

Exercise 2: EfW and Biomass Development

Information on an example EfW / Biomass scheme is set out below. Three Plans (Figure 1: Location Plan, Figure 2: Site Plan, Figure 3: Constraints Plan) have also been provided.

The Task

- Read through the information below.
- Now look at the extract from National Planning Policy and the example of local renewable energy policy in the middle of your table.
- Consider if the NPPF and local policy would provide you enough of a policy steer to determine the proposed energy from waste/biomass development and come to a view as to whether the policy framework is clear and robust:
 - Do you expect the determination of this application (or at least the officer's recommendation) to be straightforward?
 - O What information would enable more robust decision making?

Proposed Development

The proposed development comprises:

- A material recovery facility to extract ferrous metals and dense plastics.
- A energy recovery facility to recover energy from remaining waste;
- An Ash processing facility to treat the bottom ash to extract recyclable metals and produce recycled aggregate.

The throughput for the facility will consist of Waste 149,000 tonnes per annum of municipal waste and 126,000 tonnes per annum of commercial and industrial waste.

The facility could be operated in two ways, either:

To have the capacity to produce:

- 21.4 MW of electricity if operating in electricity only mode; or
- 17.6MW of electricity plus 14.6MW of heat if operating in CHP mode

The developer has identified a source for the heat, a residential development to the north east of the site. An agreement is in place for the heat to enter this network.







The plant has an agreement with the local council to take 149,000 tonnes of municipal waste.

The developer states that 50% of the energy produced for the EfW facility is considered to be renewable as it comes from biomass fraction within the waste streams (the remainder is from burning plastics that are derived from fossil sources and is therefore not renewable).

This means that the facility has the capacity to deliver the following renewable energy:

- 10.7MW of electricity in electricity only mode;
- 8.8MW of electricity plus 7.3MW of heat if operating in CHP mode.

The site

The site extends to approximately 6.6 hectares and is made up of a former Sewage Treatment Works and areas of former landfill, as illustrated by Figure 2. The site area also includes an area of open space.

The site is subject to a number of adopted and proposed policy designations, including:

- The majority of the site is designated as a Defined Employment Area in the Development Plan.
- The majority of the site is designated as a Site of Importance for Nature Conservation. The site is designated for its botanical diversity and uncommon plants, namely the Bee Orchid and Golden Dock.
- The part of the site to the north of Orion Road to the area under Pegasus Way is not designated as SINC.
- The westernmost part of the site and a strip of land on the south west boundary is designated as Metropolitan Open Land.
- The majority of the site is in Flood Zone 1, with the north eastern part of the site in Flood Zone 2.
- The site is included in Industrial Estate C and within the Area of Search for Waste Developments.
- The site is not within the Green Belt.

See Figure 2: Proposed site plan.

Environmental and Context Information

The site constraints are shown on Figure 3.

Ground Contamination

The site includes a range of contaminated materials including ash, coal and asphalt in the Made Ground, and asbestos, which was found on site in small concentrations. These would only pose a minor risk in areas of soft landscaping and not in areas of hardstanding. Any risk would be removed through remediation of the land. Effects on groundwater and surface water will be negligible as the proposed works will reduce the movement of







contaminants through the soil and through runoff as a result of increased hard standing coverage, improved drainage collection systems and ground remediation.

Ecology

There are several likely ecological effects as result of the development, these include:

- the loss of 3.4 ha of land which will affect a woodland bird community, an assemblage of invertebrates and localised populations of foraging bats and badgers;
- the long term effects of lighting from the development could potentially impact upon the localised bat population; and
- the permanent loss of several appropriate habitats of significant size for invertebrate species will represent a direct negative impact at the district level.

Landscape and Visual

Landscape and visual effects during operation are likely to arise from the height and mass of new buildings and structures, as well as new permanent lighting; the effects will be influenced by the extent of new landscape planting and retention of existing mature vegetation.

The development would directly affect the landscape resource of the site itself. However, the retention of much of the extensive mature tree and shrub vegetation around the Site boundaries would partially help to mitigate the effect of the operational phase

The Retail Park to the north, Golf Club to the south and a nearby park to the west would all experience adverse effects in terms of landscape, however, these would be reduced through the retention and protection of much of the mature tree planting along the sites boundaries.

For all other areas, landscape impacts would be negligible due to the low magnitude of change to their character and setting.

Noise

The levels of noise on the site will meet the required standards (BS5228 for Construction and BS4142 for operational noise) due to the design of the proposed development. It is therefore considered that there would be no significant noise effects from the operation of the development.

Changes to traffic flows as a result of the development are considered too low to be meaningful and are therefore assessed to not result in any significant change to the noise environment.







Transport

The Transport Assessment considers the walking and cycling effects of surrounding road network and considers that the additional infrastructure available as a result of the development proposals would improve accessibility in the surrounding area.

The effect of the development on bus and rail services is considered to be negligible.

The surrounding road network does suffer from congestion, however the effects of vehicle movements considered in detail the junction of the site. It was assessed that the permanent effect of the development would be minor adverse or negligible.

Water Resources

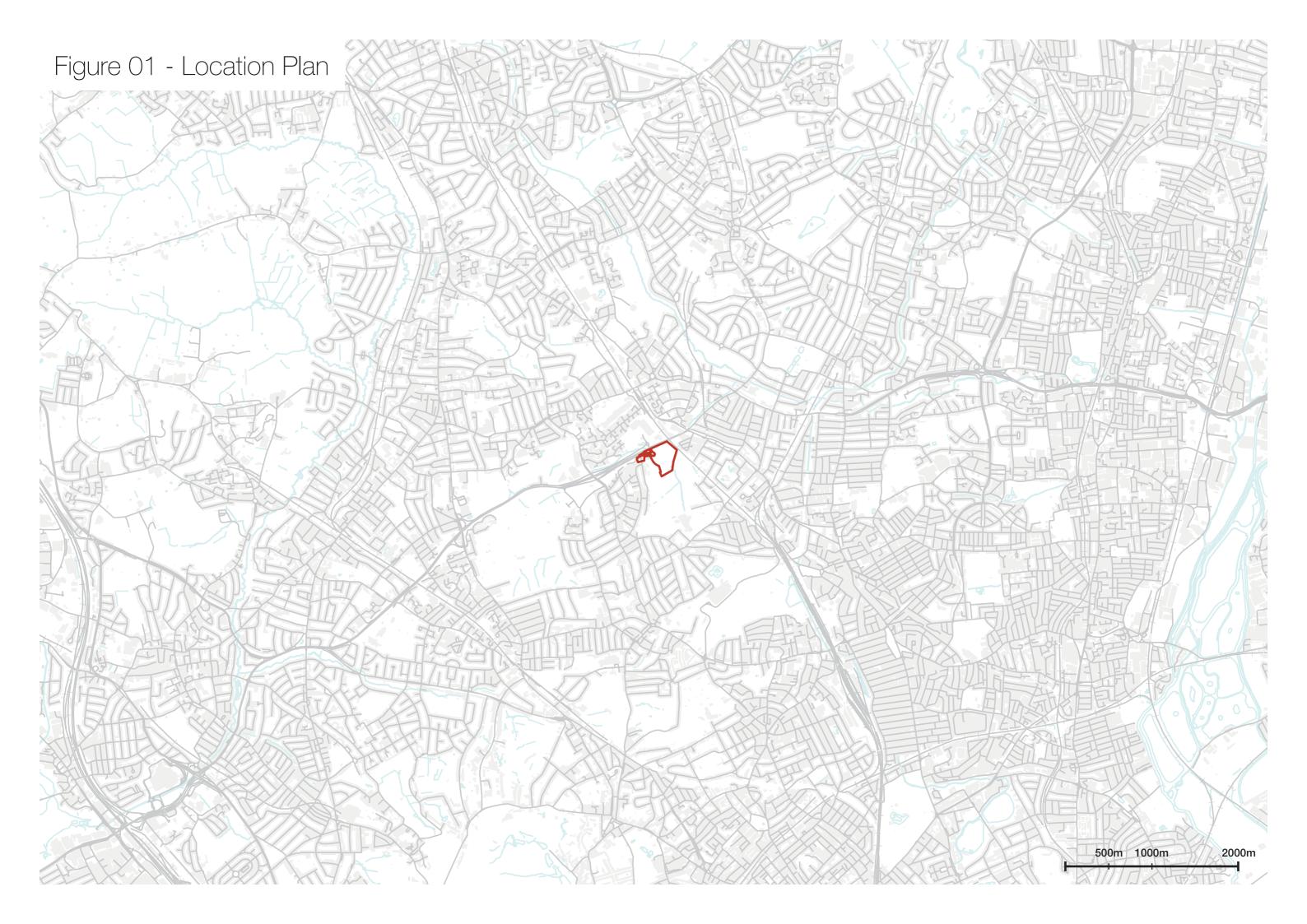
The proposed development will result in increased run-off rates compared with the current Greenfield condition due to increased areas of hardstanding; however, a number of measures will be incorporated in to the scheme to retain surface water runoff on site in order to limit discharge to current Greenfield runoff rates and prevent flood risk arising from the development.

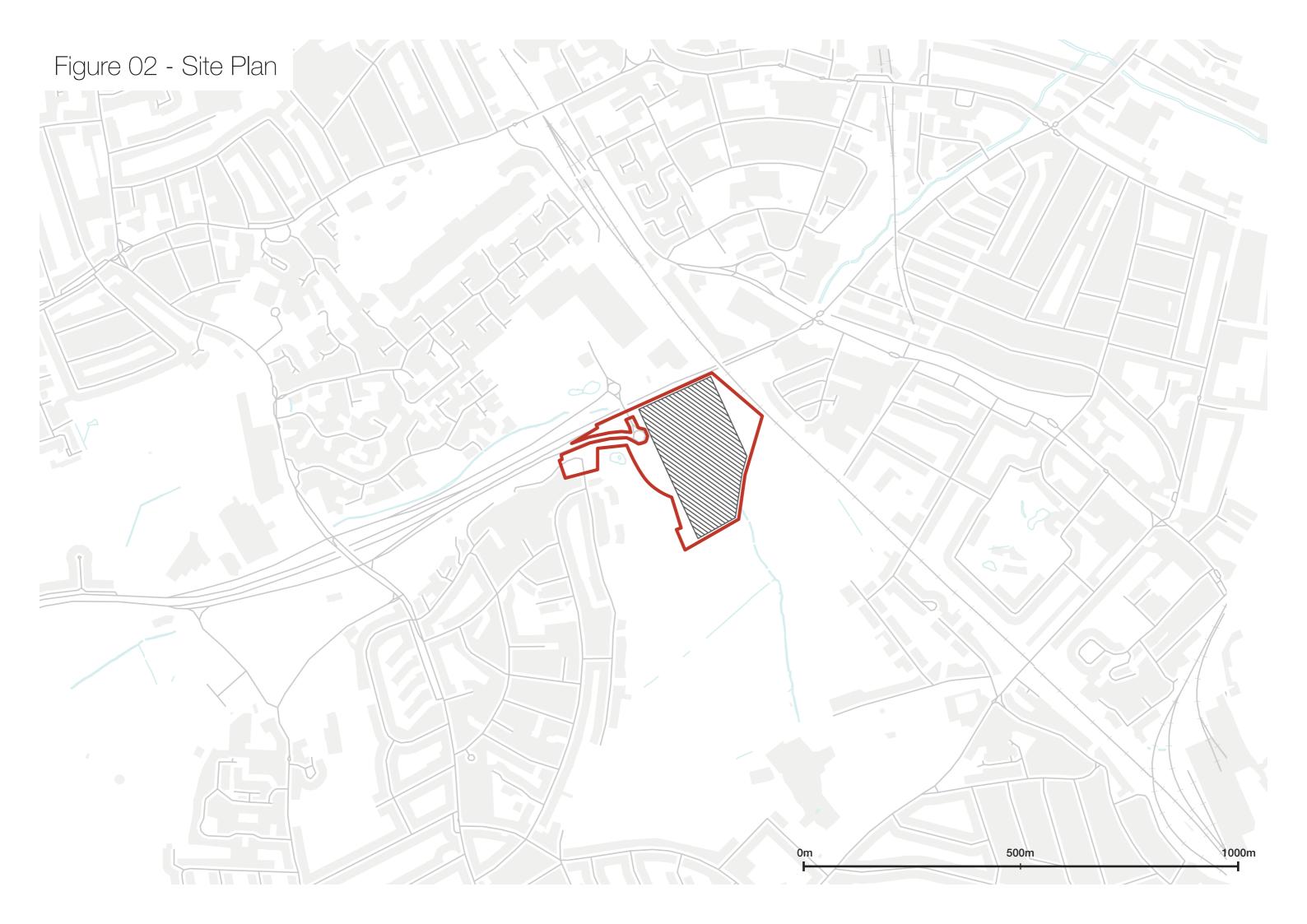
Measures to reduce/attenuate surface water discharge rates to surface water bodies, including; Sustainable Urban Drainage Systems, green roofs and attenuation tanks will all be incorporated in to the development to maintain Greenfield run-off rates.

Existing flood storage capacity on site will be maintained, and in fact increased, with flood storage provided in the form of a storage tank. This will manage flood risk and is appropriate to the development use. The increase in flood storage volume will have a beneficial effect in reducing flood risk for the surrounding area.













Renewable Energy Policy – Example 5

Policy 5.1 Low Carbon Energy

The Council supports appropriate opportunities to improve energy efficiency and increase the large scale (above 0.5MW) commercial renewable energy capacity, as a basis to reduce greenhouse gas emissions. This includes wind energy, hydro power, biomass treatment, solar energy, landfill gas and energy from waste. Protection of internationally designated nature conservations sites will be a key consideration, including relevant policies contained as part of the Natural Resources and Waste Development Plan Document. Proposals for biomass resource available (including location) and the transport implications of using that resource. Any development that may lead to an adverse effect on the integrity of a European site will not be supported.

Table 5.1 Estimated installed and potential grid connected renewable energy generation capacity (MW) for the district

	Current Production Levels (MW) 2021	Potential Contribution (MW) 2021
Wind Power	0	30
Micro-generation	0	15
Energy from Waste	0	35
Hydro-power	0	1
Energy from Biomass	0	2
Total	0	83

Policy 5.2, Climate Change – Carbon Dioxide Reduction

All developments of 10 dwellings or more of over 1,000 square metres of floorspace, whether new-build or conversion will be required to:

i) reduce total predicted carbon dioxide emissions to achieve 20% less than the Building Regulations, Target Emission Rate until 2016 when all development should be zero carbon; and

ii) provide a minimum of 10% of the predicted energy needs of the development from low carbon energy

Carbon dioxide reductions achieved in meeting criteria (i) will contribute to meeting criteria (ii)

If it can be demonstrated that decentralised renewable or low carbon energy generation is not practical on or near the proposed development, it may be acceptable to provide a contribution equivalent to the cost of providing the 10%, which the council use towards an off-site low carbon scheme. The opportunity to aggregate contributions to deliver larger low carbon projects would be implemented independently of the development. Wherever possible the low carbon projects would be linked with local projects that would bring local benefits.







It is likely that the approach of pooling off-site contributions through planning obligations will be replaced by CIL in April 2014.

Applicants will be required to submit an Energy Assessment with their application to demonstrate compliance with this policy.

Policy 5.3, Sustainable Design and Construction

To require developments of 1,000 or more square metres or 10 or more dwellings (including conversion where feasible) to meet at least the standard set by BREEAM or Code for Sustainable Homes as shown in the table below. A post construction review certificate will be required prior to occupation:

	2012	2013	2016
Code for Sustainable Homes	Code level 3	Code level 4	Code level 6
BREEAM	Very Good	Excellent	Excellent

Policy 5.2, Large Scale Wind Energy Generation

Under the Habitats Regulations, wind energy generation will not be accepted if it negatively effects bird populations or other nature conservation objectives of any Special Protection Area.

In other areas the acceptability of wind energy development will be judged on whether its benefits can be shown to outweigh any significant impacts on:

- 1. The character and appearance of the landscape or townscape;
- 2. The living and working conditions of occupants of nearby property by reason of visual impact, noise, shadow flicker or reflected light;
- 3. Any nationally important designation, including their visual amenity and setting;
- 4. Area of ecological importance;
- 5. Potential for cumulative effects with other existing or proposed wind energy;
- 6. Transport infrastructure and highway safety;
- 7. Civilian and military aeronautical radar services or the operation of aerodromes; and
- 8. Telecommunications and television reception.

In addition proposals shall provide for reinstatement of the site through the removal of the facilities should it cease to be operational or upon decommissioning.

In assessing proposals against the requirements of this policy, full account will be taken of proposed mitigating measures.







Policy 5.3: Waste Management Sits and Facilities

A network of waste management sites will be developed in accordance with the following principles:

- Industrial estates suitable for new recycling, sorting, transfer and small scale treatment and recovery processes such as Anaerobic Digestion and In-Vessel Composting.
- Strategic waste management sites to meet the needs of major residual waste treatment including energy recovery.
- A specific allocated site to provide further additional capacity, in particular, to support the Construction, Demolition and Excavation sector.
- Applications for temporary waste facilities will be considered on their planning merits but where possible such activities should take place at locations which are in accordance with points 1 – 3 above.

Policy 5.4: Waste Uses within industrial Areas

The following existing industrial areas shown as will be treated as preferred locations where new waste management facilities:

- Industrial Estate A
- Industrial Estate B
- Industrial Estate C

Proposals in other areas will also be considered provided that it can be demonstrated they are industrial in nature and that all the tests set out in Policy 6.6 are met

Policy 5.5: Waste Proposals at other locations

Waste proposals at locations other than those identified in Policies 5.4 will need to demonstrate:

The preferred locations in this DPD are not appropriate or available.

There is a specific local need for the facility.

The site meets the requirements of Policy 5.6.

Policy 5.6: Waste Management Facilities, potential issues and impacts

Applications for waste management purposes must demonstrate that the following potential impacts of the planned development have been addressed in a manner so as to make them acceptable to the Council:

- Duration of the development.
- The layout of the site and buildings.
- Visual and other amenity. Recycling operations for waste such as paper, plastic, rags, glass etc. should take place inside a building, including the storage of product awaiting treatment or despatch. Storage of scrap vehicles should not exceed the height of perimeter fencing or screening.







- Treatment of boundary features and new screening as appropriate
- Environmental and amenity aspects such as noise, dust, litter, odour, vermin and gas emissions.
- Protection of controlled waters.
- Drainage and use of sustainable drainage.
- Effect on the natural environment including all wildlife.
- Design of built and natural features.
- Restoration and aftercare where appropriate.
- Measures to prevent dirt being carried onto the public highway and private highways in public use beyond
 the site boundary. The site entrance apron and site access road should be hard surfaced in tarmac or
 concrete for a minimum distance of 30 metres or to a point beyond any weighbridge whichever is the
 longer. Site roads and entrance areas must not drain onto the public highway.
- The use of alternatives to road transport where feasible
- The adequacy of the local highway network and the safety of access and egress to the site and to other users of the highway including pedestrians
- Routing and frequency of vehicle movements, together with hours of operation and timescales for delivery.
- Hours of operation.
- Protection of public rights of way. Fairly and reasonably related community benefits where appropriate (to be delivered through s106 Planning Obligations).
- No adverse impact on the integrity of any European sites.

Policy 5.7 District Heating

Where technically viable, and in area of sufficient heat density, development should propose heating systems, according to the following hierarchy:

- i) Connection to existing heat networks;
- ii) Use of site wide district / communal heating system supplied with low carbon heat where technically viable / feasible:
- iii) In areas where there is potential for district heating all development proposal will need to demonstrate how schemes are future proofed to allow for connections to an area wide heat network;
- iv) Contribute (either financially or in-kind) towards the creation or enlargement of existing networks. Such contributions will be secured through the use of legal agreements and subsequently financial contribution through CIL once introduced.







Energy 5.8, Heat Distribution Infrastructure

The promotion of heat distribution will be supported providing that the following are undertaken satisfactory:

- An assessment of environmental effects.
- An assessment of heat sources (s) and heat use.







Renewable Energy Policy - Example 6

Policy 6.1 - Energy

- A. Plans, strategies, investment decisions and programmes developed by the Council and its partners will maximise improvements to energy efficiency and support the development of renewable and low carbon sources of energy by:-
- 1. Identifying strategic low carbon and renewable energy opportunities
- 2. Ensuring that future development takes place in locations and at a scale that can make a positive contribution to the districts capacity for renewable and low carbon energy
- 3. Setting out local requirements for the use of decentralised energy and sustainability of buildings in DPDs and in the city Centre Area Action Plan that promote the maximum use of decentralised energy in areas of greatest opportunity, while taking into account viability and the need to deliver both market and affordable housing
- B. All proposals for renewable and low carbon generation must include full assessment of the environmental, economic and social impacts and the integration of measures to minimise adverse impacts.
- C. Ensuring that new developments of more than 1000 sq metres of non residential floorspace will secure at least 10% of their energy from decentralised and renewable or low carbon sources and meet 'BREEAM Very Good' standards on buildings unless, having regard to the type of development involved and its design, this is not feasible or viable.

A separate waste DPD has been produced.

This states that there is a requirement for 300,000 tonnes per annum of treatment capacity for Municipal Solid Waste and 300,000 tonnes per annum for Commercial and Industrial Waste.

To date planning permission has been secured for a facility capable of treatment 150,000 tonnes of Commerical and Industrial Waste.

The following policies are included:

Policy 6.2: Waste Management

The Council will work with its partners and neighbouring authorities to integrate strategies for waste management in the LPA area and at the sub-regional and regional levels.

All forms of waste will be managed in accordance with the waste hierarchy in the following order of priority:

- Waste prevention avoiding the creation of waste in the first instance; then
- Re-use making best use of existing and new facilities; then
- Recycling and composting making best use of existing and new facilities; then
- Energy recovery making use of technologies that recover energy from waste; then







Disposal – including the use of landfill as a last alternative.

The Council will plan to ensure that sufficient capacity is located within the District to accommodate forecast waste arisings of all types during the plan period, reducing the reliance on other authority areas. In identifying waste management sites within the District the Council will give regard to cross-boundary issues, including waste movement and location of facilities in adjacent areas.

Policy 6.3: Identifying Waste Management Sites

Sites for waste management facilities will need to be identified to deal with Municipal Solid Waste and Commercial and Industrial waste arisings within the LPA. Sites will need to best meet environment, economic and social needs. In identifying and selecting sites for the management of waste (including sites for new and expanded waste management facilities), an Area of Search is established.

Within the Area of Search, the following order of priority will be adopted:

- The expansion and co-location of waste facilities on existing, operational sites; then
- Established and proposed employment and industrial sites where modern facilities can be appropriately developed; then
- Other previously developed land within the Area of Search; then
- Greenfield, previously undeveloped sites within the Area of Search; then
- Sites within the Green Belt.

All potential waste management sites will be subject to detailed assessment of their individual characteristics and the implications of any waste development on surrounding areas.







Relevant Policies from National Planning Policy Framework – Energy from Waste/biomass development

Core Planning Principles

The NPPF includes 12 core planning principles (paragraph 17), one of which is to

'support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example by the development of renewable energy)'.

Meeting the challenge of climate change, flooding and coastal change

Paragraph 97: To help increase the use and supply of renewable and low carbon energy local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources: They should:

- Have a positive strategy to promote energy from renewable and low carbon sources;
- Design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts;
- Consider identifying suitable areas for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and
- Identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy systems and for co-locating potential heat customers and suppliers.

Paragraph 98 of the NPPF provides specific guidance for local planning authorities in determining planning applications, stating that local planning authorities should:

- Not require applicants for energy development to demonstrate the overall need for renewable or low carbon energy and also recognise that even small scale projects provide a valuable contribution to cutting greenhouse gas emissions; and
- Approve the application (unless material considerations indicate otherwise) if its impacts are (or can be made) acceptable. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should also expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.

Paragraph 100 of the NPPF sets out national planning policy on flood risk and seeks that inappropriate development in areas at risk of flooding should be avoided by directing development away from the areas at highest risk of flooding. The NPPF goes on to talk about the sequential and exceptions test. The former PPS25 quidance is included in a separate document entitled 'technical guidance to the NPPF'. This document reconfirms that renewable energy schemes do not need to meet the sequential or exceptions test.







Meeting the challenge of climate change, flooding and coastal change

The NPPF includes a section on conserving and enhancing the natural environment. Relevant policies are set out below:

Paragraph 112: Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality. This position replicates the policy direction of the former PPS7: Sustainable Development in Rural Areas in relation to the loss of agricultural land.

Paragraph 118: When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles (paragraph 118):

- If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused:
- Proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made information about their statutory purposes, management and other matters. where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;
- Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;
- Opportunities to incorporate biodiversity in and around developments should be encouraged:
- Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and
- The following wildlife sites should be given the same protection as European sites:
 - Potential Special Protection Areas and possible Special Areas of Conservation;
 - Listed or proposed Ramsar sites; and
 - Sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.







Paragraph 123 includes the NPPF policies on noise and states that planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts¹ on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts² on health and quality of life arising from noise from new development, including through the use of conditions;
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;³ and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

Conserving and enhancing the historic environment

Paragraph128 states that in determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

Paragraph 131 states that in determining planning applications, local planning authorities should take account of:

- The desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
- The positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and
- The desirability of new development making a positive contribution to local character and distinctiveness.

Paragraph 132 states that when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance,

³ Subject to the provisions of the Environmental Protection Act 1990 and other relevant law.





¹ See Explanatory Note to the Noise Policy Statement for England (Department for the Environment, Food and Rural Affairs).

² See Explanatory Note to the Noise Policy Statement for England (Department for the Environment, Food and Rural Affairs).



notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.

Paragraph 133 states that where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

- The nature of the heritage asset prevents all reasonable uses of the site; and
- No viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and
- Conservation by grant-funding or some form of charitable or public ownership is demonstrably not possible; and
- The harm or loss is outweighed by the benefit of bringing the site back into use.

Paragraph 134 states that where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.

PPS 10: Planning for Sustainable Waste Management (not replaced by NPPF)

21. In deciding which sites and areas to identify for waste management facilities, waste planning authorities should:

(i) assess their suitability for development against each of the following criteria:

- the extent to which they support the policies in this PPS;
- the physical and environmental constraints on development, including existing and proposed neighbouring land uses (see Annex E);
- the cumulative effect of previous waste disposal facilities on the well-being of the local community, including any significant adverse impacts on environmental quality, social cohesion and inclusion or economic potential;
- the capacity of existing and potential transport infrastructure to support the sustainable movement of waste, and products arising from resource recovery, seeking when practicable and beneficial to use modes other than road transport.
- (ii) give priority to the re-use of previously-developed land, and redundant agricultural and forestry buildings and their curtilages.

Approach – waste planning authorities

22. Development plans form the framework within which decisions on proposals for development are taken. It is important that plans are kept up-to-date and properly reflect national policy. When proposals are consistent with an up-to-date development plan, waste planning authorities should not require applicants for new or enhanced waste management facilities to demonstrate a quantitative or market need for their proposal.







23. In the interim period before the development plan is updated to reflect the policies in this PPS, planning authorities should ensure proposals are consistent with the policies in this PPS and avoid placing requirements on applicants that are inconsistent.

Unallocated sites

- 24. Planning applications for sites that have not been identified, or are not located in an area identified, in a development plan document as suitable for new or enhanced waste management facilities should be considered favourably when consistent with:
- (i) the policies in this PPS, including the criteria set out in paragraph 21;
- (ii) the waste planning authority's core strategy.
- 25. In the case of waste disposal facilities, applicants should be able to demonstrate that the envisaged facility will not undermine the waste planning strategy through prejudicing movement up the waste hierarchy.

ANNEX E - Locational Criteria

In testing the suitability of sites and areas against the criteria set out in paragraph 20, waste planning authorities should consider the factors listed below. They should also bear in mind the envisaged waste management facility in terms of type and scale, taking account best available technologies (not involving excessive costs). Advice on likely impacts and the particular issues that arise with specific types and scale of waste management facilities is given in accompanying practice guidance.

- a. protection of water resources
- b. land instability
- c. visual intrusion
- d. nature conservation
- e. historic environment and built heritage
- f. traffic and access
- g. air emissions, including dust
- h. odours
- i. vermin and birds
- i. noise and vibration
- k. litter
- I. potential land use conflict



