the Council’s Cabinet as being required for the development of a Community Economic Development Trust and is therefore no longer available for waste purposes.

3.5.8 The remaining sites identified within the Waste DPD document are for waste from specific waste streams and therefore would not be suitable to accommodate IBA reprocessing. The sites identified are as W3 Moorcroft Quarry, W4 Chelson Meadow and W5 Weston Mill. Site W3 is identified as an allocation for the expansion of an existing waste stream, construction and demolition waste, and unable to accommodate a new independent use. Site W4 is a constrained site and has been identified for waste transfer functions and use as a MRF facility and site W5 identified as a Civic Amenity site meeting a specific need. The DPD therefore provides for the continuation of existing uses on the sites.

3.5.9 Therefore a development proposal for the reprocessing of IBA would need to be assessed against the criteria contained within Policies W7 and W8 of the adopted Waste DPD. It is notable that these Policies were successfully used to assess the application for the Devonport Energy from Waste plant which came forward on a unallocated site.

3.5.10 As already identified in paragraphs 2.5 of this joint evidence base the reprocessing of IBA can be accommodated on sites of around a hectare in size. It seems that there are few bespoke locational requirements of IBA processing and that the activity is relatively flexible in its requirements. This does not suggest that a strategic allocation is needed to identify a site, and that a sufficiently flexible policy approach within the Devon Waste Plan which can be used to assess any proposals for the reprocessing of IBA which could come forward represents the most appropriate approach to meeting this need.

3.5.11 Plymouth City Council therefore welcomes the amendments to Policy W5 of the Devon Waste Plan as set out in Appendix B of this document as well as the emphasis of IBA in the supporting text. In particular the City Council welcomes the statements setting out Devon County Council’s explicit support for the reprocessing of IBA and its re-use in project which will deliver elements of the Plymouth growth agenda. The City Council believes that the
amendments to Policy W5, if made to the Devon Waste Plan, will form an acceptable framework to assess proposals for IBA reprocessing facilities.
4. Conclusions

4.0.1 The generation of energy from waste through incineration results in a range of residual materials, the largest in volume being IBA which typically amounts to 25% of the feedstock by weight. This ash is capable of being processed for use as a recycled aggregate in a range of construction activities, and compliance with the Waste Hierarchy requires that it is recycled rather than disposed of through landfill.

4.0.2 The development of two incinerators in Greater Devon, at Plymouth and Exeter, which are due to become operational in 2014/15, will generate approximately 76,000 tonnes of IBA, of which 60,000 tonnes will be from Plymouth. The planning permissions for these facilities require that this material is recycled, with the Plymouth permission including a requirement for recycling of at least 95%.

4.0.3 In the absence of a local facility for the recycling of this waste stream, planning for its management is a cross-boundary strategic issue for Devon County Council and Plymouth City Council.

4.0.4 A planning application for an IBA recycling facility at Buckfastleigh, to manage the IBA generated by the Plymouth incinerator, was refused and a subsequent appeal dismissed. Evidence produced for that appeal indicated that there were no known alternative sites available at that time in Plymouth and Devon.

4.0.5 The main markets for IBA aggregates derived from the Plymouth and Exeter facilities are likely to be the larger urban areas along the A38/M5 corridor, potentially including Somerset. However, IBA aggregates will compete against other sources of secondary and recycled aggregates available in Greater Devon as well as quarried aggregates.

4.0.6 A number of IBA recycling facilities exist elsewhere in the UK, with the closest operational site being in Hampshire. Typically, a site of a scale comparable to Greater Devon’s arisings of IBA will occupy one hectare, comprising a large area of hardstanding for conditioning and storage of the incoming ash and processed materials and possibly an industrial-type building housing the processing plant.

4.0.7 The Devon Waste Plan encourages the provision of additional recycling capacity for waste streams, such as IBA, that are not currently catered for, in locations close to Exeter, Barnstaple and Newton Abbot together with other locations close to the source of the waste or opportunities for its beneficial use.

4.0.8 This report forms a joint evidence base for Devon County Council and Plymouth City Council to support the development of their waste policies, and will be updated as each authority’s plans progress and in the light of any proposals for IBA recycling that emerge.
5. **Further information sources**

5.0.1 Further information on the issue of IBA is available from a range of sources including, in addition to those noted above, the following webpages. These include information from parties questioning the merits of IBA recycling as well as waste industry sources. It should be noted that Devon County Council does not endorse the content of these sources, but is providing them for information purposes.

MIRO case study:
http://www.smartwaste.co.uk/filelibrary/Incineratorbottomash_ManufacturedAgg.pdf

Environmental Services Association:
http://www.esauk.org/energy_recovery/iba_-_incinerator_bottom_ash.html

Veolia position statement:

Friends of the Earth briefing paper:
http://www.foe.co.uk/sites/default/files/downloads/safety_incinerator_ash.pdf

Buckfastleigh Community Forum paper:
## Appendix A: Investigation of potential sites

<table>
<thead>
<tr>
<th>Site</th>
<th>Availability</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH17 New England Quarry, Lee Mill</td>
<td>Previously Viridor indicated they would not be willing or able to make land available for an IBA processing facility. A recent change of ownership also reflects this view.</td>
<td>Access is considered an overriding constraint to developing a facility at this site. This is due to the use of a minor road network, current unsatisfactory arrangements and the refusal of a proposed alternative access. An area of Ancient Woodland is also present on the site, designated as a County Wildlife Site. An EfW facility was refused permission on landscape impact. Part of the site lies within Flood Zone 3.</td>
</tr>
<tr>
<td>SH52 Wrangaton</td>
<td>Site adjoins Dartmoor National Park, risk of visual impact.</td>
<td>Poor site access due to distance from the facility and access via B3213. The site is divided into small industrial units, unsuitable for IBA processing.</td>
</tr>
<tr>
<td>TE13 Heathfield Landfill Site, Kingsteignton</td>
<td>Site is owned by Viridor and not available to the operator for commercial reasons.</td>
<td>A public footpath crosses the site. Parts of the site are recorded as having features of archaeological value. There are a numerous environmental constraints present with the site including lying adjacent to an area of Ancient Woodland, within a County Wildlife Site and Mineral Consultation Area and on the flight-line of bats associated with the Chudleigh Caves SAC/SSSI.</td>
</tr>
<tr>
<td>TE51 Heathfield Industrial Estate,</td>
<td>The Inspector concluded that the prospect of this site being used for housing would discourage the landowner from</td>
<td>Rare plant species are contained on the site within a County Wildlife Site.</td>
</tr>
</tbody>
</table>

18
<table>
<thead>
<tr>
<th>Location</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bovey Tracey</strong></td>
<td>considering offers for an alternative waste management use. A large section of the site is recorded as having features of archaeological value. A high value mixed use development was granted permission on the land in 2010.</td>
</tr>
<tr>
<td><strong>SH23 Strashleigh Hams, Lee Mill</strong></td>
<td>Previous correspondence carried out during the Assessment of Alternative Sites by the Appellant established the site could not and would not be made available for the processing of IBA, partly due to commercial competition. The operational area of the site is noted to be too small to accommodate the size of facility that has previously been sought. The road network serving the site also presents difficulties with width and residential properties fronting the road with little protection. Site is in a prominent location and a proposal would result in significant landscape impacts. An area of Ancient Woodland is within the south of the site.</td>
</tr>
<tr>
<td><strong>SH01 Challonsleigh, Lee Mill</strong></td>
<td>The companying leasing the land is currently developing other solutions for the site, and at the time of the enquiries made by MVV the site was not available. Occupies a prominent site. The site partly lies within a Mineral Consultation Area and adjoins a County Wildlife Site. Part of the site lies within a floodplain. Access to the site is via small country lanes.</td>
</tr>
<tr>
<td><strong>TE16 Kenbury Wood, Kennford</strong></td>
<td>Not known Contains sites of archaeological interest. There are public footpaths adjacent to the site. The effect of the development on local watercourse will also need to be considered. MVV note the site is a distance from the Devonport EfW facility</td>
</tr>
<tr>
<td><strong>W1: Coypool China Clay Works, Plymouth</strong></td>
<td>The site is now promoted by the owners for a mixed use scheme and is, therefore, unavailable for the development of a waste facility. The site contains significant natural features, including woodland belts and significant greenscape areas on the sites fringe.</td>
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<tr>
<td>Location</td>
<td>Details</td>
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<tr>
<td><strong>W2: Land West of Ernesettle Lane, Plymouth</strong></td>
<td>The Inspector notes DCC no longer contends that the Coypool China Clay Works site would be an alternative for the appeal proposal. I have no reason to find otherwise. Current road infrastructure would not accommodate traffic associated with waste management facilities. Plymouth City Council have previously indicated the site would not be available due to the strategic importance of the site. The Inspector concludes the reluctance of the land owner raises serious doubts about whether the site would be made available. The site is allocated in Policy W2 of the Plymouth Waste Development Plan Document for the development of a strategic integrated waste management use for household and commercial and industrial waste, therefore, the management of construction and demolition waste which is treated separately in the plan would appear a conflict to be in conflict with provisions sought by the development plan. The site is in close proximity to a number of important designated sites, including a SPA, SAC and AONB, as well as steep access passing residential properties. The Inspector notes there is no evidence that these uses would rule out the possibility of designing an acceptable waste management scheme that would serve the same function as the appeal scheme.</td>
</tr>
<tr>
<td><strong>W3: Moorcroft Quarry, Plymouth</strong></td>
<td>The owners of this site (Aggregate Industries) have previously indicated that the site is not available to MVV for the processing of IBA, partly due to commercial competition. The Inspector states DCC considers that the Moorcroft Quarry site is a potentially preferable site, which warrants further exploration before permission was granted for a scheme further afield. The ground is noted to be unstable.</td>
</tr>
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</table>

15 Plymouth City Council has subsequently advised that the site has now been allocated and ring-fenced for a new Community Economic Development Trust.
However, the inability of any party to gain access to the site, along with the owner’s earlier advice that there was no interest in processing IBA and that there was no land available for such use, suggests that its availability is questionable.

<table>
<thead>
<tr>
<th>Site</th>
<th>Availability Notes</th>
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<tbody>
<tr>
<td><strong>W4: Chelson Meadow, Plymouth</strong></td>
<td>The availability of land for development is constrained by the construction of the waste transfer station. The Inspector agrees.</td>
</tr>
<tr>
<td><strong>W5: Weston Mill (allocated as a Civic Amenity Site), Plymouth</strong></td>
<td>There is no capacity for expansion within the current boundary. The site is allocated for a civic amenity site, the development of an IBA processing site would prejudice this use.</td>
</tr>
<tr>
<td><strong>SH10 Lapthorne Cross, Dittisham</strong></td>
<td>The site is close to the River Dart, an AONB and within a Coastal Preservation Area. There is a County Wildlife Site close to the site. Access would be via a class 3 road.</td>
</tr>
<tr>
<td><strong>SH12 Marlands, Totnes</strong></td>
<td>The Council dismissed this site due to the proximity to the primary road network. The site is close to an Unconfirmed Wildlife Site and Local Wildlife Site. A public footpath runs close to the north end of the site.</td>
</tr>
<tr>
<td><strong>TE19 Ruby Farm, Abbotskerswell</strong></td>
<td>The Council dismissed this site due to the proximity to the primary road network. A footpath and bridleway cross the site. A County Wildlife Site is nearby and the village of Abbotskerswell contains a Conservation Area and listed buildings. There are archaeological features to the</td>
</tr>
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## Additional locations arising during the inquiry

On discussing further the sites, the Inspector considered that “there is no evidence that alternative land might become available at Lee Moor or Hemerdon outside areas allocated for china clay waste.”

Additionally, he stated that “Land in the vicinity of Marshmills rail sidings would be close to the EfW facility, but there are doubts about whether sufficient land would be available. The site is not allocated for waste purposes and it has potential for inter-modal freight activity. There is nothing to indicate that it might be available for a waste management facility.”

The Inspector also noted “suggestions that IBA could be transported by rail or water to more distant treatment plants lack details about the operational capability of these plants, and the practicalities and cost implications of such transhipments. Sites near

<table>
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<tr>
<th>Location</th>
<th>Description</th>
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<tr>
<td><strong>TE12 Shuterton Industrial Estate, Dawlish</strong></td>
<td>MVV consider the location of the site in relation to the EfW facility is not sustainable. The site is close to an Area of Great Landscape Value, a Coastal Preservation Area and a County Wildlife Site.</td>
</tr>
<tr>
<td><strong>ED33 Withyhayes, Lympstone</strong></td>
<td>Site lies close to Exe Estuary Ramsar Site, SPA and SSSI. A Historic Park and Garden and several listed buildings are located in the vicinity of the site. There are groundwater and aquifer protection issues.</td>
</tr>
<tr>
<td><strong>TE25 Yannon Lane, Kingskerswell</strong></td>
<td>The Council dismissed this site due to the proximity to the primary road network. The site lies within and close to County Wildlife Sites. There is an Area of Great Landscape Value to the south and east of the site. There are listed buildings, a Conservation Area and archaeological features nearby.</td>
</tr>
<tr>
<td><strong>SH24 Torr Quarry, Kingsbridge</strong></td>
<td>The Council dismissed this site due to the proximity to the primary road network.</td>
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*Figure 4: Potential Alternatives to Whitecleaves Quarry Investigated During Appeal*
Exeter (Hill Barton and Greendale) would increase travel distances for IBA considerably."

Figure 4: Location of Potential Alternative Sites
Appendix B: Proposed modifications to the Devon Waste Plan

Draft modifications proposed to the Inspector examining the Devon Waste Plan are shown below in red, with additional text underlined, and deleted text struck through. These draft modifications do not take account of other changes required to these paragraphs and Policy, and reference should be made to Examination Document XD08 for the comprehensive set of Potential Main Modifications.

2.4.8 The Waste Plan incorporates the aspiration to recover energy from all waste that is left over after recycling has taken place. In this context, it is necessary for the level of energy recovery capacity to increase so that it is sufficient to manage to approximately 36% of the total LACW and CIW produced by 2031 (on the assumption that recycling reaches the anticipated level of 64%). This will assist in diverting waste which cannot be recycled from landfill, with provision for reusable and recyclable materials to be recovered separately. It is assumed that the non-hazardous residues of thermal treatment (including incinerator bottom ash) will be recycled, rather than being landfilled, and that the digestate residue of anaerobic digestion is beneficially used. From 2014, it is anticipated that around 12,000 tonnes of incinerator bottom ash will be generated by the Exeter incinerator, with a further 60,000 tonnes from the new Plymouth facility.

2.4.17 There is also a close relationship between Devon and Plymouth in terms of waste management. In future, around 60,000 tonnes of LACW from southwest Devon will be sent to the energy from waste facility in Plymouth currently under construction (together with approximately 30,000 tonnes of LACW from Torbay that is currently landfilled in Devon). This is a sub-regional facility which will manage in the region of 245,000 tonnes of waste per annum in total. Capacity to manage this waste will therefore not be needed in Devon. However, the facility will generate around 60,000 tonnes of incinerator bottom ash, with its planning permission requiring at least 95% to be recycled. There are currently no facilities within Greater Devon to recycle this material.

Similar to the situation in Torbay, work undertaken by Plymouth City Council has underlined that there are no suitable sites in Plymouth to meet the landfill needs of the city. Currently much waste from Plymouth requiring landfill is sent to Cornwall, with a smaller proportion coming to Devon. As a result, there is a need to plan to meet some of the landfill needs of Plymouth in Devon.

2.4.20 These cross-boundary waste issues have been assessed in detail. The findings from this assessment suggest that it is necessary to plan to accommodate up to 48,300 tonnes of CIW from Torbay for energy recovery and up to 30,700 tonnes of non-hazardous waste from Plymouth, Torbay and a small amount from Somerset, for disposal. These totals are indicated in Table 2.6 and have been incorporated to the overall needs assessment in order to ensure sufficient capacity is planned for. Across all waste streams no additional recycling capacity for waste generated outside of Devon has been identified. This is because recycling capacity needs are typically met locally. No additional disposal capacity for CDEW generated outside of Devon has been identified as only a very small amount of CDEW generated outside of
Devon is disposed at sites within Devon. However, the incinerator bottom ash arising in Plymouth mentioned in 2.4.17 will require a facility for its recycling, and potential difficulties in accommodating this within Plymouth may require a facility to be developed within Devon.

2.4.28 Informed by the level of existing capacity at waste recycling facilities across the County, it is not necessary to identify further strategic recycling facilities within the County during the plan period for recycling in general, and the existing network of facilities is broadly sufficient to manage projected waste arisings. However, this approach does not preclude additional facilities or indeed extensions to existing facilities from coming forward, particularly for waste streams, such as incinerator bottom ash, which are not capable of being managed at existing facilities but recognises that the existing network of facilities is broadly sufficient to manage projected waste arisings.

3.5.4 Recent years have seen the emergence of facilities undertaking recycling and recovery of specific waste streams, indicating the increasing viability of recycling and the availability of markets for the processed materials. As well as the facilities collecting food and other organic waste for composting, examples include waste wood and tyre recycling facilities and a soils recovery operation. Future delivery of energy recovery facilities will also generate a range of residual materials that are capable of recycling into new products such as aggregates. Planning permissions for the new incinerators in Exeter and Plymouth require the recycling of the residual incinerator bottom ash, and delivery of new capacity to enable this recycling will assist in meeting Objective 1 in treating this waste material as a resource and avoiding its landfilling.

Policy W5: Reuse, Recycling and Materials Recovery

1. Sustainable waste management in Devon will aim to achieve and maintain sufficient capacity to enable the reuse, recycling or composting of at least 64% of forecast arisings of local authority-collected and commercial and industrial waste and 90% of forecast arisings of construction and demolition waste by 2031.

2. To achieve this capacity, planning permission will be granted for additional facilities enabling preparation for reuse, sorting, transfer, materials recovery, composting and/or recycling of waste, unless material considerations indicate otherwise, where they:

   (a) are located at or close to the source of the waste or opportunities for its beneficial use; and/or

   (b) achieve the segregation of reusable, recyclable or compostable materials prior to energy recovery or disposal of the residual waste; and/or

   (c) are co-located with a complementary waste management operation; and/or
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<td><strong>(d)</strong></td>
<td>enable use of previously-developed land or vacant or redundant buildings; <strong>and/or</strong></td>
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<td><strong>(e)</strong></td>
<td>achieve the recycling of incinerator bottom ash and/or other non-hazardous thermal treatment residues arising within Greater Devon.</td>
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