Cambridgeshire and Peterborough Minerals and Waste Local Plan 2036

Further Consultation Draft

March 2019

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1. Introduction

Introduction to the Cambridgeshire and Peterborough Minerals and Waste Local Plan

1.1 The Planning and Compulsory Purchase Act 2004 (the 2004 Act) set the requirement for Minerals and Waste Planning Authorities to prepare Minerals and Waste Development Plan Documents (DPDs) for their administrative areas. These DPDs help form the 'Development Plan' for the area[1]. The term 'Local Plan' has in recent years been favoured over the term 'DPD'.

1.2 Local Plans can be produced jointly by two or more planning authorities. The two Planning Authorities of Cambridgeshire and Peterborough have previously produced the following joint Local Plans:

- Cambridgeshire and Peterborough Minerals and Waste Development Plan Core Strategy DPD (adopted July 2011); and
- Cambridgeshire and Peterborough Minerals and Waste Development Plan Site Specific Proposals DPD (adopted February 2012).

1.3 Those two DPDs remain in force until a new Local Plan replaces them. That is what the two planning authorities intend to do - replace the above two documents with a single new Local Plan, to be known as 'The Cambridgeshire and Peterborough Minerals and Waste Local Plan'.

1.4 It is necessary to replace the above two documents because without doing so, they will steadily become out of date. Up to date Local Plans are important, so that all parties (landowners, operators, members of the public etc.) are clear what policies will apply in which locations and for what types of proposals.

1.5 Starting in 2017 (and from 6 April 2018 it became a legal requirement to do so), the two planning authorities carried out a review of the current adopted DPDs and supporting documents, to see which policies were in need of review and which were still relevant, and to determine if a partial or full review of them would be required.

1.6 It was decided that, whilst the two DPDs as a whole were still generally sound, some policies (and potentially allocations) were in need of review. In light of this and of changes made to the national planning system since the current plans were adopted, it was agreed that they should be reviewed in full.

1.7 Building on the success of previous joint working, both Cambridgeshire County Council and Peterborough City Council agreed to commence preparation of a new joint Minerals and Waste Local Plan. Preparing a joint Local Plan is possible under section 28 of the Planning

[1] The Development Plan for Cambridgeshire and Peterborough currently consists of the adopted Minerals and Waste Core Strategy and Site Specific Allocations DPDs, the Local Plans of the Cambridgeshire Districts and Peterborough City Council, and any adopted Neighbourhood Plans or Neighbourhood Development Orders across the plan area.

and Compulsory Purchase Act. The Local Plan will, upon adoption, replace both of the adopted DPDs referred to above. Other supporting documents, such as the current and linked Supplementary Planning Documents (SPDs) have also been reviewed and incorporated into this new Local Plan.

1.8 For the avoidance of doubt, whilst the geographic area of the Plan closely matches the area of the Cambridgeshire Peterborough Combined Authority, the Plan is the responsibility of, and is being prepared by, Cambridgeshire County Council and Peterborough City Council. The Combined Authority will, however, be an important consultee in the process.

1.9 For the rest of this document, the phrase Local Plan will be used, rather than DPD, due to its more common usage.

How to make comments

1.10 This is the second opportunity for you to make comments on the emerging Local Plan and we encourage you to take this opportunity to let us know your views.

1.11 Peterborough City Council is hosting the consultation exercise, and comments are welcome from anyone, for any area across Cambridgeshire and Peterborough.

1.12 This Further Draft Plan can also be viewed at cambridgeshire.gov.uk/mwlp or peterborough.gov.uk/mwlp where comments can be made online (during the consultation period) using the consultation portal.

1.13 Alternatively a Comments Form (Form X) is available to collect in paper format from the following locations:

Peterborough City Council's customer service centre at:
Bayard Place
Broadway
Peterborough
PE1 1FZ
Opening hours: 9am to 5pm, Monday to Friday

Cambridgeshire County Council's Office at:
Shire Hall
Castle Hill
Cambridge
CB3 0AP
Opening hours: 9am to 5pm, Monday to Thursday, 9am to 4.30pm Friday

or a form can be downloaded from the above link and returned by e-mail or post to:

planningpolicy@peterborough.gov.uk or:

Minerals and Waste Local Plan Consultation

Sustainable Growth Strategy
Peterborough City Council
Sand Martin House
Bittern Way
Fletton Quays
Peterborough
PE2 8TY

1.14 Please clearly let us know exactly which part of the document you are commenting on or what issue it is you wish to raise, by quoting the relevant paragraph number or policy number.

1.15 The closing date for all comments is **23:59 on XX April 2019**. Please note that all comments will be uploaded to our online consultation portal and will not be confidential (however personal email addresses, telephone numbers and signatures will not be shown). All comments received will be taken into consideration and will help inform the Proposed Submission Local Plan, due to be published for public consultation late 2019.

Approach of this Further Draft Plan

1.16 We are at an early-to-mid stage in preparing this new Local Plan. Overall, our approach is intended to be one which rolls forward, refreshes and consolidates the existing Minerals and Waste Local Plans, rather than a fundamental review of everything from scratch. We continue to gather evidence (and this consultation is part of that process).

1.17 This Further Draft Plan consists mainly of proposed non-site specific policies as well as our currently preferred site allocations. We welcome your views on what we have done, and we are very open minded to further adjustments.

Status of this Further Draft Plan March 2019 for Decision Makers

1.18 This Further Draft Plan has been produced in accordance with the National Planning Policy Framework (NPPF) (July 2018), the National Planning Policy for Waste NPPW (October 2014) and National Planning Practice Guidance (NPPG). The Plan has been written to complement the NPPF and NPPW and to comply with the guidance in the NPPG. Should the NPPF, NPPW or NPPG be revised in the future, then any references to them in this document should be checked against the latest versions in force at that point in time. This Local Plan does not repeat policies in the NPPF or NPPW; it builds on them where necessary and ensures locally specific issues are covered.

1.19 Paragraph 48 of the NPPF clarifies the position on the status of emerging plans. It states:

Local planning authorities may give weight to relevant policies in emerging plans according to:
a) the stage of preparation of the emerging plan (the more advanced its preparation, the greater the weight that may be given);
b) the extent to which there are unresolved objections to relevant policies (the less significant the unresolved objections, the greater the weight that may be given); and

c) the degree of consistency of the relevant policies in the emerging plan to this Framework (the closer the policies in the emerging plan to the policies in the Framework, the greater the weight that may be given).

1.20 In accordance with NPPF paragraph 48, the policies contained within this emerging plan will be used (alongside the Development Plan and other material considerations) in determining planning applications, especially where it contains 'new' policy not currently found elsewhere in the Development Plan, the NPPF or the NPPW. In helping determine proposals, the amount of weight to be given to the content of this emerging Plan in comparison with the amount of weight given to other plans, strategies and material considerations, will be a matter for the decision taker to decide and will vary depending on the specific elements of the proposal. However, at this Further Draft stage of the Plan, the weight is likely to be very limited.

Policies Map

1.21 The draft Policies Map which accompanies this Further Draft Plan shows the relevant spatial policies on an Ordnance Survey map base, identifying how the Policies Map would be amended if the plan was adopted as presently written. These policies relate to Mineral Safeguarding Areas (MSAs), Mineral Allocation Areas (MAAs), Mineral Development Areas (MDAs), Waste Management Areas (WMAs), Transport Infrastructure Areas (TIAs), Water Recycling Areas (WRAs) and Consultation Areas (CAs). Your views on the draft Policies Map (such as the allocations and their boundaries) are welcome as part of this consultation exercise. For ease of reference the draft Policies Map also shows settlement boundaries taken from the Cambridgeshire District Local Plans (where present) and the Peterborough Local Plan as adopted, but these are for information only and are not being consulted upon as part of this consultation exercise.

1.22 Upon adoption of this Plan the relevant allocations will be incorporated into the Policies Maps of the relevant individual Cambridgeshire District Councils and Peterborough City Council.

OS Map - Copyright Note

1.23

2. Policy Framework and Context

Timetable for preparing this new Local Plan (the Local Development Scheme)

2.1 In preparing a Local Plan, planning authorities must set out a timetable for the production of that Plan. This is called a Local Development Scheme (LDS). In August 2017 the planning authorities adopted their respective Development Schemes:

- Cambridgeshire Minerals and Waste Development Scheme (August 2017)
- Peterborough Local Development Scheme (August 2017)

2.2 It should be noted that Cambridgeshire's LDS provides a timetable solely for the production of the joint Minerals and Waste Local Plan, whereas Peterborough's LDS also includes the timetable for the production of the separate Peterborough Local Plan. The LDS timetable in both cases is repeated below:

Figure 1: Local Development Scheme Timetable

Plan Stages	Target Date	Actual Date
Consultation on Sustainability Appraisal Scoping Report	Dec 2017	Jan 2018
Preliminary Draft Consultation (Regulation 18)	May/Jun 2018	May/Jun 2018
Further Draft Consultation (Regulation 18)	Mar/Apr 2019	
Proposed Submission (Regulation 19)	Nov/Dec 2019	
Plan Submitted (Regulation 22)	Mar 2020	
Independent Examination (Hearing)	Jun 2020	
Inspector's Report	Aug 2020	
Adoption of Plan	Nov 2020	

Statement of Community Involvement

2.3 As part of their plan making duties, planning authorities must also produce a Statement of Community Involvement (SCI). This document outlines how and at what stages the Council will engage with the community, and how the community can get involved in plan preparation. We will use the two SCIs to inform our approach to consultation on this new Local Plan.

- Cambridgeshire Statement of Community Involvement (March 2014)
- Peterborough Statement of Community Involvement (December 2015)

2.4 If you respond to this consultation or send us your contact details, we will retain your information and inform you of future consultations associated with this Plan (unless you ask us not to).

Further information about this consultation

2.5 This Further Draft Plan is a formal consultation under Regulation 18 of The Town and Country Planning (Local Planning) (England) Regulations 2012 (as amended), known as the Planning Regulations. It seeks the views of land owners, their agents, members of the community, parish councils, neighbouring authorities and any other interested party.

2.6 As well as consulting on the content of this Further Draft Plan, the authorities are also seeking views on the accompanying Sustainability Appraisal (SA), Habitats Regulations Assessment (HRA) and supporting evidence base documents, all of which can be found on the councils' websites at cambridgeshire.gov.uk/mwlp and peterborough.gov.uk/mwlp.

2.7 Following consultation on this Further Draft Plan and consideration of all representation received, the councils intend to publish a Proposed Submission version, under Regulation 19 of the Planning Regulations. This will be consulted on for a six week period for formal representations to be received. These representations will then be submitted with the Plan to the Secretary of State for Independent Examination. A full timetable is provided in the councils' Local Development Schemes.

Vision

2.8 At this Further Draft stage, the following sets out our high level vision for minerals and waste management development. It will evolve over the preparation of the Plan, especially when we have established more details on needs and proposed allocations. The vision will therefore become more 'locally specific' as the Plan evolves:

2.9 *Over the plan period to 2036 Cambridgeshire and Peterborough will ensure a steady and sustainable supply of minerals to meet current and projected future need. There will be an increased commitment to the use of secondary and recycled aggregate over land won material, with restoration and aftercare placed at the forefront of planning decisions.*

2.10 *As existing communities grow and new communities are formed, a network of waste management facilities will provide for the sustainable management of all wastes to the achievement of net self-sufficiency.*

2.11 *A balance will be struck between meeting present and future needs, and maintaining and enhancing the social, environmental and economic vibrancy of the plan area.*

Aims and Objectives

2.12 To ensure that the overall vision of the Plan is achieved, that National policy is met and that local needs are addressed, a set of aims and objectives have been formed. The Plan has a total of 12 objectives under 8 themes. Each objective has examples as to how the objective could be met. The objectives are the same as in the Sustainability Appraisal framework and are shown in the table below:

Figure 2: Plan and Sustainability Appraisal Objectives

Headline Objective		**Criteria to help determine whether objective is/could be met**
Sustainable mineral development		
1	Ensure a steady and adequate supply of minerals to support growth whilst ensuring the best use of materials, and protection of land	determine applications for minerals development without delay prevent needless sterilisation of minerals resources through the use of mineral safeguarding areas safeguard existing minerals development make adequate provision in order to ensure continuity of supply of mineral for the plan area
Sustainable waste management		
2	Contribute positively to the sustainable management of waste	manage the waste arising in the plan area over the plan period, with appropriately located and distributed waste management facilities of a high quality in operation and in design move treatment of waste up the waste hierarchy achieve net waste self-sufficiency safeguard existing waste management facilities and infrastructure, including from incompatible development that may prejudice waste use promote / allow scope for new technology and innovation in waste management ensure that all major new developments undertake sustainable waste management practices (including, where appropriate, the provision of temporary waste management facilities throughout construction)
Resilience and restoration		
3	Support climate change mitigation and adaptation, and seek to build in resilience to the potential effects of	minimise greenhouse gas emissions reduce the demand for energy and maximise the use of energy from renewable sources

	climate change	minimise the use of virgin mineral by encouraging the efficient use of materials (including the recycling and re-use of waste and the minimisation of construction waste) encourage operational practices and restoration proposals which minimise or help to address climate change
4	Protect water resources and quality, mitigate for flood risk from all sources and seek to achieve a reduction in overall flood risk	ensure waste development and associated infrastructure are not at risk of flooding ensure infrastructure associated with minerals is not at risk of flooding ensure minerals and waste development will not affect water resource quantity and quality
5	Safeguard productive land	avoid the loss of the best and most versatile agricultural land for waste development and prioritise the location of waste development on previously developed sites over greenfield land minimise soil contamination and safeguard soil quality and quantity
Employment and economy		
6	Support sustainable economic growth and the delivery of employment opportunities	support the development and growth of sustainable communities and provision of infrastructure within the plan area provide training and employment opportunities maximise the sustainable economic benefits of minerals operations and waste management in the plan area ensure mineral supply for construction ensure effective and adequate waste infrastructure for existing and future development
Infrastructure		
7	Reduce road traffic, congestion and pollution; promote sustainable modes of movement and efficient movement patterns; and provide and maintain movement infrastructure	reduce the reliance on road freight movements of minerals and waste and seek to increase the efficient use of other modes of movement where road transportation is necessary, minimise the total vehicle kilometres travelled and encourage the use of low emission vehicles safeguard current and future infrastructure for minerals, waste, concrete batching, coated materials manufacturing, other concrete products and the handling, processing and distribution of aggregate material
Natural environment and landscapes		
8	Conserve and enhance the quality and	minimise adverse impacts to local amenity and overall landscape character

	distinctiveness of the landscape	protect designated assets such as designated nature sites, open spaces, parks, gardens, historic landscapes
9	Protect and encourage biodiversity and geodiversity	protect and enhance habitats of international, national or local importance maintain wildlife corridors and minimise fragmentation of green spaces utilise opportunities to enhance biodiversity and geodiversity and achieve net gains
Built and historic environment		
10	Protect and where possible enhance the character, quality and distinctiveness of the built and historic environment	retain and enhance the character, distinctiveness and accessibility of townscapes ensure minerals and waste development conserves, protects and enhances designated and undesignated heritage assets and their settings, including archaeological assets
Health and wellbeing		
11	Protect and enhance the health and wellbeing of communities	avoid adverse effects on human health and safety or minimise to acceptable levels safeguard the residential amenity of new and existing communities provide opportunities to improve health and amenity through the restoration and management of former minerals and waste sites encourage opportunities for education about minerals and waste
12	Minimise noise, light and air pollution	minimise noise and light pollution arising from activities associated with waste development, waste management, mineral extraction and mineral movement minimise air pollution

Strategic and Non-Strategic Policies

2.13 The NPPF states that the Development Plan "*must include strategic policies to address each local planning authority's priorities for the development and use of land in its area*". It goes on to say that "*Strategic policies should set out an overall strategy for the pattern, scale and quality of development*" and that "*Plans should make explicit which policies are strategic policies. These should be limited to those necessary to address the strategic priorities of the area (and any relevant cross-boundary issues), to provide a clear starting point for any non-strategic policies that are needed. Strategic policies should not extend to detailed matters*

that are more appropriately dealt with through neighbourhood plans or other non-strategic policies."

2.14 Further, the NPPF states that "*Strategic policies should provide a clear strategy for bringing sufficient land forward, and at a sufficient rate, to address objectively assessed needs over the plan period, in line with the presumption in favour of sustainable development. This should include planning for and allocating sufficient sites to deliver the strategic priorities of the area*."

2.15 The NPPF then explains that "*Non-strategic policies should… set out more detailed policies for specific areas, neighbourhoods or types of development. This can include allocating sites, the provision of infrastructure and community facilities at a local level, establishing design principles, conserving and enhancing the natural and historic environment and setting out other development management policies*."

2.16 An important reason for being explicit about which policies are strategic or not is that, as the NPPF explains, "*Neighbourhood plans should not promote less development than set out in the strategic policies for the area, or undermine those strategic policies*."

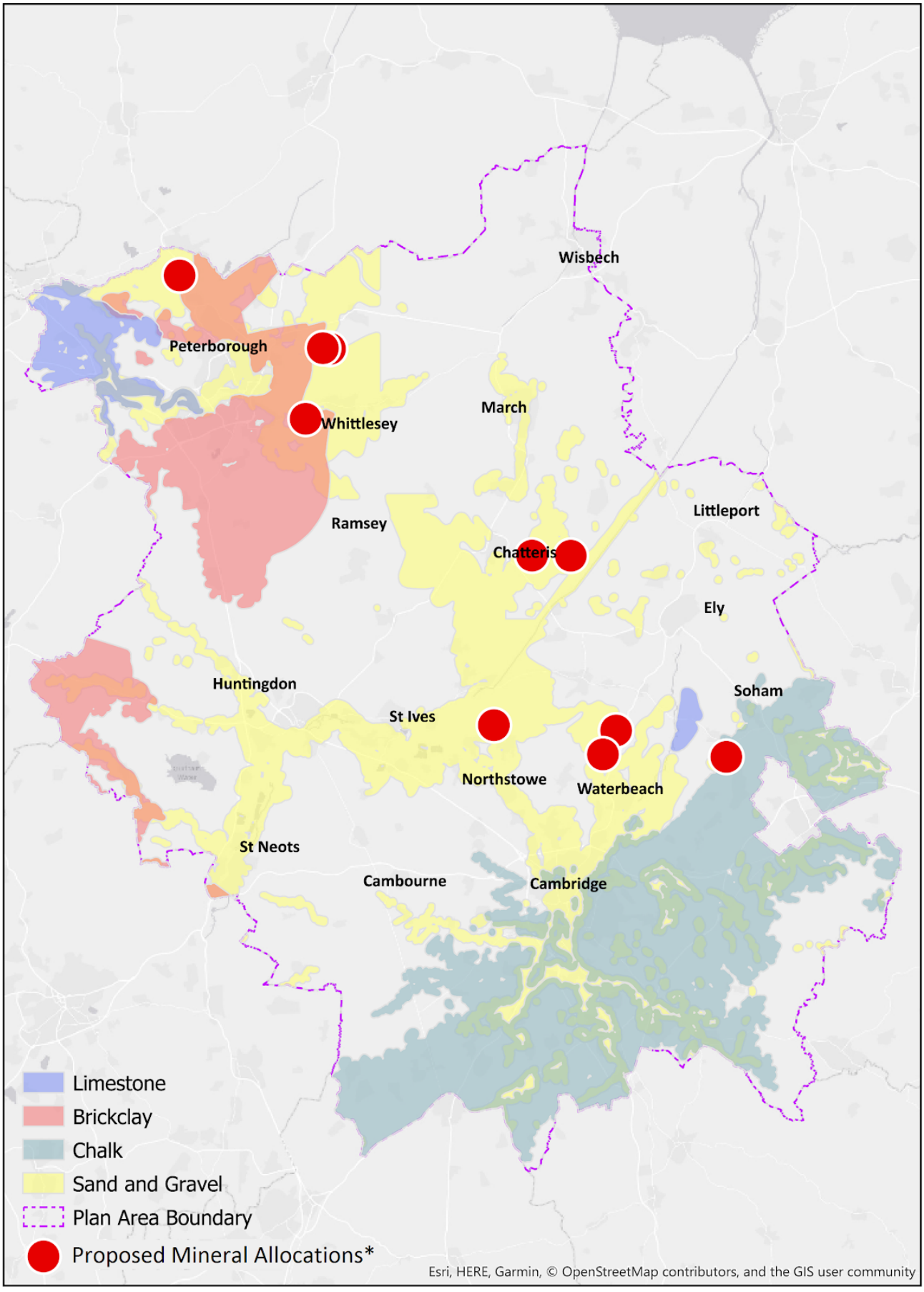
2.17 The above national policy requirement to be explicit as to what is a strategic or non-strategic policy is new to the planning profession, and is therefore likely to evolve over time and during the preparation of this Local Plan. However, at this stage, the councils believe the following table sets out what it believes to be 'strategic' and 'non-strategic' policies of this Plan:

Figure 3: Strategic and Non-strategic Policies

Strategic Policies	**Non-Strategic Policies**
Policy 2: Providing for Mineral Extraction	Policy 1: Sustainable Development and Climate Change
Policy 3: Waste Management Needs	Policy 7: Borrowpits
Policy 4: Providing for Waste Management	Policy 9: Reservoirs and Other Incidental Mineral Extraction
Policy 5: Mineral Safeguarding Areas (MSAs)	Policy 13: Landfill Mining and Reclamation
Policy 6: Mineral Development Areas (MDAs) and Mineral Allocation Areas (MAAs)	Policy 14: Waste Management Needs Arising from Residential and Commercial Development
Policy 8: Recycled and Secondary Aggregates, and Concrete Batching	Policy 17: Design
Policy 10: Waste Management Areas (WMAs)	Policy 18: Amenity Considerations
Policy 11: Water Recycling Areas (WRAs)	Policy 21: The Historic Environment
Policy 12: Radioactive and Nuclear Waste	Policy 22: Water Resources
Policy 15: Transport Infrastructure Areas (TIAs)	Policy 24: Sustainable Use of Soils
Policy 16: Consultation Areas (CAs)	Policy 25: Aerodrome Safeguarding

Policy 19: Restoration and Aftercare	Policy 26: Other Developments Requiring Importation of Materials
Policy 20: Biodiversity and Geodiversity	
Policy 23: Traffic, Highways and Rights of Way	

Key Diagram



*New allocations, and excluding already consented sites. See draft Policies Map for further details.

3. The Core Policies

Sustainable Development and Climate Change

3.1 The NPPF makes it clear that the purpose of the planning system is to contribute to the achievement of sustainable development. Planning policies can play an active role in guiding development towards sustainable solutions. It is also appropriate for Local Plans to include planning measures to address climate change mitigation and adaptation.

3.2 The NPPF also makes it clear that Local Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. It is also appropriate for Local Plans to support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts and avoid increased vulnerability to the range of impacts arising from climate change.

3.3 The Climate Change Act 2008 sets up a framework for the UK to achieve its long-term goals of reducing greenhouse gas emissions and to ensure steps are taken towards adapting to the impact of climate change. That Act also introduced section 19 (1A) into the Planning and Compulsory Purchase Act 2004, which requires local planning authorities to address climate change in preparing Local Plans.

3.4 In terms of vulnerability to climate change, the plan area includes large areas of low lying land which is potentially highly vulnerable to the effects of climate change, such as from flood risk and sea level rises. The high volume of protected habitats are also potentially vulnerable to the effects of climate change, as most of such protected habitats are low lying, and very sensitive to the water environment.

3.5 In addition, lowland peatlands represent one of the most carbon-rich ecosystems in the UK, and Cambridgeshire and Peterborough has extensive such lands. As a result of widespread modification and drainage (usually to support agriculture), they have been converted from natural carbon sinks into major carbon emitting sources, and are now amongst the largest sources of greenhouse gas (GHG) emissions from the UK land-use sector.

3.6 Minerals development especially can cause considerable loss of high quality agricultural land and / or peat land, and is an important consideration for proposals. However, restoration of mineral sites can also afford unique opportunities to create habitats which can act as living carbon sinks, and which may assist in reducing the erosion of, and thereby protecting, such valuable soils e.g. through the creation of lowland wet grassland. In the plan area there is potential to achieve this on a strategic and landscape scale, and to contribute at the same time towards achieving national biodiversity objectives.

3.7 A robust policy addressing all of the above matters is therefore required in this Local Plan, as set out below.

Policy 1: Sustainable Development and Climate Change

Minerals and waste management proposals will be assessed against the overarching principle of whether the proposal would play an active role in guiding development towards sustainable solutions. In undertaking that assessment, account will be taken of local circumstances such as the character, needs, constraints and opportunities of the plan area. Proposals which are not consistent with this principle will be refused.

Proposals should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Proposals which ensure the future resilience of communities and infrastructure to climate change impacts will be supported.

Proposals, including operational practices and restoration proposals, must take account of climate change for the lifetime of the development (including the lifetime of its restoration scheme, where applicable). This will be through measures to minimise greenhouse gas emissions, and measures to ensure adaptation to future climate changes.

Proposals should, to a degree proportionate with the scale and nature of the scheme, set out how this will be achieved, such as:

(a) demonstrating how the location, design, site operation and transportation related to the development will help to reduce greenhouse gas emissions (including through the adoption of emission reduction measures based on the principles of the energy hierarchy); and take into account any significant impacts on human health and air quality;
(b) where relevant, setting out how the proposal will make use of renewable energy including opportunities for generating energy from waste for use beyond the boundaries of the site itself, and the use of decentralised and renewable or low carbon energy;
(c) for proposals which involve the temporary or permanent removal of peat soils, measures to make long term sustainable use of such soils; and
(d) for waste management proposals, broadly quantifying the reduction in carbon dioxide and other relevant greenhouse gases e.g. methane, that should be achieved as part of the proposal, and how this will be monitored and addressed in future.

Proposals should also set out how they will be resilient to a changing climate, taking account of the latest available evidence on the impact of climate change, such as:

(e) avoiding proposals which could increase vulnerability to the range of impacts arising from climate change;
(f) incorporation of sustainable drainage schemes to minimise flood impacts, and potentially reduce current floodrisk;
(g) measures to manage water resources efficiently;
(h) measures to assist habitats and species to adapt to the potential effects of climate change; and
(i) measures to adapt to the potential impacts of excess heat and drought.

Providing for Mineral Extraction

3.8 Minerals are essential to support sustainable economic growth and our quality of life. This Plan sets out an overarching spatial strategy for minerals. This is important in order to guide not only allocations made in the Plan, but also proposals on non-allocated sites which may subsequently come forward as planning applications.

3.9 Within the plan area sand and gravel is the primary mineral in terms of commercial resource. Historically extraction has been located in the Nene and Ouse River Valleys but more recently the move has been away from these areas as they are now the focus of other national planning policies which seek to protect and enhance their biodiversity. Extraction has therefore shifted to fen edge deposits where there are significant reserves and, in some instances, give rise to the opportunity to enhance biodiversity through restoration on a landscape or a local scale.

3.10 Needingworth Quarry is a good example of this, where a nationally significant reedbed is being created. The spatial strategy for this Plan continues this approach, focusing extraction at fen edge deposits where restoration can contribute to international and national biodiversity objectives, as well as flood risk management gains.

3.11 For some minerals the spatial options are more constrained. The brickpits near Whittlesey for example involve the extraction of brickclay on an industrial scale. Other areas involve smaller scale extraction, such as the high quality industrial chalk at Steeple Morden. National policy requires Mineral Planning Authorities to make provision for industrial and local mineral needs, either through allocations, a criteria based policy or a mixture of the two.

3.12 Within the plan area, limestone is located in a small geographical area mainly to the north west of Peterborough. It is oolitic in nature, thereby limiting its value as a crushed rock aggregate, and it is also a diminishing resource. It was not possible to allocate any limestone sites through the previous Plan, and no sites came forward through its criteria based policy. Only one site was submitted for inclusion in this Plan but is not deemed suitable for allocation. This Plan therefore continues the same broad approach as the previous Plan, relying on a criteria based approach for limestone extraction.

3.13 Mineral for infrastructure projects such as major road improvements could come from existing or allocated mineral workings, or it could come from dedicated sites close to and specific to that project. These ‘borrowpits’, which would be temporary in nature, may reduce the impact of mineral working for those local communities on the routes from existing mineral sites and have a lower carbon impact (due to less mineral miles travelled). There could however also be an impact on local communities, the landscape or other matters from borrowpits, and permission of any such site must take account of the full planning balance.

3.14 Some minerals have particular characteristics which mean that they lend themselves to specialist uses. For example, chalk in the Steeple Morden area is used for a range of manufacturing processes, and clay in the Burwell area is used on a small scale for the manufacture of traditional handmade bricks and tiles. Such minerals need to be worked where they occur and provision needs to be made for such specialist uses to continue.

Mineral spatial strategy and meeting the need for minerals

3.15 This Plan follows national planning policy in planning for a steady supply of sand and gravel and limestone i.e. the main aggregates which occur in the plan area. This includes taking the advice of the East of England Aggregates Working Party (AWP) which, in November 2017, agreed that, in the absence of updated national guidelines on aggregate provision, the methodology contained in the NPPF and NPPG would form the basis of determining aggregate provision for Minerals Plans.

3.16 There are however many factors which inform the calculation of future mineral need. The key elements which this Plan has taken into account that inform the level of future provision for aggregates, and which are also indicators of the security of supply, are as follows:

- the average of the past 10 years of aggregate sales data;
- the average of the past 3 years of aggregate sales data;
- the landbanks and other information contained in the Cambridgeshire and Peterborough Local Aggregates Assessment (LAA);
- an assessment of other supply options e.g. the supply of secondary and recycled aggregates and marine dredged material;
- matters relating to mineral supply raised through the duty to cooperate with other Mineral Planning Authorities;
- knowledge of major current and planned infrastructure projects within the plan area and the wider region, including London; and
- the geological extent of mineral and its quality, plus other relevant factors related to its extraction (such as site specific constraints).

Sand and Gravel

3.17 Sand and gravel is the most significant resource in the plan area. NPPG requires Mineral Planning Authorities (MPAs) to maintain a stock of sand and gravel reserves (a landbank) equivalent to at least 7 years supply. The LAA (December 2018) records that Cambridgeshire and Peterborough, at the end of 2017, had permitted reserves of 41.43 million tonnes.

3.18 The 10 year average of sand and gravel sales is 2.36 million tonnes per annum (Mtpa). Annual sales have however increased in recent years, with the 3 year average being 2.89Mtpa. Part of this increase is attributed to construction of the A14 improvement scheme, however the general trend upwards needs to be recognised and reflected in the annual provision rate.

3.19 Taking account of these two metrics and the other measures highlighted from (a) to (g) above, the Councils have determined that an appropriate annual provision rate for the Plan is **2.6Mtpa**. This represents the mid-point between the 10 year sales average and the 3 year sales average, and is also a 10% increase on the 10 year sales average (10% often being used as a proxy for a buffer above the 10 year sales average in other Minerals and Waste Local Plans). At 2.6Mtpa, this would equate to a landbank of 15.9 years.

3.20 Moving forward, the spatial strategy of this Local Plan is for extraction of sand and gravel to take place in a broad corridor north to south through the centre of the plan area. Such extraction will take place from sites allocated for that purpose on the policies map. Such extraction will help to support three important objectives of this Local Plan:

- delivery of growth aspirations as set out in other development plans;
- creation, via the restoration of sites, of opportunities for substantial net gain in biodiversity of international and national importance; and
- creation, via restoration of site, of opportunities for substantial flood risk management gains of strategic importance.

3.21 Of the allocations, the largest is at Block Fen / Langwood Fen, which has the potential of not only delivering large volumes of sand and gravel but also to provide key habitat creation and sustainable flood management benefits. It is this combination of strategic benefits which justifies this large allocation as identified on the policies map.

3.22 ***Supplementary Note for this Further Draft Local Plan, but not for inclusion in the final plan for adoption:*** *It should be noted that the Block Fen / Langwood Fen site is allocated in the currently adopted Minerals and Waste Core Strategy, but has failed to deliver as quickly as expected, and consents are not fully in place. For example, a planning application was submitted to Cambridgeshire County Council for mineral extraction on a large part of the allocation, but was refused owing to it not being in accordance with the Core Strategy or the Block Fen / Langwood Fen Masterplan SPD. We are seeking reassurances on this matter from the landowner and operator, including via consultation on this draft Plan. If satisfactory assurances can not be reached prior to the next consultation stage of this Plan, in terms of a policy compliant scheme likely to come forward for the area, the Councils are presently minded to remove allocation M035 Block Fen / Langwood Fen East, Mepal from the Plan on the basis that it is an 'undeliverable' site (i.e. there is insufficient prospect of the site coming forward on a policy compliant basis).*

Limestone

3.23 The spatial strategy for limestone for aggregate purposes will be to continue extraction at existing consented sites which, as noted above, is limited to a small geographical area to the north west of Peterborough; and which is a diminishing resource. NPPG requires a stock of limestone reserves equivalent to at least 10 years supply. The LAA records only two limestone quarries which are currently active. Only one of these provides material for aggregate use, however the other has been included to enable the release of some statistics.

3.24 The permitted reserves for both these quarries at the end of 2017 is 2.53 million tonnes. The 10 year rolling average of sales is 0.3 Mtpa, resulting in an equivalent theoretical landbank of 8.4 years i.e. less than required. Through the call for sites process in May/June 2018, only one site was put forward, yet is not deemed suitable for allocation, therefore no new allocations are made in this Plan. Given this, it does not seem possible to maintain a national policy compliant supply of limestone, through the plan period, though this is a reflection of reality (i.e. lack of sites) rather than a strategic policy position. To assist any future additional limestone extraction to come forward, a criteria based approach is therefore set out in this Plan.

Brick Clay

3.25 The spatial strategy for brickclay extraction is to continue extraction at existing consented sites, broadly in an area to the south and east of Peterborough. Future extraction will take place at King's Delph, Whittlesey, a site allocated on the policies map. Localised specialist brick clay is also allocated at Burwell Brickpits.

3.26 National planning policy requires that a landbank of brick clay is maintained, in the order of 25 years of supply. The extensive reserves of brick clay in the plan area, close to the Whittlesey brickworks complex, should meet this requirement. To ensure the continuity of supply, land located in the Cambridgeshire side of the King's Delph area, which straddles the administrative boundaries of the two authorities, is allocated for future extraction, delivering an estimated 27 million tonnes of brick clay, which is over 60 years supply, in addition to existing permitted reserves on the Peterborough side.

3.27 **Other minerals**, such as chalk, building stone, and limestone for non-aggregate purposes, are a very limited resource in the plan area. The spatial strategy for such minerals is to continue extraction on a small scale to meet such specialist needs; which could occur via the working of existing consents, or via the provisions of Policy 2. No allocations are made for such 'other minerals'.

Policy 2: Providing for Mineral Extraction

Sand and Gravel, Limestone and Brickclay

The Mineral Planning Authorities (MPAs) will facilitate a steady and adequate supply of the following minerals over the plan period (2016-2036):

	Plan Period 2016-36 (million tonnes)	**Provision Rate (million tonnes per annum)**
Sand and Gravel	**54.6**	**2.6**
Limestone	**6.3**	**0.3***

*This figure is based on the 10 year average from the latest Local Aggregate Assessment, yet is dependent upon additional acceptable reserves coming forward over the plan period.

In principle, permissions will be granted so as to ensure the above provision can be secured. In order to meet the needs identified above for sand & gravel and brickclay, the following allocations are made and are defined as Mineral Allocation Areas (MAAs) on the Policies Map, with their broad locations shown on the Key Diagram.

Site Reference	**Site Name**	**Mineral**
M019	Bare Fen & West Fen, Willingham / Over	Sand & Gravel
M021	Mitchell Hill Farm South, Cottenham	Sand & Gravel
M022	Chear Fen, Cottenham	Sand & Gravel
M023	Burwell Brickpits, Burwell	Brickclay
M028	Kings Delph, Whittlesey	Sand & Gravel and Brickclay

M029	Gores Farm, Thorney	Sand & Gravel
M033	Land off Main Road, Maxey	Sand & Gravel
M034	Willow Hall Farm, Thorney	Sand & Gravel
M035	Block Fen / Langwood Fen East, Mepal	Sand & Gravel
M036	Block Fen / Langwood Fen West, Mepal	Sand & Gravel

Allocations M035 and M036 must be worked and restored in a phased manner in accordance with the Block Fen / Langwood Fen Master Plan set out in Appendix 1.

Permission for minerals extraction will only be granted:

(a) on MAAs or Mineral Development Areas (MDAs) as identified on the Policies Map for that purpose; or
(b) in other areas provided the proposal meets all of the following:
  (i) it does not conflict with the strategy for minerals as set out in this Plan;
  (ii) it is required to maintain a steady and adequate supply of mineral in accordance with the above provision rates and / or the maintenance of a landbank;
  (iii) it is required to meet a proven need with particular specifications that cannot reasonably or would not otherwise be met from permitted or allocated reserves; and
  (iv) it will maximise the recovery of the identified reserve.

Waste Management Needs

3.28 Most forms of development and activities create waste. In planning for sustainable communities it is important to ensure that these wastes are managed appropriately in order to avoid harm to human health and the environment, and maximise resource recovery.

Waste Arising in Cambridgeshire and Peterborough

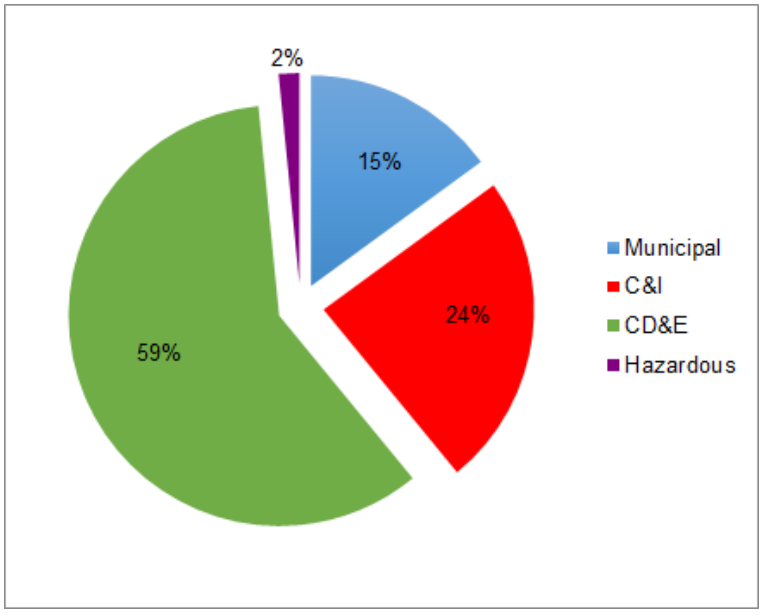
3.29 It is estimated that in 2017, waste arisings within the Plan area totalled around 2.778 million tonnes per annum (Mtpa) of various types of waste including municipal, commercial & industrial (C&I), construction, demolition & excavation (CD&E) and hazardous wastes (see figure below). The majority of this waste was recycled or otherwise recovered, with disposal to landfill (non-hazardous and inert) accounting for around a third.

3.30 Of the total arisings, around half a million tonnes was exported to other authorities for management with less than a tenth disposed of to landfill (non-hazardous[2] and inert). Waste forecasts indicate that waste arisings from within the Plan area could increase to 3.157Mtpa by the end of the plan period (2036). Low-level radioactive waste (LLW) from the nuclear industry is not produced from within the Plan area however a very small amount of LLW is produced from the non-nuclear industry.

[2] Includes stable non-reactive hazardous waste (SNRHW)

3.31 Waste is also imported into the Plan area from other Waste Planning Authority areas. In 2017 imports significantly outweighed exports (almost fourfold), with over half of waste imported from other authorities disposed of in landfill (non-hazardous[3] and inert). This indicates that overall the Plan area is a net importer of waste. It also demonstrates that landfill void space within the Plan area historically has served a wider area and has therefore been subject to external pressures.

Figure 4: Waste Arisings for the Plan area (2017)



3.32 Waste movements occur as a result of commercial, contractual and operational arrangements as well as geographical convenience. There is a national policy direction for Waste Planning Authorities (WPAs) to increase their waste management capacity to the extent of meeting the needs of their own area (i.e. moving towards net self-sufficiency). As such cross-border movements should reduce in the future although some movements will still occur. This is because it is not possible for all waste to be managed within the boundary of the WPA from which it arises due to economies of scale and operational requirements. Nevertheless, overall, the amount of net waste dealt with within a WPA area should be broadly equal to the amount of waste that area produces.

3.33 Accordingly, areas which presently have a net export of waste have, or are, moving to a position whereby they deal with more of their own waste. Likewise, areas that historically and presently have a net import of waste (such as the Cambridgeshire-Peterborough Plan area) should see such net import significantly reduced. In providing for waste management facilities the intention, therefore, of this Local Plan is to determine the likely waste arising that will occur, and set out the identified needs of the plan area as a whole in relation to waste management capacity in order to achieve net self-sufficiency, and at the same time drive waste up the waste hierarchy.

3.34 There is, however, one exception to the above net self-sufficiency ‘rule’. National policy requires the Plan to consider the need for additional waste management capacity of more than local significance. The adopted London Plan identifies household and commercial & industrial waste to be exported, and the East of England is specifically listed as the main destination for this waste partly owing to its proximity. Whilst some of London’s waste is received at waste treatment facilities within the plan area, at present the majority is disposed to non-hazardous (including SNRHW) landfill which is the matter with which the Plan is most concerned given the limited void space and pressures on such capacity.

[3] Includes SNRHW

3.35 The adopted London Plan sees household and commercial & industrial waste exports to the East of England gradually reducing from current rates (estimated at 3.449Mt in 2015) and ceasing completely in 2026[4]. In 2015 0.079Mt of household and commercial & industrial waste was received from London WPAs at non-hazardous (including SNRHW) landfill sites within the Plan area. Although London is moving towards net self-sufficiency in this respect, the intent of the adopted London Plan still needs to be taken into account. Therefore some provision for the landfill of some of London's household and commercial & industrial waste is made in the early plan period of this Local Plan (albeit that in reality this may be waste which is displaced from other counties in the East of England which are closer to London, with such counties being the likely actual destination for London's residual waste). Our waste needs assessment has factored in an appropriate amount of London's non-apportioned household and commercial & industrial waste continuing to be imported into the Plan area, and consequently has been factored into our calculations to determine the 'capacity gap' for each waste stream.

Waste Management Capacity

3.36 The Plan area benefits from an existing network of waste management facilities, with this management capacity[5] significantly contributing towards the identified future need. The difference between the existing capacity (including permitted sites yet to become operational) and identified need is referred to as the capacity gap, or future need. Overall, the Plan area is quite well placed in terms of moving towards achieving net self-sufficiency. Our evidence indicates that there is the potential need for hazardous recycling (recovery) and hazardous disposal capacity (see the Waste Needs Assessment, December 2018), however these wastes tend to be generated in lower quantities and are managed at a wider scale to account for economies of scale and operational requirements.

3.37 The existing non-hazardous (including SNRHW) landfill void space is sufficient to accommodate the plan area's disposal needs over the plan period with a small surplus potentially to accommodate some of London's non-apportioned household and commercial & industrial waste. Although disposal is the least desirable option there is likely to be an ongoing need for such facilities (e.g. disposal of residues from treatment processes that cannot otherwise be recovered) and so it is one that must be provided for, either within the Plan area or at a wider scale. Close monitoring of this situation will be key in determining timing and quantum of future need.

3.38 There is sufficient inert landfill and recovery void space to accommodate most of the Plan area's needs over the plan period. In addition, some committed and allocated mineral extraction sites are almost certain to require inert fill to achieve restoration outcomes and so such mineral sites will create more inert landfill/recovery void space. As such no additional inert landfill or recovery void space is needed over the plan period (except that needed in associated with restoration of permitted mineral extraction sites).

[4] Referred to as London's non-apportioned household and commercial & industrial waste

[5] Existing management capacity has been determined through the Waste Needs Assessment (December 2018) and only captures capacity of sites that have an extant planning permission. This includes capacity of recently permitted sites that are not yet implemented and/or operational (capacity for such sites has been incorporated over the plan period as per the information provided in the relevant application).

3.39 Given that the indicative future waste management needs of the plan area (to achieve net self-sufficiency) are comparatively low and relate to hazardous wastes, which are generally produced in lower quantities and managed at a wider scale, no site specific allocations for new waste management facilities have been identified in this Local Plan.

3.40 It is also important for the Plan to drive the development of a network of facilities with the aim of communities and businesses being more engaged with, and taking more responsibility for, their own waste. Government policy focuses the proximity principle more towards the disposal of waste and recovery of mixed municipal waste. For these, and other waste types, the intention is for the Plan to include the preference for waste development to support sustainable waste management principles, including the proximity principle. This also links through to supporting sustainable transport movements.

3.41 The Waste Needs Assessment (WNA) details the current estimated waste arisings, waste forecasts, existing capacity and other information from which the indicative capacity needs over the plan period were determined. The WNA is being consulted on alongside this Further Draft Plan, we welcome your views on the methodology applied and conclusions which arise.

Policy 3: Waste Management Needs

The Waste Planning Authorities will seek to achieve net self-sufficiency in relation to the management of wastes arising from within the Plan area, plus additional provision until 2026 in order to accommodate needs arising from London (specifically regarding non-apportioned household and commercial & industrial waste).

The following sets out the present capacity gap (indicated by a '-' figure) or surplus (indicated by a '+' figure):

			Indicative total waste management capacity needs					
			2016	**2017**	**2021**	**2026**	**2031**	**2036**
Non-hazardous waste management – Recovery (million tonnes per annum)								
Preparing for re-use and recycling	Materials recycling (Mixed - Municipal, C&I)	Forecast arisings	0.619	0.660	0.696	0.753	0.804	0.850
		Existing capacity	0.610	0.661	0.889	0.887	0.887	0.887
		Capacity gap	-0.009	+0.001	+0.194	+0.134	+0.083	+0.037
	Composting (Mixed - Municipal, C&I)	Forecast arisings	0.170	0.199	0.206	0.225	0.239	0.249
		Existing capacity	0.332	0.324	0.373	0.373	0.373	0.373
		Capacity gap	+0.162	+0.125	+0.167	+0.148	+0.134	+0.124
	Inert recycling (CD&E)	Forecast arisings	0.056	0.087	0.066	0.067	0.068	0.068
		Existing capacity	0.149	0.184	0.625	0.600	0.600	0.600
		Capacity gap	+0.093	+0.097	+0.560	+0.533	+0.532	+0.532
Other recovery	Treatment and energy recovery processes	Forecast arisings	0.157	0.160	0.225	0.312	0.392	0.415

	(Mixed - Municipal, C&I)	Existing capacity	0.295	0.327	0.989	0.994	0.999	1.002
		Capacity gap	+0.138	+0.167	+0.764	+0.682	+0.607	+0.587
	Soil treatment (CD&E)	Forecast arisings	0.084	0.112	0.095	0.097	0.099	0.099
		Existing capacity	0.147	0.278	0.315	0.315	0.315	0.315
		Capacity gap	+0.062	+0.166	+0.220	+0.217	+0.216	+0.216

			Indicative total waste management capacity needs						Total need (2016-2036)	Estimated void space (2016-2036)	Balance
			2016	2017	2021	2026	2031	2036			
Non-hazardous waste management – Deposit to land and disposal (million tonnes)											
Other recovery	CD&E	Inert recovery (fill)*	0.653	0.728	0.769	0.774	0.776	0.776	16.061	14.058	-2.003
Disposal	CD&E	Inert landfill*	0.269	0.262	0.176	0.175	0.174	0.174	3.856	1.932	-1.924
	Mixed - Municipal, C&I	Non-hazardous landfill (including SNRHW)	0.583	0.536	0.601	0.531	0.467	0.475	11.174	12.466	+1.292
		Non-hazardous landfill	0.572	0.507	0.580	0.514	0.452	0.460	10.804	8.525	-2.278
		Non-hazardous (SNRHW) landfill	0.011	0.028	0.021	0.017	0.014	0.015	0.370	3.940	+3.570

*Inert recovery and landfill have a total indicative need of 19.917Mt over the plan period, with estimated remaining void space of 15.99Mt (around 70% of which is associated with restoration of mineral extraction sites), leaving a deficit of 3.927Mt. This deficit is able to be accommodated however through void space created from mineral extraction operations that are or will be permitted over the plan period.

Where an indicative total waste management capacity gap is identified, then proposals will, in principle, be supported where it would assist in closing that gap, provided it is in accordance with Policy 4.

Providing for Waste Management

3.42 This Plan sets out an overarching spatial strategy for waste, together with appropriate criteria based policy. It is important to guide future waste management development to the most appropriate locations, particularly in the absence of site specific allocations to meet identified needs.

3.43 In developing that criteria based policy, the Councils consider it appropriate to direct most waste management facilities to the main settlements that exist in the plan area, these being the areas which generate the greater waste arisings, as well as having the greater infrastructure (e.g. main highways) to accommodate proposals. The Councils also believe it appropriate to identify existing and allocated employment land as a suitable location for many types of future waste management development, recognising that waste management development is now often located in buildings and can be indistinguishable from other industrial uses which operate alongside it.

3.44 However, there is no guarantee waste management facilities will come forward on employment land because of viability or other locationally specific reasons, or simply a lack of available land. Accordingly, other locations could be considered, via the criteria based policy below.

3.45 Like the previous Plan, this Local Plan also seeks to embed waste management facilities in new settlements. This can be temporary demolition and construction recycling being present through construction phases, and also permanent waste management facilities being located within new communities.

3.46 As well as strategic policy for waste management, the policy below also sets out specific policy for specialist types of waste management.

Policy 4: Providing for Waste Management

Across the plan area, existing and committed waste sites meet the majority of identified needs, with the capacity gap over the plan period being less than substantial. As such, the strategy of this plan is not to identify specific allocations for new waste sites. Instead this policy sets out a broad spatial strategy for the location of new waste management development; and criteria which will direct proposals to suitable sites, consistent with the spatial strategy.

Waste management proposals must demonstrably contribute towards sustainable waste management, by moving waste up the waste hierarchy; and proposals for disposal must demonstrate that the waste has been pre-treated and cannot practicably be recycled. Proposals which do not comply with this spatial strategy for waste management development must also demonstrate the quantitative and market need for the development.

Unless otherwise stated in this policy, new or extended waste management facilities should be located in the existing or planned main urban areas of: Cambourne, Cambridge, Chatteris, Ely, Huntingdon, Littleport, March, Northstowe, Peterborough, Ramsey, Soham, St. Ives, St. Neots, Waterbeach, Whittlesey and Wisbech.

Where the proposed use and operations are potentially suitable within an urban setting, then proposals should first consider the use of either:

(a) employment areas (as identified in other Development Plan Documents for B2 and/or B8 Uses) within the above identified urban areas; or
(b) any ‘strategic’ employment areas over 10ha (as identified in other Development Plan Documents for B2 and/or B8 Uses), which might not necessarily fall at one of the above

identified urban areas.

Where such sites are demonstrated not to be available or suitable, using a proportionate amount of evidence, then support will be given, in principle, to locating facilities on other suitable sites within the urban areas identified above; or on the edge of them where it is demonstrated that the development is compatible with surrounding uses (including the physical size and throughput of the proposed development); and where there is a clear relationship with the settlement by virtue of landscape, design of the facility, and highway access. In applying these provisions, substantial weight will also be given to the use of suitable brownfield land within the above identified urban areas.

Waste Management Facilities - New Strategic Development Areas:
New strategic development areas (i.e. 1,500 homes or more, or 10 ha or more for employment sites) must incorporate waste management facilities of a scale, use and accessibility to enable communities and businesses within that strategic development area to take some responsibility for their own waste.

Waste Management Facilities - Rural areas:
Only waste management facilities which are located on a farm holding, and where the proposal is to facilitate agricultural waste recycling or recovery generated by that farm holding will, in principle, be supported.

Waste Management Facilities - Medical or research sites:
Waste management facilities which are located on a medical or research site, and where the proposal is to facilitate the suitable management of waste generated by that site will, in principle, be supported.

Waste Management Facilities - Co-location:
Opportunities to co-locate waste management facilities together, or with complementary activities will, in principle, be supported. Particularly where relating to employment sites; industrial estates; mineral extraction and processing sites (for temporary proposals for aggregate and/or inert recycling facilities associated with extraction and processing); or planned integrated waste management development.

Waste Management Facilities – Non-Hazardous Waste Disposal:
Where the need for additional capacity for the disposal of non-hazardous waste is demonstrated such capacity must be provided through extension to existing disposal sites, unless it is demonstrated that a new standalone site would be more sustainable and better located to support the management of waste close to its source. It may also be supported where it is demonstrated that it is required for reasons of site stability or to address a potential pollution risk.

Waste Management Facilities – Inert Waste Disposal:
The deposit of inert waste to land will normally be permitted only within a Mineral Development Area (MDA) or Mineral Allocation Area (MAA). Proposals for the deposit of inert waste to land in other areas may only be permitted where:

(c) there are no MDAs or MAAs within the plan area which can accommodate the inert waste in a timely and sustainable manner; or

(d) there is clear and convincing evidence that an alternative site would be more suitable for receiving the inert waste.

Waste Management Facilities – Stable Non-Reactive Hazardous Waste Disposal (SNRHW):
Where the need for additional capacity for the disposal of SNRHW is demonstrated such capacity will only be permitted at, or through an extension to, existing disposal sites.

Waste Management Facilities – Hazardous Waste Disposal:
Proposals for the disposal of hazardous waste will only be supported in exceptional circumstances, and where it is demonstrated that there is a clear need for such a facility to be located in the plan area.

Waste Management Facilities – Landraising:
Landraising will only be permitted in exceptional circumstances where there is a need for a waste disposal facility to accommodate waste arising that cannot be accommodated by any other means.

4. Minerals Development Specific Policy

Mineral Safeguarding Areas (MSAs)

4.1 Mineral Safeguarding Areas (MSAs) are identified in order that known locations of specific mineral resources of local and/or national importance are not needlessly sterilised by non-mineral development. The purpose of MSAs is to make sure that mineral resources are adequately taken into account in all land use planning decisions. They do not automatically preclude other forms of development taking place, but flag up the presence of important mineral so that it is considered, and not unknowingly or needlessly sterilised.

4.2 MSAs are identified on the Policies Map. They constitute the extent of known reserves plus a 250m buffer. More detail regarding their identification can be found in the accompanying evidence report 'Methodology for Identifying MSAs (December 2018)'.

Policy 5: Mineral Safeguarding Areas (MSAs)

Mineral Safeguarding Areas (MSAs) are identified on the Policies Map for mineral resources of local and/or national importance. The Mineral Planning Authority (MPA) must be consulted on all development proposals in these areas except:

(a) development that falls within a settlement boundary*;
(b) development which is consistent with an allocation in an adopted Local Plan;
(c) minor householder development within the immediate curtilage of an existing residential building;
(d) demolition or replacement of residential buildings;
(e) temporary structures;
(f) advertisements;
(g) listed building consent; and
(h) works to trees or removal of hedgerows.

Development within MSAs which is not covered by the above exceptions will only be permitted where it has been demonstrated that:

(i) the mineral can be extracted where practicable prior to development taking place; or
(j) the mineral concerned is demonstrated to not be of current or future value; or
(k) the development will not prejudice future extraction of the mineral; or
(l) there is an overriding need for the development (where prior extraction is not feasible).

*a settlement boundary is that which is defined on the relevant policies map for the area (e.g. a village envelope or urban area boundary). If no such boundary is identified, it will constitute the edge of the built form of the settlement.

Mineral Development Areas (MDAs) and Mineral Allocation Areas (MAAs)

4.3 Mineral Development Areas (MDAs) are specific sites identified on the Policies Map. They consist of existing operational sites and committed sites (i.e. sites with planning permission but which are not yet operational). Areas not yet consented but allocated in this plan for the future extraction of minerals are identified as Mineral Allocation Areas (MAAs). These sites also include existing, planned and potential sites for:

- concrete batching, the manufacture of other coated materials, other concrete products; and
- the handling, processing and distribution of substitute, recycled and secondary aggregate material.

Policy 6: Mineral Development Areas (MDAs) and Mineral Allocation Areas (MAAs)

Mineral Development Areas (MDAs) and Mineral Allocation Areas (MAAs) are defined on the Policies Map. Within a MAA, only development for which it is allocated for (including, where relevant, its restoration) will be permitted.

Borrowpits

4.4 In construction and civil engineering, a borrowpit is an area where material (usually soil, gravel and/or sand, and clay) has been dug for use at another location nearby. Borrowpits can be found close to many major construction projects, and can be a suitable and more sustainable option compared with the alternative of sourcing material from a site considerably further away. However, a policy is necessary to both confirm the in principle support but also to ensure only appropriate borrowpits can come forward.

4.5 In demonstrating the need for a borrowpit for engineering clay regard must be had as to whether the material can be drawn more sustainably from existing mineral and landfill sites, for example through ‘over-digging’ an existing site to secure the clay, rather than a new greenfield borrowpit.

Policy 7: Borrowpits

Mineral extraction from a borrowpit will only be supported, in principle, where all of the following are met:

(a) there is a demonstrated need for the mineral to be extracted from the borrowpit;
(b) it will serve a named project only, and it is well related geographically* to that project;
(c) the site will be restored in accordance with Policy 19 Restoration and Aftercare and within the same timescale as the project to which it relates;

(d) material will not be imported to the borrowpit other than from the project itself, unless such material is required to achieve beneficial restoration; and
(e) the quantity of material and timescale for extraction from the borrowpit will not significantly harm existing operational quarries and local markets.

In demonstrating the need for a borrowpit for engineering clay, it will need to be demonstrated that the material could not be drawn more sustainably from existing mineral and landfill sites.

*in order to pass the 'well related geographically' test, the borrowpit must be significantly geographically better located, when taken as a whole, compared with all other relevant allocated or existing operational sites from which the mineral could otherwise be drawn. Factors taken into account to determine this will include, but not necessarily exhausted by, the following: lorry distance travelled and the associated carbon emission of such travel; amenity impact of lorries on local communities; and impact of lorries on the highway network more generally, such as increasing/decreasing congestion or safety. A borrowpit simply being physically nearer the named project, compared with an existing operational or allocated site, will not in itself necessarily pass the test.

Recycled and Secondary Aggregates, and Concrete Batching

4.6 The processing of secondary and recycled aggregates (including inert recycling) represents a potentially major source of materials for construction, helping to conserve primary materials and minimising waste. Sites for the handling, storage and processing of recycled and secondary aggregates (including recycled inert waste) are therefore required to ensure provision of 'alternative materials'.

4.7 A concrete batching plant is a device that combines various ingredients to form concrete. Some of these inputs include sand, water, aggregate (rocks, gravel, etc.), fly ash, potash and cement. Such plants are an essential part of the construction industry infrastructure, and can be found on construction sites or, in a more permanent form, off-site (including on mineral sites).

Policy 8: Recycled and Secondary Aggregates, and Concrete Batching

In principle, the authorities will support proposals which assist in the production and supply of recycled / secondary aggregates, particularly where it would assist in reducing the use of land won aggregates. Similarly, in principle, the authorities will support suitable concrete batching proposals.

Such proposals are likely to be suitable in the following locations:

(a) on operational, committed and allocated mineral sites (for the duration of the working life of the mineral site only, and where this is compatible with an agreed restoration scheme);
(b) on strategic development sites, such as major urban extensions and new settlements (throughout the construction phase); and
(c) on waste management sites, designated employment land and existing/disused railheads and wharves.

In addition to the above support in principle, all strategic development sites should include temporary inert and construction waste recycling facilities on site throughout all phases of construction, unless there is clear and convincing justification why this would be inappropriate or impractical.

Reservoirs and Other Incidental Mineral Extraction

4.8 Reservoirs and other forms of development can also give rise to incidental mineral extraction. In these cases the Mineral Planning Authorities will be the determining authority for a planning application if the proposal involves taking the extracted mineral off site. Applicants will be required to provide a sound justification for the proposal. When determining any of the above proposals the MPAs will be concerned to ensure that the mineral extracted is used in a sustainable manner. In the case of sand and gravel, for example, this could be achieved by processing the mineral on site or exporting it to a nearby processing plant. Clay, if extracted, could be used for nearby engineering projects.

4.9 It should be noted that Government is likely to introduce in 2019 a National Policy Statement (NPS) for Water Resources Infrastructure, including amending the definitions of nationally significant water resources infrastructure set out in the Planning Act to which the NPS will apply. Consequently, larger reservoirs may well be dealt with, through the planning system, in a different way to smaller reservoirs.

Policy 9: Reservoirs and Other Incidental Mineral Extraction

Proposals for new or extensions to existing reservoirs, or other development involving the incidental extraction and off site removal of mineral (such as lakes, boating marinas, agricultural reservoirs or commercial fish ponds), will be supported where it can be demonstrated that:

(a) there is a proven need and demonstrable sustainability benefits* for the proposal, or the proposal is identified in a water companies' water resource management plan;
(b) any mineral extracted will be used in a sustainable manner;
(c) where the proposal relates to a reservoir, the design, as far as is practical, minimises its surface area by maximising its depth;
(d) the minimum amount of mineral to be extracted is consistent with the purpose of the development; and
(e) the phasing and duration of development adequately reflects the importance of the early delivery of water resources or other approved development.

*sustainability benefits could include, but not necessarily limited to: water storage in order to reduce currently unsustainable groundwater extraction; significant biodiversity net gains or measures to help preserve or enhance designated biodiversity sites; and flood risk management benefits.

5. Waste Management Specific Policies

Waste Management Areas (WMAs)

5.1 Waste Management Areas (WMAs) are specific sites identified on the Policies Map for waste management facilities and consist of existing operational sites (which make a significant contribution to managing any waste stream) and committed sites (i.e. sites with planning permission but which are not yet operational). Policy 3 sets the policy framework for WMAs.

5.2 This Plan does not allocate any sites for future waste management development. The Waste Needs Assessment (December 2018) which accompanies this Further Draft Plan has not identified any capacity gaps which justify the allocation of sites. Proposals for any future waste management development can be dealt with through Policy 4: Providing for Waste Management and other policies in this document.

Policy 10: Waste Management Areas (WMAs)

Waste Management Areas (WMAs) are defined on the Policies Map. Within a WMA, development will not normally be permitted, other than that which meets Policy 4.

Water Recycling Areas (WRAs)

5.3 It is essential that adequate sewage and wastewater infrastructure is in place prior to the start of development taking place in order to avoid unacceptable impacts on the environment, such as sewage flooding residential or commercial properties, or the pollution of land and watercourses. It is also important that the operation of existing facilities can, as appropriate, be maintained, improved, extended and/or relocated. Whilst a wide range of plans, programmes and studies (such as Water Cycle Studies) are necessary to fully understand and achieve these requirements, this Local Plan can play an important part. As such, all existing and planned Water Recycling Centres (WRCs) are identified on the Policies Map as Water Recycling Areas (WRAs). Please note that Policy 16: Consultation Areas covers proposals which fall within 400m of a WRA. The following policy focuses on the development of WRCs themselves.

Policy 11: Water Recycling Areas (WRAs)

Water Recycling Centres (WRCs) are essential infrastructure, and are identified on the Policies Map as Water Recycling Areas (WRAs).

Proposals for new water recycling capacity or proposals required for operational efficiency, whether on WRAs or elsewhere (with such proposals including the improvement or extension to existing WRCs, relocation of WRCs, provision of supporting infrastructure (including renewable energy) or

the co-location of WRCs with other waste management facilities) will be supported in principle, particularly where it is required to meet wider growth proposals identified in the Development Plan. Proposals for such development must demonstrate that:

(a) there is a suitable water course to accept discharged treated water and there would be no unacceptable increase in the risk of flooding to others;
(b) there is a ready access to the sewer infrastructure or area to be served;
(c) if a new site, or an extension to an existing site, is less than 400 metres from existing buildings normally occupied by people, an odour assessment demonstrating that the proposal is acceptable will be required, together with appropriate mitigation measures;
(d) if a new site, or an extension to an existing site, it has avoided land within flood zone 3 unless there is clear and convincing justification to do so, and the proposal is supported by thorough evidence of need, options and risk management; relocating sites from flood zone 1 to flood zone 3 for primarily land value realisation reasons should not form any part of the justification for relocation to flood zone 3; and
(e) adequate mitigation measures will address any unacceptable adverse environmental and amenity issues raised by the proposal, which may include the enclosure of odorous processes.

If any new or presently unidentified WRCs exist, but are not specifically designated as a WRA on the Policies Map, then a proportionate application of the principles in this policy, and the supporting Policy 16: Consultation Areas, will apply.

Radioactive and Nuclear Waste

5.4 The relatively soft, sedimentary nature of the geology of the Plan area is not considered suitable to allow the construction of appropriate structures for the long term storage and disposal of intermediate and higher activity radioactive wastes.

5.5 Controlled disposal of low level radioactive waste takes place at authorised landfill sites where limitations are placed on the type of container, the maximum activity per waste container, and the depth of burial below earth or ordinary waste. Limited disposal also takes place at Addenbrookes Hospital via incineration.

Policy 12: Radioactive and Nuclear Waste

No sites are identified for such use in this Local Plan. Proposals for the treatment, storage or disposal of intermediate or higher activity radioactive and nuclear waste will not be permitted.

Where there is a demonstrated need for low level radioactive waste management facilities, such proposals will be considered on their merits, including demonstration that it represents the most appropriate management option.

Landfill Mining and Reclamation

5.6 The interest in landfill mining, as a concept, is growing across europe, in recognition of the around 500,000 landfill sites in existence (20,000 in the UK), and the potential for valuable resources (especially metals) which can be found in them. Landfill mining and reclamation may also be for other reasons, such as addressing an existing problem or to facilitate some other form of development upon or near that site.

5.7 In respect of commercial based proposals, the practical benefits and potential harm which can arise from landfill mining are at their infancy of research, and there is no national policy which supports such mining as a matter of principle. In particular, excavating a landfill site close to residential properties is unlikely to be acceptable owing to amenity issues. At the present time at least, therefore, the councils do not support commercial based landfill mining in the plan area.

Policy 13: Landfill Mining and Reclamation

The mining or excavation of landfill waste will only be supported where it can be demonstrated that:

(a) without the excavation of waste, the site is posing an unacceptable risk to human health, safety or to the environment; or
(b) removal is required to facilitate other development, provided such other development is in the public interest and the removal would not significantly adversely harm the amenities, temporarily or permanently, of nearby residents or other neighbours.

Irrespective of the motives for the mining, it must be demonstrated that any waste can be handled without posing additional risk to human health, safety or to the environment.

Waste Management Needs arising from Residential and Commercial Development

5.8 The councils will endeavour to ensure that the implications for waste management arising directly from non minerals and waste management development are adequately and appropriately addressed.

5.9 This approach has been taken forward through the Cambridgeshire and Peterborough Waste Partnership (RECAP), and has, since 2012, been assisted by a RECAP Waste Management Design Guide Supplementary Planning Document (SPD). This SPD sets out practical information on the provision of waste storage, waste collection and recycling in residential and commercial developments. It also includes a Toolkit which developers of such proposals are required to complete and submit as part of their planning application. The SPD will be periodically updated. For proposals in the Peterborough area, the Peterborough Local Plan (2019) provides the relevant policy requirements, and as such the following policy does not apply in the Peterborough area.

Policy 14: Waste Management Needs Arising from Residential and Commercial Development

Relevant residential and commercial planning applications in Cambridgeshire must be accompanied by a completed Waste Management Guide Toolkit, which forms part of the latest RECAP Waste Management Design Guide Supplementary Planning Document (or similar superseding document).

Where appropriate, and as determined through an assessment of the Toolkit submission, such new development may be required to contribute to the provision of bring sites and / or the Household Recycling Centre service (subject to any legislative requirements in relation to seeking developer contributions).

6. Policies for Minerals and Waste Management Proposals

Transport Infrastructure Areas (TIAs)

6.1 Certain types of transport infrastructure are essential in order to help facilitate more sustainable transportation of minerals and waste. Those of significance are identified on the Policies Map as Transport Infrastructure Areas (TIAs) and are defined for both existing and planned areas. Such areas may include railheads, wharves and ancillary facilities.

6.2 Please also see Policy 23 for wider transport and highway related policy requirements relating to matters such as traffic, highways, Heavy Commercial Vehicles (HCVs) and Public Rights of Way.

Policy 15: Transport Infrastructure Areas (TIAs)

Transport Infrastructure Areas (TIAs) are identified on the Policies Map. Development which would result in the loss of or reduced capacity of such infrastructure will not be permitted unless it can be demonstrated that either:

(a) the loss or reduced capacity will have no impact on the ability of minerals or waste to be transported by sustainable means, both now and for accommodating future planned growth; or
(b) alternative, suitable and sufficient capacity is to be developed elsewhere (and in which case the authorities are likely to require it to be implemented before the loss or reduced capacity has occurred).

New relevant transport infrastructure capacity (such as wharves, railheads, conveyor, pipeline and other forms of sustainable transport), whether on TIAs or elsewhere, including the improvement or extension to existing sites, will be supported in principle, particularly where it is required to meet wider growth proposals identified in a Development Plan.

Consultation Areas (CAs)

6.3 Consultation Areas (CAs) are buffers around Mineral Allocation Areas (MAAs), Mineral Development Areas (MDAs), Waste Management Areas (WMAs), Transport Infrastructure Areas (TIAs) and Water Recycling Areas (WRAs).

6.4 They are designated to ensure that such sites are protected from development that would prejudice operations within the area for which the buffer is identified, or to protect development that would be adversely affected by such operations (for example residential development being located close to a waste site and subsequently suffering amenity issues).

6.5 Buffers are typically 250m around the edge of a site (400m in the case of WRAs). In defining CAs, each site is considered individually, and if circumstances have suggested the typical buffer from the edge of any site should be varied (e.g. due to mitigation proposals) then this has been taken into account.

6.6 CAs are designed to alert prospective developers and decision takers to development (existing or future) within the CA to ensure adjacent new development constitutes an appropriate neighbouring use. New neighbouring development can impact on certain mineral and waste management development and associated infrastructure, making it problematical for them to continue to deliver their important function.

Policy 16: Consultation Areas (CAs)

Consultation Areas (CAs) are identified on the Policies Map, as a buffer around Mineral Allocation Areas (MAAs), Mineral Development Areas (MDAs), Waste Management Areas (WMAs), Transport Infrastructure Areas (TIAs) and Water Recycling Areas (WRAs). The Mineral & Waste Planning Authority must be consulted on all planning applications within CAs except:

(a) householder applications (minor development works relating to existing property); and
(b) advertisements.

Development within a CA will only be permitted where it is demonstrated that the development will:

(c) not prejudice the existing or future use of the area for which the CA has been designated; and
(d) not result in unacceptable amenity issues or adverse impacts to human health for the occupiers or users of such new development, due to the ongoing or future use of the area for which the CA has been designated*.

Within a CA which surrounds a WRA, and unless convincing evidence to the contrary is provided via an odour assessment report, there is a presumption against allowing development which would:

(e) be buildings regularly occupied by people; or
(f) be land which is set aside for regular community use (such as open space facilities designed to attract recreational users, but excluding, for example, habitat creation which is not designed to attract recreational users).

In instances where new minerals development, waste management, transport infrastructure or water recycling facilities of significance are approved (i.e. of such a scale that had they existed at the time of writing this Plan it could reasonably be assumed that they would have been identified as a MDA, WMA, TIA or WRA), the policy principle of a CA around such a facility is deemed to automatically apply, despite such a CA for it not being identified on the Policies Map.

*Where development is proposed within a CA which is associated with a WRA, the application must be accompanied by a satisfactory odour assessment report. The assessment must consider existing odour emissions of the WRC at different times of the year and in a range of different weather conditions.

Design

6.7 The following policy is primarily associated with waste management facilities, because such facilities normally include an element of permanent new build development. Such development must be of a high quality design. Minerals related proposals often do not include new development, or at least not development which is intended to be of permanent use. Nevertheless, should a minerals proposal include some form of built development, then the following policy would apply.

6.8 Appendix 2: The Location and Design of Waste Management Facilities provides specific guidance on the design of waste management facilities, and should be used to inform the design of waste management facilities in the plan area.

Policy 17: Design

All waste management development, and where relevant minerals development, should secure high quality design. The design of built development and the restoration of sites should, where appropriate, complement and enhance local distinctiveness, and the character and quality of the area in which it is located. Permission will be refused for development of poor design that fails to take the opportunities available to achieve this.

New minerals and waste management development should, where appropriate:

(a) make effective and efficient use of land and buildings, through the design, layout and orientation of buildings on site and through the prioritising of previously developed land;
(b) be durable, flexible and adaptable over its planned lifespan, taking into account potential future social, economic, technological and environmental needs through the structure, layout and design of buildings and places;
(c) provide a high standard of amenity for users of new buildings and maintain or enhance the existing amenity of neighbours;
(d) be designed to reduce crime, minimise fire risk, create safe environments, and provide satisfactory access for emergency vehicles;
(e) create visual richness through building type, height, layout, scale, form, density, massing, materials and colour and through landscape design;
(f) retain or enhance important features and assets within the landscape, treescape or townscape and conserve or create key views;
(g) provide well designed boundary treatments (including security features) that reflect the function and character of the development and its surroundings;
(h) take account of any relevant landscape character assessments and be supported by a landscape enhancement scheme; and
(i) provide attractive, accessible and integrated vehicle and cycle parking which also satisfies any parking standard in adopted Local Plans and incorporates facilities for electric plug-in and other ultra-low emission vehicles.

For waste management proposals, detailed design guidance can be found in Appendix 2: The Location and Design of Waste Management Facilities. This guidance provides a framework for

creating distinctive places, with a consistent and high quality standard of design. Whilst the guidance provides a degree of flexibility, it will be used to assist in determining whether a proposal is consistent with the approach set out in this policy.

Amenity Considerations

6.9 Minerals and waste management development can have the capacity to adversely impact on the amenity of local residents, businesses and other users of land. This could be in the immediate vicinity of the development, or for example along transportation routes associated with the development.

6.10 Development should aim to ensure that a high standard of amenity is retained and, where possible, enhanced, for all existing and future users of land and buildings which may be affected.

Policy 18: Amenity Considerations

New development must not result in unacceptable adverse impacts on the amenity of existing occupiers of any land or property, including:

(a) harm to human health or safety;
(b) ability of the neighbouring use (or planned neighbouring use) to remain an ongoing operation;
(c) privacy for the occupiers of any nearby property;
(d) noise and/or vibration levels resulting in disturbance to the occupiers or users of any nearby property or land;
(e) loss of light to and/or overshadowing of any nearby property;
(f) air quality from odour, fumes, dust, smoke or other sources;
(g) light pollution from artificial light or glare;
(h) increase in litter; and
(i) increase in flies, vermin and birds.

Where there is the potential for any of the above impacts to occur, an assessment appropriate to the nature of that potential impact should be carried out, and submitted as part of the proposal, in order to establish, where appropriate, the need for, and deliverability of, any mitigation.

Restoration and Aftercare

6.11 Most mineral development is of a temporary nature, as is some waste development, notably that related to landfill. Development that is temporary in nature should always have an approved scheme for restoration and an end date by which this will have been implemented.

6.12 Achieving the satisfactory restoration of minerals sites and former waste management sites is of paramount importance. Restoration of minerals and waste sites must be done

progressively, with sections of the site worked and then restored at the earliest opportunity. It is acknowledged however that the particular after-use of a site should be a matter for discussion on a case by case basis.

Policy 19: Restoration and Aftercare

All minerals extraction related proposals, and all waste management proposals which are likely temporary in nature, must be accompanied by a restoration and aftercare scheme proposal.

Such a proposal must, where appropriate:

(a) set out a phasing schedule so as to restore available parts of the site to a beneficial afteruse as soon as is reasonably practicable to do so, and to restore the whole of the site within an agreed timeframe. Only in exceptional circumstances, such as very small sites where phasing is not practical, will a non-phased scheme be approved;
(b) reflect strategic and local objectives for countryside enhancement and green infrastructure, including those set out in relevant Local Plans and Green Infrastructure Strategies;
(c) contribute to identified flood risk management and water storage needs (including helping to reduce the risk of flooding elsewhere) and / or water supply objectives and incorporate these within the restoration scheme;
(d) demonstrate net biodiversity gain through the promotion, preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets;
(e) protect geodiversity and improve educational opportunities by incorporating this element within the restoration scheme, by leaving important geological faces exposed and retaining access to them;
(f) incorporate within the restoration scheme amenity uses, such as formal and informal sport, navigation, and recreation uses; and
(g) only restore the land (including best and most versatile) back to agricultural use if it is clearly demonstrated that this offers greater sustainability benefits than (a) to (f) above. Where it is determined that restoring the land to agricultural land is the most suitable option (in whole or part), then the land must be restored to the same or better agricultural land quality as it was pre-development.

In the case of mineral workings, restoration schemes which will contribute to addressing or adapting to climate change will, in principle, be supported e.g. through flood water storage, and biodiversity proposals which create habitats which enhance ecological networks and living carbon sinks.

Any site specific restoration and after-care requirements are set out in the site allocation section of this Local Plan. Where there is conflict between what the above policy states, and what a site specific policy states, then the provisions of the site specific policy take precedence.

Agreed restoration schemes and aftercare arrangements will be secured, if necessary, by legal agreement.

Biodiversity and Geodiversity

6.13 Cambridgeshire and Peterborough have a range of sites recognised for their environmental quality, a number of which have international status. It is considered appropriate to include a comprehensive policy within this Local Plan which reflects the councils' approach to biodiversity and geodiversity. Through the development management processes, management agreements and other positive initiatives, the councils will, therefore:

- aid the management, protection, enhancement and creation of priority habitats (including lowland calcareous grasslands, woodlands and hedgerows, rivers, lowland meadows and floodplain grazing marsh) and populations of protected species, with the overall aim to achieve a net gain in biodiversity;
- promote the creation of an effective, resilient, functioning ecological network throughout the plan area, consisting of core sites, buffers, wildlife corridors and stepping stones that link to each other and to wider green infrastructure across the plan area (or potentially in adjoining local authority areas) and to respond to and adapt to climate change;
- safeguard the value of previously developed land where it is of significant importance for biodiversity and/or geodiversity; and
- work with developers and Natural England to identify a strategic approach to great crested newt mitigation, where this is required, on major sites and other areas of key significance for this species.

Policy 20: Biodiversity and Geodiversity

International Sites
The highest level of protection will be afforded to international sites designated for their nature conservation or geological importance. Proposals having an adverse impact on the integrity of such areas, that cannot be avoided or adequately mitigated to remove any adverse effect, will not be permitted other than in exceptional circumstances. These circumstances will only apply where:

(a) there are no suitable alternatives;
(b) there are imperative reasons of overriding public interest; and
(c) necessary compensatory provision can be secured.

Development proposals that are likely to have an adverse effect, either alone or in-combination, on European designated sites must satisfy the requirements of the Habitats Regulations, including determining site specific impacts and avoiding or mitigating against impacts where identified.

National Sites
Development proposals within or outside a Site of Special Scientific Interest (SSSI), or likely to have an adverse effect on a SSSI (either individually or in combination with other developments), will not normally be permitted unless the benefits of the development, at this site, clearly outweigh both the adverse impacts on the features of the site and any adverse impacts on the wider network of SSSIs.

Local Sites
Development likely to have an adverse effect on locally designated sites, their features or their function as part of the ecological network, including County Wildlife Sites and Local Geological Sites, will only be permitted where the need and benefits of the development clearly outweigh the loss and the coherence of the local ecological network is maintained.

Habitats and Species of Local and Principal Importance
Where adverse impacts are likely on the protection and recovery of priority species and habitats, development will only be permitted where the need for and benefits of the development clearly outweigh these impacts. Where adverse impacts are likely on other locally important habitats and species as identified by the Cambridgeshire and Peterborough Biodiversity Partnership, the benefits of development must outweigh these impacts. In both cases, appropriate mitigation and/or compensatory measures will be required.

Biodiversity and Geodiversity in Development
All development proposals should:

(d) conserve and enhance the network of geodiversity, habitats, species and sites (both statutory and non-statutory) of international, national and local importance commensurate with their status and give appropriate weight to their importance;
(e) avoid negative impacts on biodiversity and geodiversity;
(f) deliver a net gain in biodiversity, proportionate to the scale of development proposed, by creating, restoring and enhancing habitats and enhancing them for the benefit of species;
(g) where necessary, protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat. For riverside development, this includes the need to consider options for riverbank naturalisation. In all cases regard should be had to the Cambridgeshire Flood and Water SPD or Peterborough Flood and Water SPD (or their successors); and
(h) for minerals extraction proposals, enable periodic temporary access in order to record, sample and document the geodiversity.

Minerals and Waste Management proposals must be accompanied by a completed biodiversity checklist (see respective planning authority website for details) and must identify features of value on and adjoining the site and to provide an audit of losses and gains in existing and proposed habitat. Where there is the potential for the presence of protected species and/or habitats, a relevant ecological survey(s) must be undertaken by a suitably qualified ecologist. The development proposals must be informed by the results of both the checklist and survey.

Mitigation of Potential Adverse Impacts of Development
Development should avoid adverse impact on existing biodiversity and geodiversity features as a first principle. Where adverse impacts are unavoidable they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort where there is no alternative.

The Historic Environment

6.14 The Minerals and Waste Planning Authorities recognise that the historic environment plays an important role in the quality of life experienced by local communities and the proposed approach is to protect, conserve and seek opportunities to enhance the local area's rich and diverse heritage assets and their settings, for the enjoyment of current and future generations.

6.15 Nationally designated heritage assets within the plan area include Scheduled Monuments, Listed Buildings, Conservation Areas and Registered Parks and Gardens. The designation of heritage assets has largely focused on more tangible or visible interest, and as such there are many areas of archaeological interest which are of national importance that are not scheduled. Designated sites receive statutory protection under heritage protection legislation. However, others that are considered locally significant (such as ridge and furrow) or, that may not yet be identified (such as in the case of archaeological interests), do not. Such assets may present an important resource in terms of place-making and developing an understanding of our history, which if not addressed early may be lost.

6.16 It is acknowledged that both minerals and waste development has the potential to affect different types of heritage assets and their setting. However, minerals development, more so than waste, is generally quite an intensive activity in relation to potential impacts on the historic environment owing to its extractive nature. As such, any necessary Heritage Statement should also consider potential for archaeology at depth. To do so it is likely to require a deposit model looking at the characteristics and distribution of deposits and natural landforms across the site and their likely potential for archaeology of all periods.

6.17 In addition to helping assess Palaeolithic potential, a deposit model would also pick up features such as palaeochannels, islands and extensive peat deposits, of potential for prehistoric and later periods. It might be based on existing Geotechnical site investigation information and/or involve the drilling of purposive boreholes, test pits and deep-penetration geophysics transects (ERT and EMI). Lidar information could also be useful. Also, the assessment might need to consider dewatering impacts and changes in water flow patterns. Where, for example, the minerals extraction sites lie on floodplains buried archaeological remains are likely to be waterlogged. Therefore the likely impact of the minerals extraction on the water table and water flow patterns both during extraction and following reinstatement should be investigated in tandem with the assessment and evaluation of archaeological potential. There may be impacts on the archaeology of areas downstream of the extraction site and on any archaeology 'preserved in situ' remaining in unquarried areas within the site itself.

6.18 For all the above reasons, it is important that adequate information and evidence is available to inform the decision making process, ensuring that the potential impact of the proposal on the historic environment and the significance of heritage assets (including non-designated assets) and their setting is understood. In the case of archaeology, such interests are often not identified until the process of assessment or evaluation has begun. Where there is thought to be a risk of such interests being present a phased approach for assessing the significance of heritage assets involving desk-based assessments and / or field evaluations may be required.

Policy 21: The Historic Environment

The Councils recognise: the desirability of sustaining and enhancing the significance of heritage assets (and their setting); the wider social, cultural, economic and environmental benefits that conservation of the historic environment can bring; the desirability of new development making a positive contribution to local character and distinctiveness; and the opportunities to draw on the contribution made by the historic environment to the character of a place.

As such, all minerals and waste management proposals will be subject to the policy requirements set out in the NPPF.

To assist decision makers, all development proposals that would directly affect any heritage asset and/or its setting (whether designated or non-designated), will need to be accompanied by a Heritage Statement which, as a minimum, should:

(a) describe and assess the significance of the asset and/or its setting to determine its architectural, historic, artistic or archaeological interest;
(b) identify the impact of the development on the special character of the asset (including any cumulative impacts); and
(c) provide clear and convincing justification for any harm to, or loss of, the significance of a heritage asset (from its alteration or destruction, or from development within its setting).

The level of detail in the Statement should be proportionate to the asset's significance and sufficient to understand the potential impact of the proposal on its significance and/or setting.

Where appropriate, and particularly for minerals development proposals, the Statement must also consider:

(d) the hydrological management of the site and the potential effects that variations in the water table or water flow patterns may have on known or potential archaeological remains. This assessment may be required to address an area beyond the planning application boundary; and
(e) the potential for palaeolithic or later archaeology at depth, possibly making use of, where appropriate, a deposit model looking at the characteristics and distribution of deposits and natural landforms across the site and the likely potential for archaeology of all periods.

Water Resources

6.19 Cambridgeshire and Peterborough are identified as being within an area of serious water stress. Adopted and emerging district local plans are all introducing the optional water efficiency standard for new homes, reflecting such evidence. Increasing demands for water arising from growth, and potential impacts from, in particular, minerals workings could serve to have a detrimental impact upon the quantity or quality of surface or groundwater resources. That said, minerals development (normally in the form of the restoration scheme) can also have a net benefit on the water environment, through, for example, flood alleviation and winter

water storage. Please note that the Cambridgeshire Flood and Water SPD referred in the policy below was not formally adopted by the County Council but rather by each individual district council within Cambridgeshire. The County Council has, however, endorsed its contents.

Policy 22: Water Resources

Minerals and waste management development will only be permitted where it can be demonstrated (potentially through a detailed hydrogeological assessment) that there would be no significant adverse impact on:

(a) the quantity or quality of surface or groundwater resources;
(b) the quantity or quality of water abstraction currently enjoyed by abstractors unless acceptable alternative provision is made;
(c) the flow of groundwater at or in the vicinity of the site; and
(d) increased flood risk, both on-site and off-site.

All proposed development will be required to incorporate adequate water pollution control and monitoring measures.

Proposals should also have due regard to the latest policies and guidance in the Cambridgeshire Flood and Water SPD and the Peterborough Flood and Water Management SPD (or their successors).

Traffic, Highways and Rights of Way

6.20 Cambridgeshire and Peterborough's road network is heavily used, with a high proportion of Heavy Commercial Vehicles (HCVs) (i.e. heavy goods vehicles, plus a wide range of farm related vehicles which use the road network). Minerals and waste management operations can add significantly to this congested network, and primarily means even further increase in HCV usage.

6.21 Much of the road network is also historic, and often goes through the middle of settlements, which themselves are ill designed to cope with the volume and type of traffic, especially HCVs. Cambridgeshire County Council has adopted a HCV route which can be found at cambridgeshire.gov.uk/freight-map.

6.22 Section 9 of the NPPF (2018) sets out detailed national policy on transport related matters, but further local policy is necessary, in the following policy.

6.23 In addition to the policy below, site specific policies found in the site allocations of this plan set out any specific Traffic, Highways and Rights of Way matters that will need to be addressed for that particular site.

Policy 23: Traffic, Highways and Rights of Way

Mineral and waste management development will only be permitted if:

(a) appropriate opportunities to promote sustainable transport modes can be, or have been, taken up, to the degree reasonably available given the type of development and its location;
(b) safe and suitable access to the site can be achieved for all users of the subsequent development;
(c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree;
(d) any associated increase in traffic or highway improvements would not cause unacceptable harm to the environment, road safety or residential amenity, and would not cause severe residual cumulative impacts on the road network; and
(e) binding agreements covering lorry backloading, routing arrangements and/or Heavy Commercial Vehicle (HCV) signage for mineral and waste traffic are agreed, if any such agreements are necessary and reasonable to make a development acceptable.

Use of HCV Route Network
Where minerals and/or waste is to be taken on or off a site by the highway network, then all proposals must demonstrate how the latest identified HCV Route Network is, where reasonable and practical to do so, to be utilised . If necessary, arrangements ensuring that the use of the HCV Route Network takes place may need to be secured through an appropriate and enforceable agreement. Any non-allocated minerals and waste management facility in Cambridgeshire which would require significant use of the highway must be well related to the HCV Route Network.

Public Rights of Way
Proposals must make provision for the enhancement of the public rights of way network where practicable, with a view to providing new routes and links between existing routes. Priority should be given to meeting the objectives of any Rights of Way Improvement Plans. Where development would adversely affect the permanent use of public rights of way (including temporary diversions) planning permission will only be granted where alternative routes are provided that are of equivalent convenience, quality and interest.

Sustainable Use of Soils

6.24 Agricultural land is an important national esource, and together Cambridgeshire and Peterborough have a larger proportion of high quality agricultural land than any other area in England.

Policy 24: Sustainable Use of Soils

Minerals or waste development which adversely affects agricultural land categorised as ‘best and most versatile’ will only be permitted where it can be shown that:

(a) it incorporates proposals for the sustainable use of soils (whether that be off-site or as part of an agreed restoration scheme); and
(b) (for non-allocated sites) there is a need for the development and an absence of suitable alternative sites using lower grade land has been demonstrated.

Aerodrome Safeguarding

6.25 For mineral and waste management developments located close to airports, aerodromes or their flight paths, one of the main hazards is from bird strike. Whilst it would be impossible for all proposals to demonstrate no increase in hazard to air traffic, the word significant in the policy should be interpreted carefully, and it may mean only a slight potential increase in the hazard would constitute a 'significant' occurrence, owing to the consequence of the hazard should it materialise.

Policy 25: Aerodrome Safeguarding

Mineral and waste management development within aerodrome safeguarding areas will only be permitted where it can be clearly demonstrated that the development would not constitute a significant hazard to air traffic. Where it cannot be demonstrated, or where the significance of any hazard is uncertain, the proposal will be refused. The preparation and implementation of an approved Bird Management Plan may be required.

Other Developments Requiring Importation of Materials

6.26 Some forms of development might not be primarily minerals and waste management related, but may result in the importation of minerals or inert waste as part of the proposals. As with all policies, it is important that the following policy is read in conjunction with other policies that will equally apply, such as policies on amenity and transport.

Policy 26: Other Developments Requiring Importation of Materials

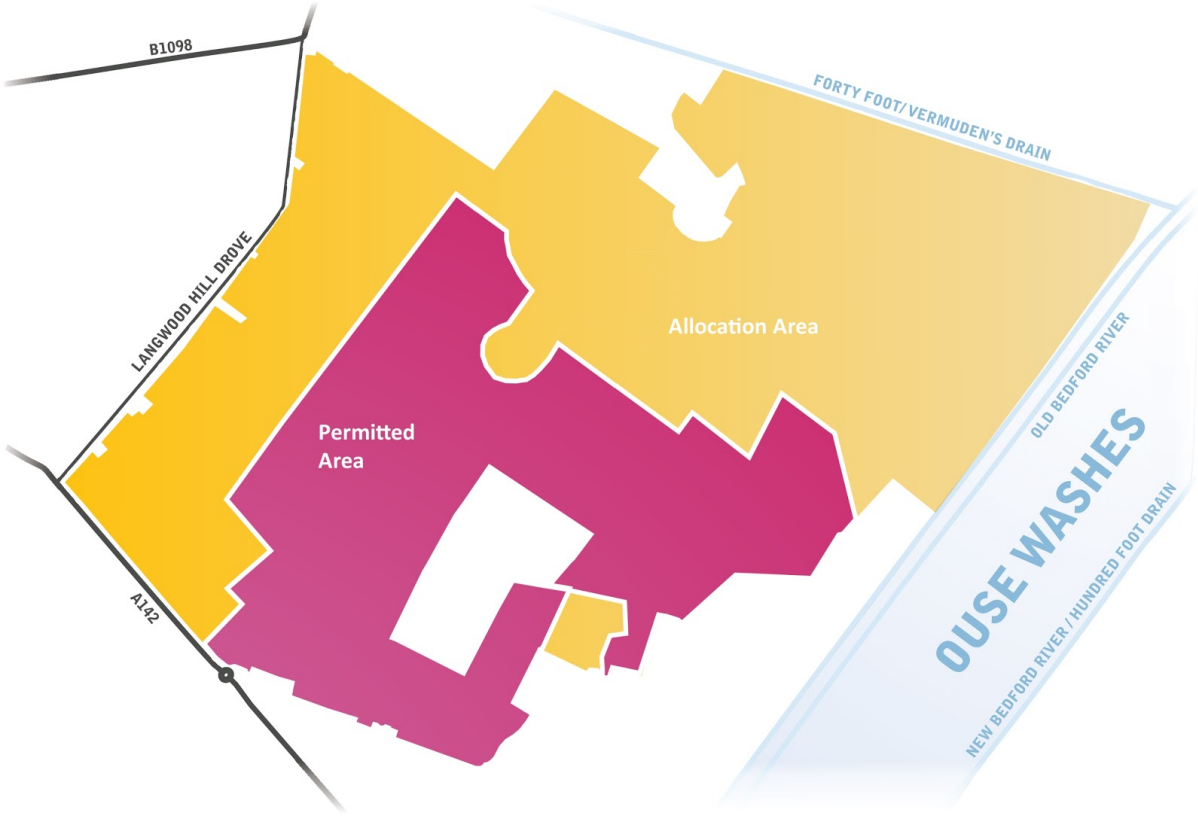
Proposals for developments (including golf courses and any other significant outdoor recreation facilities) which require the importation of significant quantities of minerals and/or inert waste, will only be permitted where it can be demonstrated that:

(a) the proposal does not prejudice the restoration of mineral extraction sites;
(b) there is a proven need for the material to be imported;
(c) any mineral or waste imported will be used in a sustainable manner; and
(d) the minimum amount of material is imported, consistent with the purpose of the development.

The determination of planning applications will have regard to the objectives of the mineral and waste spatial strategies in this Plan.

List of Acronyms

AWP - Aggregate Working Party
C&I Waste - Commercial & Industrial
CA - Consultation Area
CD&E - Construction, Demolition & Excavation
DPD - Development Plan Document
DtC - Duty to Cooperate
HRC - Household Recycling Centre
LAA - Local Aggregates Assessment
LDS - Local Development Scheme
LLW - Low-level Radioactive Waste
MAA - Mineral Allocation Area
MDA - Mineral Development Areas
MPA - Mineral Planning Authority
MSA - Minerals Safeguarding Area
Mtpa - Million tonnes per annum
MWLP - Minerals and Waste Local Plan
NPPF - National Planning Policy Framework
NPPG - National Planning Practice Guidance
NPPW - National Planning Policy for Waste
RECAP - Cambridgeshire and Peterborough Waste Partnership
SA - Sustainability Appraisal
SCG - Statement of Common Ground
SCI - Statement of Community Involvement
SPD - Supplementary Planning Document
SSSI - Site of Special Scientific Interest
TIA - Transport Infrastructure Area
WMA - Waste Management Area
WNA - Waste Needs Assessment
WPA - Waste Planning Authority
WRA - Water Recycling Area
WRC - Water Recycling Centre
WTAB - Waste Technical Advisory Body



Cambridgeshire County Council and Peterborough City Council

Appendix 1 - BLOCK FEN / LANGWOOD FEN MASTER PLAN

Contents

Context - Block Fen / Langwood Fen Master Plan

A Block Fen / Langwood Fen Master Plan Supplementary Planning Document (SPD) was adopted in 2011. It set out the vision for the Block Fen area to be created through minerals extraction. The contents of that SPD has been updated and brought into the Cambridgeshire and Peterborough Minerals and Waste Local Plan. The 2011 SPD ceases to have any weight on adoption of the Local Plan.

Changes since the 2011 SPD

The content of this Appendix remains largely unchanged from the 2011 SPD . However, the timescales have been altered to be more flexible in the delivery of the Master Plan. This alteration has been made in response to the reduced levels of production that occured (likely owing to the 2008 economic downturn).

A number of other minor alterations to the text were also made, but these have not affected the direction of the Plan.

Status of this appendix

This appendix forms part of Cambridgeshire and Peterborough Minerals and Waste Local Plan. Its contents are considered to be supporting text, to assist interpretation and implementation of relevant policies in the Local Plan. If any text in this Appendix conflicts in any way with the provisions of the Policies set out in this Local Plan or any other Development Plan Document, then the contents of those policies prevail .

Withdrawal of Block Fen / Langwood Fen Master Plan Supplementary Planning Document (2011)

On adoption of the Cambridgeshire and Peterborough Minerals and Waste Local Plan the Block Fen / Langwood Fen Master Plan Supplementary Planning Document (2011) is withdrawn.

1. Introduction

Purpose of the Master Plan

1.1. This Master Plan provides a detailed land use planning framework for mineral and waste activity in the Earith / Mepal area. It conforms to and builds upon the proposals set out in the Cambridgeshire and Peterborough Minerals and Waste Plan Local Plan.

Background

1.2. The Cambridgeshire and Peterborough Minerals and Waste Local Plan identifies the Earith / Mepal area as a strategic area for sand and gravel extraction and construction / demolition waste management until 2036 and beyond. This area has extensive reserves of good quality sand and gravel needed to supply the construction industry, which will help build the new housing, employment, schools and other development planned for Cambridge, and the wider area. The area will also help to recycle and dispose of construction soils and sub-soils arising from development.

1.3. The Earith / Mepal area is one of high quality agricultural land, and is primarily in this use. However, Block Fen, Langwood Fen and adjacent areas have established sites for sand and gravel extraction, and some already contribute to the management of soils and waste construction and demolition materials.

1.4. In considering the further development of the area significant new opportunities have been identified which could be delivered through additional mineral extraction and quarry restoration. These have largely been shaped by the location of the area next to the Ouse Washes, which is one of the few remaining fragments of wetland habitats within the Fens. It is of international importance for its wintering waterfowl and for a suite of breeding birds, including snipe and black-tailed godwit.

1.5. The Ouse Washes area is in an 'unfavourable' condition. The Ouse Washes is designated as a wetland of international importance (Ramsar site) under the Ramsar convention, and, in 2000, was formally listed on the Montreux Record as a site undergoing ecological change. The main cause of the deterioration of the nature conservation interests is changing patterns of flooding with unseasonal summer flooding and longer deeper winter flooding.

1.6. Mineral extraction followed by appropriate restoration offers the opportunity to deliver three equally important strategic objectives. Firstly, it can provide strategic water storage bodies which can help to intercept water before it goes into the Counter Drain, and also take some of the water from the Counter Drain which would otherwise be pumped into the Ouse Washes, thereby managing flood risk in a more sustainable way. In addition, quarry restoration using inert construction and demolition waste soils can create a significant amount of new lowland wet grassland, providing new breeding areas for birds such as the black-tailed godwit, snipe, redshank and lapwing. Thirdly, the water bodies created after restoration from gravel workings, and the new lowland wet grassland, can provide a focus for

recreational opportunities for those living in, or visiting the area; as well providing water for agriculture for irrigation purposes.


Left: Redshank (Courtesy of RSPB); Right: Yellow Wagtail (Courtesy of RSPB).

1.7. The framework for future sand and gravel extraction and the management of construction and demolition waste in this area is set out in Cambridgeshire and Peterborough Minerals and Waste Local Plan which covers the overarching land use policy. This Master Plan sets the more detailed proposals for this area.

The Block Fen / Langwood Fen Area

1.8. The Block Fen / Langwood Fen area lies to the west of the Ouse Washes, north of the A142 and south of the Forty Foot (Vermuyden's) Drain. The western boundary is a line running north south down Langwood Hill Drove to the A142. The Master Plan area lies in the parishes of Mepal and Chatteris.

1.9. The area is characterised by open low lying high quality agricultural land, drained by a series of man made drains and pumps operated by the Sutton and Mepal Internal Drainage Board. Other than the drains there are relatively few other landmarks. The area is relatively sparsely populated, principally by farms or scattered dwellings, linked by small droves and byways.

Nature Conservation

1.10. The area lies adjacent to the Ouse Washes which is a wetland of national, European and international importance. At the national level it is notified as a Site of Special Scientific Interest (SSSI) for its wet grassland, breeding and wintering waders and wildfowl along with aquatic flora and fauna largely associated with the ditches and drains.

1.11. At the European level, the Ouse washes is designated as a Special Protection Area (SPA) for the number and variety of breeding and wintering waders and wildfowl, along with the wintering population of hen harrier. The two parallel linear water courses known as the Counter Drain / Old Bedford (outer river) and the Old Bedford / Delph (inner river) are also designated at the European level for a population of Spined Loach, one of four known main localities for this fish species.

1.12. The Ouse Washes is one of the largest areas of seasonally flooded washland in Britain which, when floodwaters permit, is managed using traditional agricultural methods of summer grazing and hay cutting. The washlands regularly host impressively large numbers of

wintering waterbirds, which qualifies it as a Wetland of International Importance under the Ramsar Convention.

Land Drainage and Water Storage

1.13. Immediately east of the Master Plan area is the Counter Drain, east of this is the River Delph and the Hundred Foot / New Bedford River Ouse. These watercourses supports the artificial drainage of a large part of mid Cambridgeshire, up through Bedfordshire to the river source in Northamptonshire.

1.14. The Ouse Washes lie between the River Delph and the parallel bank of the Hundred Foot / New Bedford River and play a major land drainage role as a flood water storage and conveyancing area. As a result the washland is thus subject to flooding.

1.15. A winter storage agricultural irrigation reservoir lies at North Fen, Sutton Gault (south of the Block Fen / Langwood Fen area). This has been extended through additional mineral extraction. Planning permission has also been granted for the reservoir to be used for the storage of potable water.

1.16. There are also a number of smaller winter storage reservoirs in the wider Earith / Mepal area serving the irrigation needs of specific areas of agricultural cultivation.

Cultural and Historic Interest

1.17. In terms of cultural and historic interest the area contains isolated listed buildings and schedule monuments along the roads, waterways and fields of the Block Fen / Langwood Fen area. One such listed building is Fortrey's Hall, which is located alongside the Old Bedford River. The area also lies in proximity to towns and villages such as Chatteris, which contain numerous listed buildings and designated conservation areas. The area is of high archaeological importance and includes a number of Scheduled Monuments. It is known to contain prehistoric remains and there are extensive remains of Bronze Age, Iron Age and Roman Settlements in the area, some of which may prove to be of national importance.

Access

1.18. The main traffic corridor is the A142 Ely - Chatteris Road, which bridges the Ouse Washes. The area is also crossed by Bury Lane leading from Sutton to Long North Fen Drove towards Chatteris. This route crosses the Washes by way of a causeway and is frequently obstructed by floodwater in the winter months.

1.19. The other roads in the area are minor lanes (droves) linking farms and byways. There are a limited number of public footpaths the most important of which from a recreation point of view are the linear paths which follow the banks of the Ouse Washes.

Existing Minerals and Waste Operations

1.20. The area is known to contain significant sand and gravel deposits having been the subject of some earlier extraction, and is currently the subject of active and planned mineral workings on a significant scale.

1.21. North of the A142 is Block Fen. This is a large area, already permitted for sand and gravel extraction, and currently operated as 2 quarries, a third is due to commence development in the short term. Access to Block Fen is via a roundabout off the A142. Current restoration proposals are for reinstatement to an agricultural use, at existing (using inert waste fill) or low level, with the incorporation of a few small water bodies and wetland habitats to complement the existing County Wildlife Site.

1.22. South of the A142 extraction has also been permitted for a smaller area at Sutton Gault. This was originally associated with the creation of a winter storage agricultural irrigation reservoir at North Fen. The original reservoir has been extended through subsequent planning permissions and extraction and construction works are taking place. Planning permission has also been granted for part of the reservoir capacity to be used for potable water supply.

1.23. Further south is extraction associated with the Bridge Farm and Colne Fen Quarries.

The Earith / Mepal Stakeholder Group

1.24. The first edition of the Master Plan was developed through a number of stakeholder workshops. These sessions were vital in determining the nature of the proposals which have come forward, and in providing technical supporting information and advice.

1.25. In addition a number of supporting studies were undertaken which addressed:

- hydrology;
- sustainable use of soils;
- ecology; and
- traffic.

1.26. Participants included the minerals and waste industry, the Environment Agency, the Middle Level Commission, the Sutton and Mepal Internal Drainage Board, the Royal Society for the Protection of Birds (RSPB), The Wildfowl and Wetlands Trust (WWT), Officers from the District Councils, and Natural England.

2. The Vision

2.1. The vision for Block Fen / Langwood Fen area is:

- to undertake development in a planned and sustainable way, ensuring there is no adverse impact on the integrity of the Ouse Washes, taking into account the need to address climate change by incorporating into the proposals for this area such measures as recycling of waste to encourage the use of secondary materials, water storage and transfer to address nature conservation, sustainable flood risk management, and water supply issues across the wider area, including the creation of new habitat which will enhance the Ouse Washes and will assist in conserving for the long term high quality peat soils, and active traffic management designed to influence lorry and other traffic movements to use appropriate routes;
- a continuation in the role of the area as a major producer of sand and gravel, to 2036 and beyond. The sand and gravel being used largely to supply the construction industry in the delivery of planned growth i.e. houses, employment, schools, roads, and other supporting infrastructure in the Cambridge, and wider Cambridgeshire area. The focus for this development would be the Block Fen / Langwood Fen area, with operations at Bridge Farm and and Somersham closing when current consents are worked;
- the development of Block Fen and Langwood Fen as a strategic resource for the recycling of construction waste and for the disposal of inert waste that cannot be recycled. The latter largely comprising soils and subsoils arising from the planned development in Cambridgeshire;
- an area with its close links to the neighbouring internationally important Ouse Washes being positively strengthened over the Plan period and beyond. Owing to inappropriate water levels and water quality issues the Ouse Washes is currently in 'unfavourable' condition. The restoration of mineral void to high quality wet grassland adjacent to the Washes will provide enhancement habitat for the nationally and internationally important breeding and wintering bird populations currently using the Washes. Potentially this will be of particular value for breeding waders whose habitat might be flooded in the spring, and for some species of wintering duck who find water levels too deep, and flooding too extensive, for feeding purposes. This will be achieved by the disposal of inert waste in containment engineering with soils replaced to bring land back to original levels, and the sustainable use of peat soils to create lowland wet grassland. The new habitat will require active management in the long term, and this will be secured through planning obligations with the land being placed under the control of a suitably experienced and responsible conservation body. The Block Fen / Langwood Fen area will continue to be an important buffer area for the Ouse Washes, with the maintenance of a landscape which has few trees and hedges which could harbour predators;
- an area which will make a growing contribution to the management of water in the Fenland area and which has a key role to play in the delivery of the Environment Agency's Cranbrook / Counter Drain Strategy, which seeks to secure sustainable flood

risk management in this area. This will be achieved through the creation of a number of water storage bodies following mineral extraction. These water storage bodies will be used to store flood water, which would normally be pumped into the Ouse Washes. The water will be stored and used to supply the Middle Level and Sutton and Mepal Internal Drainage Board area with irrigation water, providing a significant water resource to farmers in a catchment area where there is a shortfall of water for summer irrigation of crops. The new flood storage areas will require active management in the long term, and this will be secured through planning obligations with the flood storage areas being under the control of a suitably experienced and responsible body. An assessment will need to be made on whether the storage areas would need to be managed in accordance with the Reservoir Act. If they do, then appropriate guidance would need to be followed: https://www.gov.uk/guidance/reservoirs-owner-and-operator-requirements;

- an area which will become an important recreational resource for this and a wider area, with the new water bodies contributing to formal recreation provision, with informal recreation opportunities associated with the new lowland wet grassland habitat, supported by a local visitor centre. Coupled with the following objective, this will increase access to the countryside, tourism and supplement the local economy; and
- an area with improved local navigation, specifically in relation to the Forty Foot where the provision of a clay wall will result in reduced water seepage out of the drain. Potential for restoration of enhanced navigation in this area will contribute to wider objectives such as those in the Fenland Waterways Link.

Objectives

2.2. The objectives for Block Fen / Langwood Fen area are to:

- enable the supply of an average of 1.1 million tonnes of sand and gravel per annum from Block Fen / Langwood Fen from 2016 onwards to 2036, with a reserve of 18.3mt to be worked post 2036;
- establish at least 3 long term construction waste recycling facilities, capable of recycling up to 50%, increasing up to 70%, of construction waste by 2036;
- enable the disposal of a total of around 7 million cubic metres of inert waste over the period to 2036;
- ensure there is no adverse impact to the Ouse Washes through the extraction, landfill and restoration of the Block Fen / Langwood Fen area, through well planned, designed and controlled working and restoration;
- create around 480 hectares of lowland wet grassland providing enhancement habitat to complement the Ouse Washes, using inert waste and peat soils to create the wet grassland;
- provide for the long term management of the enhancement habitat adjacent to the Ouse Washes;

- create flood storage with the capacity of at least 10 million m3 and an ambition to achieve nearer 16.5 million m3 of storage. The higher storage ambition is to mitigate climate change using the latest guidance on climate change allowance;
- use the water storage bodies for water supply, including agricultural irrigation and water to maintain the wet grassland enhancement habitat; and set out a mechanism for the long term management of the water resource created;
- provide for new and enhanced recreational opportunities, including a local visitor centre;
- secure, through the creation of lowland wet grassland and the disposal of inert waste, the 'sealing' with clay of the southern boundary of the Forty Foot, enabling the restoration of navigation;
- secure the sustainable use of soils as a resource for the future; and
- address traffic management in the area i.e. movements associated with the use of land for mineral extraction and waste management, and long term uses such as recreation.

Delivering the Vision

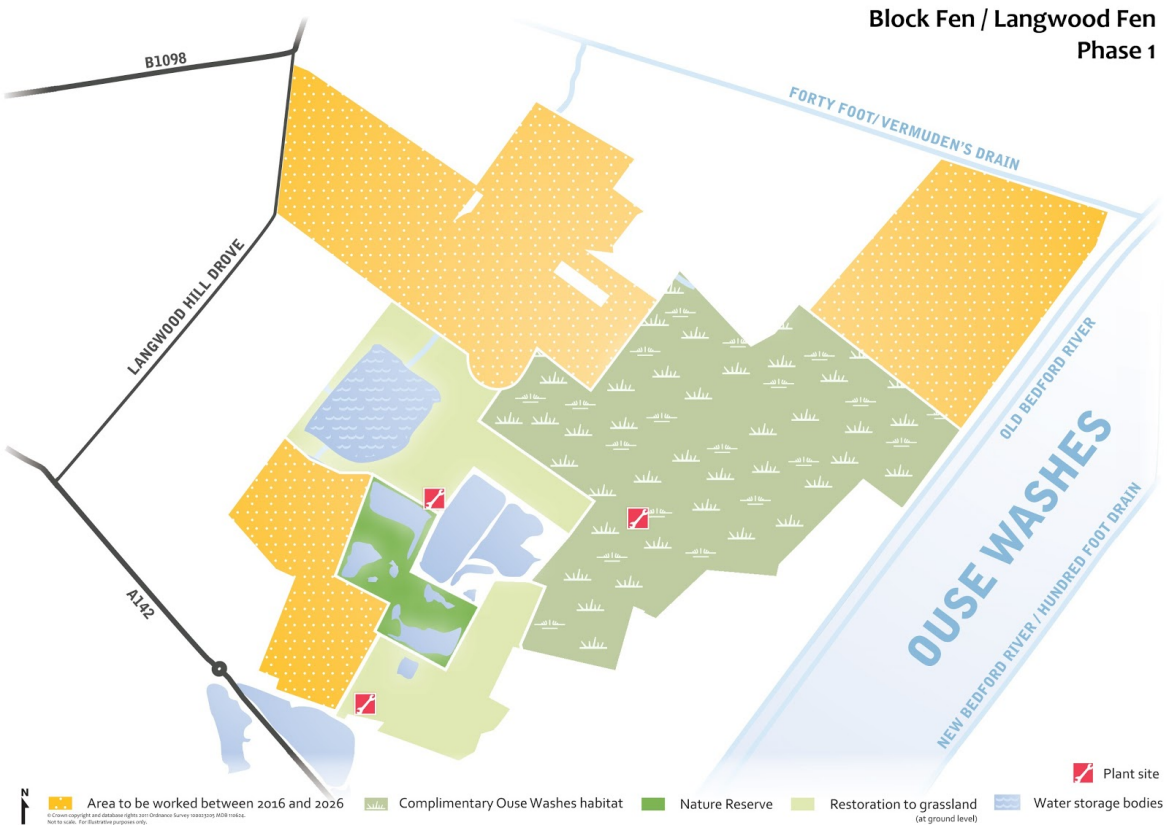
2.3. Delivering the proposals of this Master Plan will require the cooperation of a number of parties, ranging from landowners and minerals and waste operators, to the 'responsible bodies' which will take over the long term management of restoration areas such as the new lowland wet grassland and the water storage bodies.

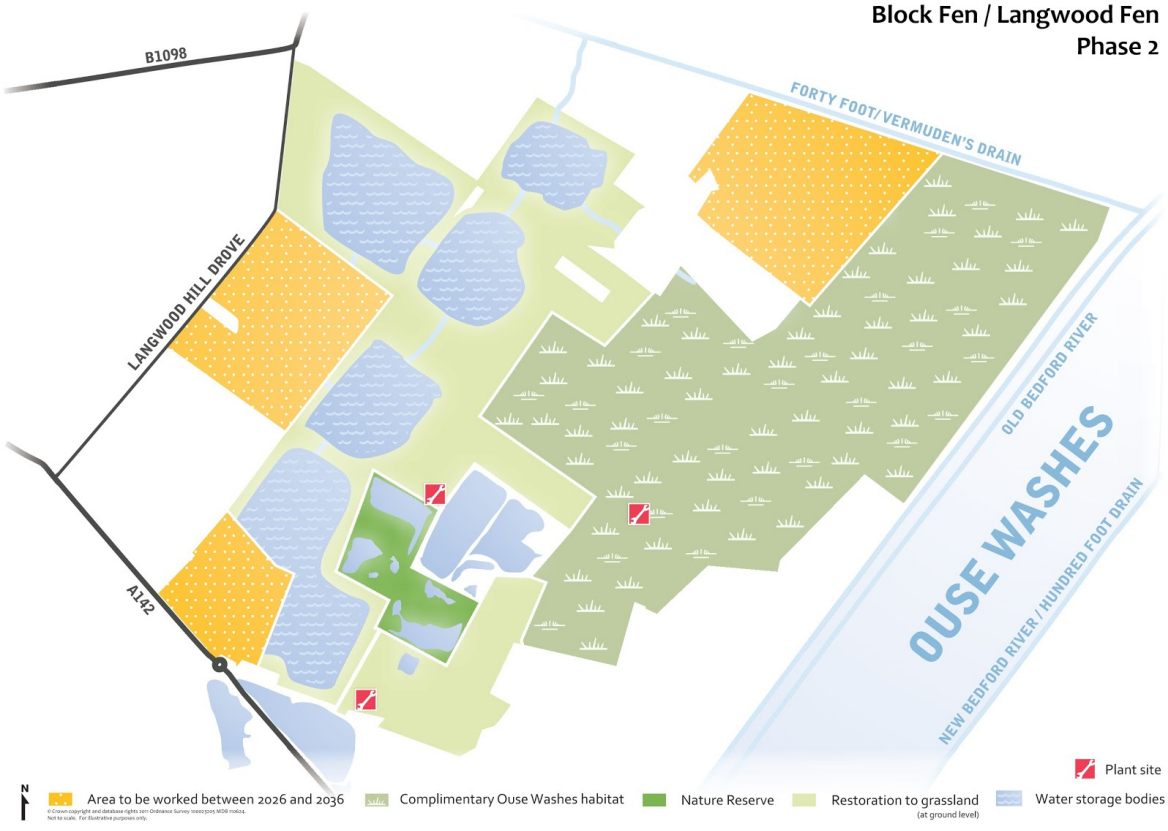
2.4. Stakeholders have already shown a high level of co-operation through their participation in the development of this Master Plan, and on a more practical level on the ground, through the joint delivery of the new Block Fen roundabout to serve new quarries.

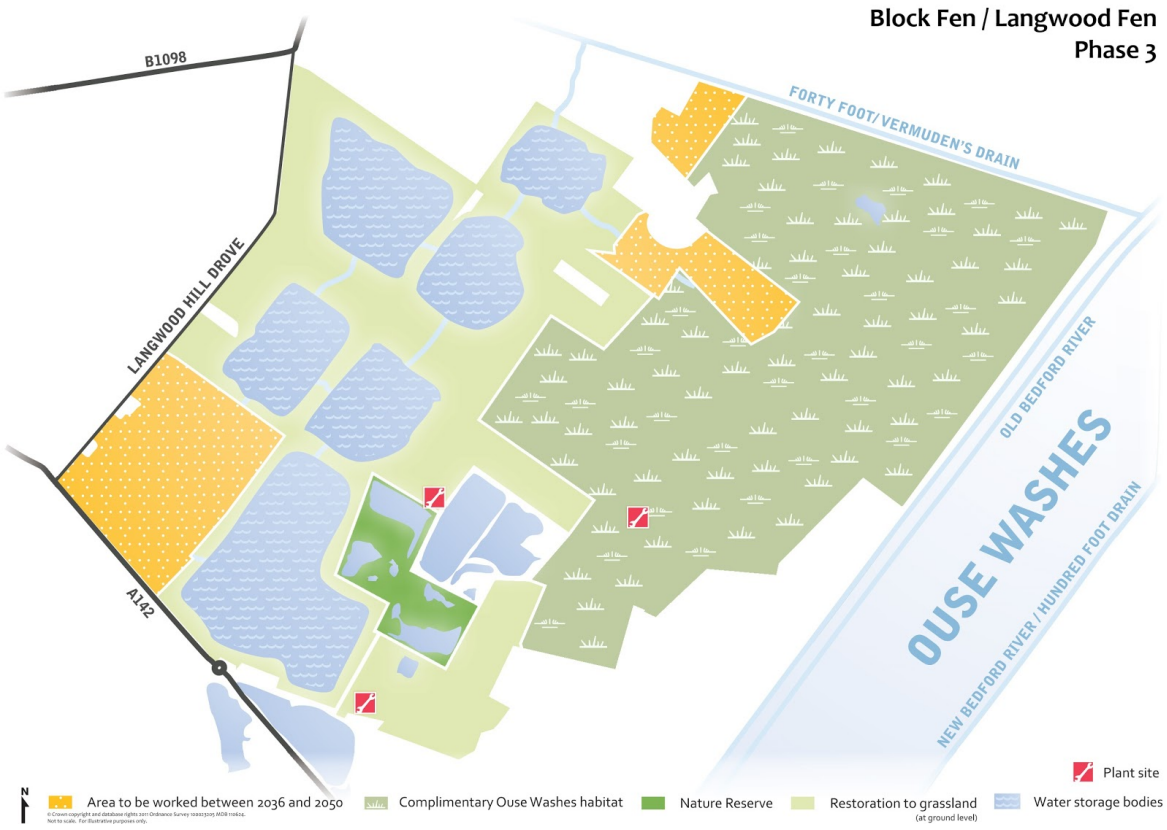
2.5. This Master Plan sets the parameters for the delivery that will be required, and this will be achieved through a variety of more formal means such as the development management system (which determines planning applications), and associated legal agreements which can cover such matters as long term management arrangements and funding, which cannot be addressed through planning conditions.

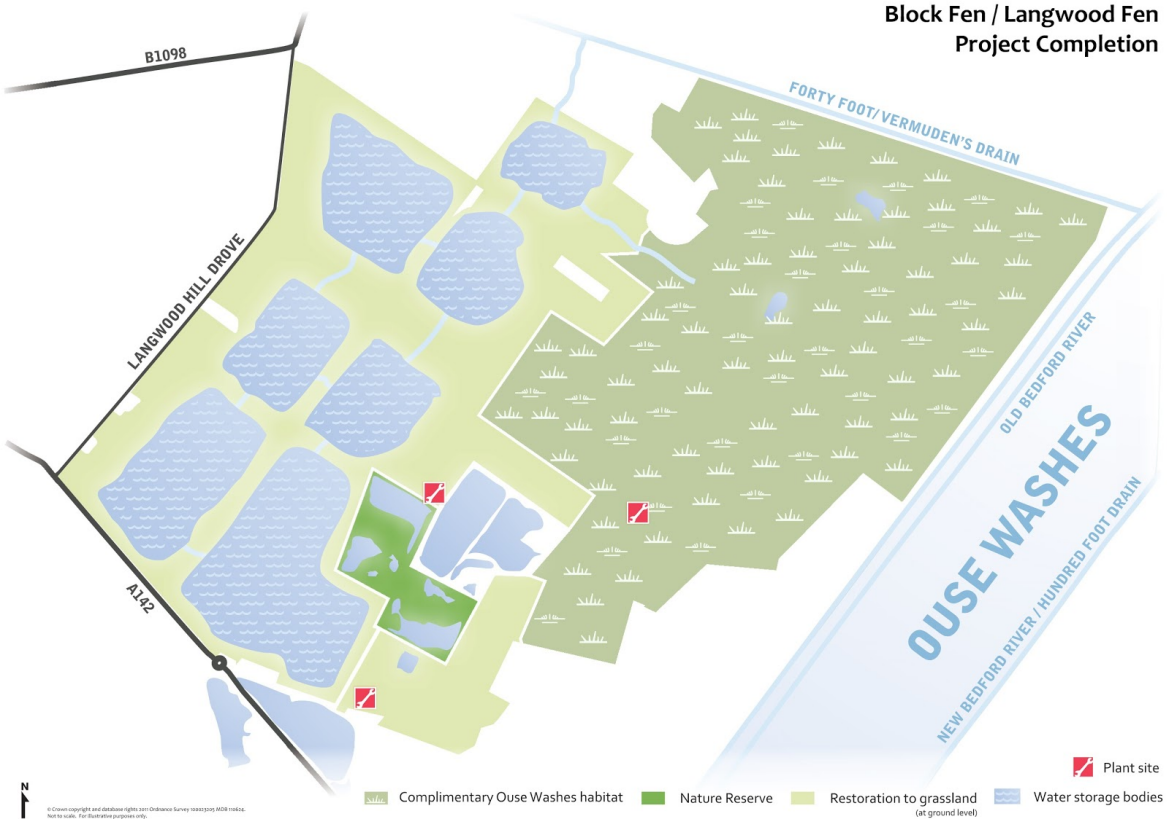
2.6. The vision for the development of the Block Fen / Langwood Fen area over the coming years is shown in the following four indicative aps, with 'snap shots' of the development shown for the different phases of the project. It is currently anticipated that minerals extraction will be completed by around 2057.

Figure 1: Indicative Phasing Plans






Block Fen / Langwood Fen
Phase 3
B1098
LANGWOOD HILL DROVE
A142
FORTY FOOT/ VERMUDEN'S DRAIN
OLD BEDFORD RIVER
OUSE WASHES
NEW BEDFORD RIVER / HUNDRED FOOT DRAIN
Plant site
Area to be worked between 2036 and 2050
Complimentary Ouse Washes habitat
Nature Reserve
Restoration to grassland
(at ground level)
Water storage bodies


Block Fen / Langwood Fen
Project Completion
B1098
LANGWOOD HILL DROVE
A142
FORTY FOOT/ VERMUDEN'S DRAIN
OLD BEDFORD RIVER
OUSE WASHES
NEW BEDFORD RIVER / HUNDRED FOOT DRAIN
Plant site
Complimentary Ouse Washes habitat
Nature Reserve
Restoration to grassland
(at ground level)
Water storage bodies

3. Phasing and Working of Reserves

The Need for Sand and Gravel

3.1. Substantial housing and employment, and supporting development is planned for Cambridgeshire and Peterborough over the coming years. In addition major transport development will be taking place.

3.2. All this new development requires raw materials. On average a house requires 60 tonnes of sand and gravel, and one kilometre of new dual carriageway requires 200,000 tonnes of sand and gravel.

3.3. When this Master Plan was first written the Government had set out the amount of sand and gravel that must be supplied by the East of England Region. This amount was shared between all the mineral planning authorities in the Region. Cambridgeshire and Peterborough, who prepare their land use plans together, had to provide a minimum of 2.8 million tonnes of sand and gravel each year. To provide some flexibility the Authorities planned on the basis of 3.0 million tonnes per year until 2026. Cumulatively this added up to 60 million tonnes.

3.4. In addition Cambridgeshire and Peterborough were faced with a number of 'older' quarries in their area coming to the end of the reserves they were allowed to extract, and closing down. This posed a problem in terms of the loss of production units. It had been estimated that by 2013 there would have been shortfall of 'production capacity' which, if the Plan had not been in place, would have risen to around half a million tonnes per annum by 2016 increasing to 1.8 million tonnes per annum by 2026 and beyond.

3.5. In order to meet the forecast shortfall in supply, some new sites, but primarily extensions to existing sites, were identified in this area for the future extraction of sand and gravel in the Minerals and Waste Core Strategy. This new Local Plan continues to identify the need for future extraction of sand and gravel.

The Location of Sand and Gravel Extraction

3.6. Block Fen and Langwood Fen is an area which has significant reserves of sand and gravel. Two quarries are already established and working, and a further quarry will in the short term. In 2009 there was permission to extract around 20 million tonnes of sand and gravel from this area.

3.7. Previous proposals required the area to be restored to an agricultural after use, to existing ground level following infilling, or to a lower level with secure arrangements for the pumping of surface water from sumps.

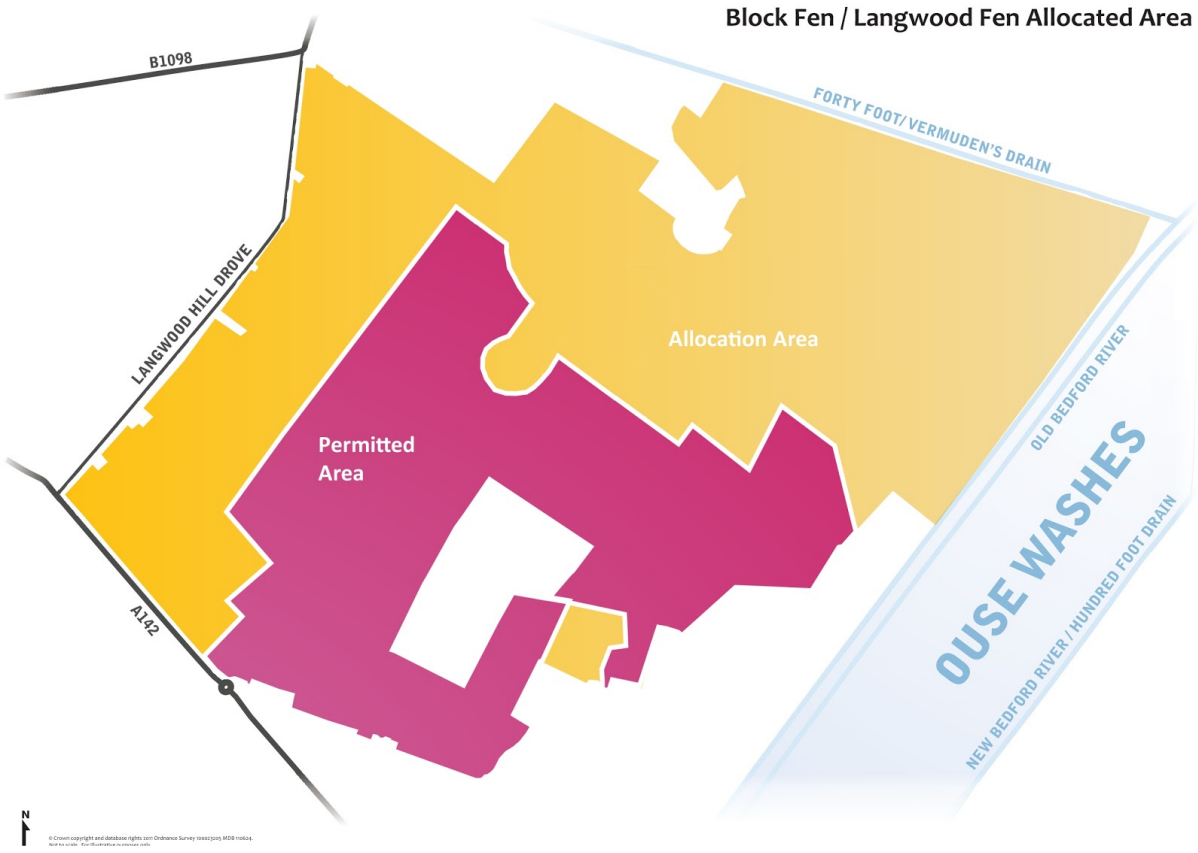
3.8. The previous Cambridgeshire and Peterborough Minerals and Waste Core Strategy identified that the Block Fen / Langwood Fen area should be extended further to provide a strategic long term resource for the extraction of sand and gravel. The Core Strategy therefore allocated a further area of around 856 ha, with estimated reserves of 24 million tonnes. The

Core Strategy also set a revised framework for restoring the area. The previous Core Strategy allocation, and its restoration principles, has been retained in this Minerals and Waste Local Plan.

3.9. The map below (Figure 2) shows indicatively the areas of existing quarries, and the areas which are being allocated. In practice a buffer (within which mineral extraction will not take place) will be required from the edge of the Ouse Washes, Forty Foot, and A142 to support such engineering structures. This will be in the order of 150 metres from the toe of the bank.

3.10. In addition there are known archaeological interests in the allocated area, including ring ditch remains of Bronze Age burial mounds, remains of an Iron Age settlement, and undated crop marks of probable prehistoric origin. Full archaeological evaluations will be required to accompany any planning application. The most important area of archeological interest is on the western edge of the site, adjacent Langwood Fen Drove. The results of the archaeological investigations will determine what mitigation measures may be required and if the detailed extraction area needs to be modified.

Figure 2: Block Fen / Langwood Fen Allocation Areas



Phasing and Working of Reserves

3.11. In order to help provide the required supply of sand and gravel, the Block Fen / Langwood Fen area needs to produce an annual average of 1.1 million tonnes of sand and gravel from 2016 to 2036 with a remaining reserve of 18.3 mt to be worked post 2036.

3.12. The allocation that was made by the Minerals and Waste Plan Core Strategy and has been retained in this Minerals and Waste Local Plan has been shaped by a number of considerations, including the unique proposed after uses. This comprehensive approach has led to a significant area being allocated, one which will help to provide for our sand and gravel needs to 2036 and beyond.

3.13. The extraction of this sand and gravel must be managed carefully so as to husband this important resource. This will be achieved through 'phasing' i.e. the planned gradual working of reserves. Phasing will ensure that material is not released unnecessarily, but that there is a continuous supply to meet our needs, whilst securing the progressive restoration of the worked out areas.The total reserve for the new allocations in the Block Fen / Langwood Fen area is estimated at just over 21.4 million tonnes.

3.14. It is acknowledged that allocations of this magnitude are not common, particularly where a substantial amount of the provision is being made for the post plan period. This situation has come about through recognition of the unique contribution that quarry restoration in this area can make i.e. in the creation of enhancement habitat for the Ouse Washes and more sustainable flood risk management for the Cranbrook / Counter Drain catchment. Together these can play a significant role in enhancing the Ouse Washes SSSI as is required of the County Council under duties in the Countryside and Rights of Way Act 2000 and delivery of the Environment Agency's adopted Cranbrook / Counter Drain Strategy. In order to deliver these important wider objectives a comprehensive and long term approach has to be taken.

3.15. It is also necessary to provide the minerals industry and land owners with a clear long term strategy, with greater certainty regarding the development of the area, especially given the need to change the agreed restoration proposals of existing quarries.

3.16. The reserves in the Block Fen / Langwood Fen area are known to be of good quality, and in terms of depth vary from around 4 metres in the eastern side of the site, to around 8 metres in the west. This fits in well with restoration proposals where the deeper void created by extraction in western side of the site will be used for water storage, and the shallower eastern area will be used for the creation of extensive lowland wet grassland habitat to complement the Ouse Washes.

3.17. In order to help to control the release of the sand and gravel three 'production areas' have been defined, each with a production unit. These in part reflect the location of the existing quarry operations, but also have had regard to the following:

- three production units / production areas are sufficient to meet the forecast need for sand and gravel from the Earith / Mepal area;
- the need to consider the deliverability of proposals by taking into account known land ownership and land options;

- that all access must be taken from the existing Block Fen roundabout; and
- the need to reconsider and change existing restoration proposals in the context of the wider proposals of the Minerals and Waste Local Plan.

3.18. The map (Figure 3) below shows the two Production Areas, which are based on the final restoration of flood water storage and lowland wet grassland respectively. A breakdown for the working of the current and allocated reserves is set out in the table below:

	Working of reserves from 2016 to 2036	Working of reserves post 2036
Permitted reserves	13.9mt	2.9mt
Allocated	7.5mt	15.4mt
Total	21.4mt	18.3mt

Table 1: Phasing for Working of Reserves (Million of Tonnes)

3.19. The working of each production area must reflect the phasing shown in Figure 1 for the working of reserves. Planning applications must provide a detailed phasing diagram showing how the mineral will be worked and how the site will be progressively restored to the planned after uses. Block Fen / Langwood Fen acts as a buffer for the Ouse Washes because it supports very few potential predators which may harm ground nesting birds, any phasing and restoration proposals will need to recognise this and ensure that the role of the area in this respect is not compromised.

3.20. The forecast production capacity of these areas confirms that the Block Fen / Langwood Fen area will be producing an average of around 1.1 million tonnes per annum from 2011 to 2036.

Hydrogeology

3.21. When the site is worked dewatering is likely to be necessary during the extraction phase, and construction of the inert landfill. When dewatering is licenced, and an application for a dewatering licence will be required, this will need to demonstrate that there are minimal off-site impacts to other water users and the environment, or that these impacts are mitigated.

3.22. As part of the site restoration a large impermeable barrier to flow will be created in the aquifer (associated with the water storage bodies and the creation of new enhancement habitat). Groundwater monitoring should be undertaken by the mineral operator prior to development to characterise the existing flow pattern within the aquifer. Once this is established, full details should be given of the measures which will be put in place to minimise long-term changes in groundwater flow patterns. Ditches in hydraulic continuity with the groundwater in the sand and gravel aquifer are likely to be one of the main mitigation measures, but a full description of how these will function will be needed.

Figure 3: Block Fen / Langwood Fen Production Areas

4. Waste Recycling and Disposal

The Need for Waste Recycling and Disposal

4.1. Over the coming years the construction of new housing and other development is going to give rise to a significant amount of material such as soils, sub soils, bricks, concrete, and other construction and demolition waste. These materials are often called 'inert' materials, which mean that they do not readily decompose or rot when disposed of. Although they are called 'waste' because they are not needed at the place where the development is taking place, these materials are actually a valuable resource which needs to be managed in a sustainable way.

4.2. It is possible to recycle construction and demolition materials by separating, crushing, grading and sometimes washing them, so they can be re-used for new construction purposes. There are also opportunities to blend materials to meet specific requirements. This reduces the amount of virgin sand and gravel and other materials that are required, helping to conserve a valuable resource.

4.3. In Cambridgeshire and Peterborough it has been forecast that just over 34 million tonnes of construction, demolition and excavation (CD&E) waste will need to be managed over the plan period (between 2016 and 2036). Targets for CD&E waste (excluding EWC170504) include recovery of 90% and a maximum of 10% disposal to landfill by 2030. Forecast arisings and management methods for CD&E waste up to 2036 are set out in the table below.

Table 2: CD&E waste forecast by management method up to 2036 (million tonnes)

		2017	**2021**	**2026**	**2031**	**2036**
Total CD&E waste arisings		**1.649**	**1.649**	**1.647**	**1.641**	**1.637**
Preparing for reuse and recycling	Materials recycling	0.177	0.175	0.181	0.184	0.184
	Compost	0.039	0.028	0.029	0.030	0.029
	Inert recycling	0.075	0.054	0.055	0.056	0.056
Other recovery	Soil treatment	0.112	0.095	0.097	0.099	0.099
	Inert recovery*	0.715	0.755	0.758	0.759	0.757
Total recovery		***1.118***	***1.106***	***1.120***	***1.128***	***1.126***

Disposal (landfill)	Inert	0.262	0.176	0.175	0.174	0.174
	Non-hazardous (including SNRHW)	0.268	0.365	0.350	0.337	0.337
	Non-hazardous	*0.247*	*0.350*	*0.338*	*0.327*	*0.326*
	Non-hazardous (SNRHW)	*0.022*	*0.015*	*0.013*	*0.010*	*0.010*

** Inert recovery includes beneficial deposit of inert waste to land associated with the restoration of mineral extraction sites with extant permission.*

4.4. The remaining CD&E waste that is not recycled for aggregate or other uses, will primarily be used for quarry restoration proposals or disposal to inert landfill sites. It has been calculated that in order to accommodate this material, provision will need to be made for 19.917million tonnes of inert recovery and landfill voidspace across the Plan area between 2016 and 2036. The Block Fen/Langwood Fen Master Plan area will need CD&E waste to facilitate delivery of the identified restoration outcomes. It is estimated that the sites allocated in the Plan that form part of the Block Fen/Langwood Fen area could accommodate 7 million cubic metres (around 12 million tonnes) of inert fill until the end of 2036. Some of the material sent to recycling facilities will turn out not to be inert material (less than 12%), this will require other forms of treatment or disposal to non-hazardous landfill sites.

4.5. In order to achieve our recycling rates we need more recycling facilities. Inert recycling facilities are often located at quarries and landfill sites because they can normally be accommodated without detriment to the environment or local communities. In addition there are opportunities to build upon synergies between the different activities on site e.g. landfill sites offer a place to dispose of the materials that cannot be recycled, virgin and recycled materials can be blended as necessary, and traffic movements can be reduced by 'backloading' lorries, so they bring in one type of material and take out another.

4.6. The need for places to dispose of the inert waste that cannot be recycled is also pressing. There is already a shortage of sites and the situation has been made tighter as a result of changes to national policy, which now requires landfill sites to be in areas where there is no risk of prejudicing any underground water resources i.e. aquifers. Aquifers providing drinking water cover extensive areas of land in South Cambridgeshire and thus landfill sites will be harder to find in the future. Areas having underlying clay are likely to be more favourable locations for landfill disposal sites.

The Location and Level of Inert Recycling

4.7. Mineral extraction areas will contribute to inert waste recycling by incorporating a facility for this purpose. Capacity to recycle around 240,000 tonnes per year will be created. The life of the inert recycling facilities will be limited to the life of the mineral operation and the associated restoration proposals.

The Location and Level of Waste Disposal

4.8. The amount of space that will be created for the disposal of construction waste (principally inert waste) is linked to the location and depth of the sand and gravel extraction that will take place in the sub areas, and the restoration proposals to return the land to new lowland wet grassland adjacent to the Ouse Washes, or to agricultural grassland around the water storage areas. The lowland wet grassland and the agricultural grassland surrounding the water storage bodies will be restored to ground level using construction waste.

4.9. The methodology for the creation of new lowland wet grassland uses inert materials to fill the void created by mineral extraction, and to return it back to its previous level (see Section 5. Enhancement Habitat).

4.10. In total around 480 hectares of land will be returned to lowland wet grassland and land around the water storage bodies will be returned to ground level, both creating capacity for the disposal of construction waste. It is estimated that around 13 million cubic metres of void will be created. This will make a significant contribution to addressing the need outlined above.

Phasing	2016 to 2036	Post 2036	Total
Waste Disposal Capacity	7 million m3 of voidspace	6.3 million m3 voidspace	13.3 million m3 of voidspace

Table 3. Provision for disposal of construction waste

5. Enhancement Habitat

Enhancement Habitat for the Ouse Washes

5.1. The Block Fen / Langwood Fen area lies immediately adjacent to the Ouse Washes. The nature conservation importance of this extensive area of seasonally flooded washland and wet grassland has been recognised by national (SSSI), European (SPA and SAC), and international (Ramsar site) protective designations.

5.2. The Washes plays host to important populations of breeding and wintering birds, including nationally important numbers of the Western European / West African breeding population of black-tailed godwit along with other breeding wader species such as snipe and redshank. Since the 1970's there has been a deterioration in the quality and quantity of wet grassland habitat, mirrored by declines in numbers of breeding waders and some winter duck species such as wigeon. This deterioration has been largely attributed to an increase in the frequency of spring and summer flooding events along with increased depth and duration of floods, although nutrient enrichment from the water entering the site is also a contributory factor. The site is therefore in an 'Unfavourable' condition and has been entered on the Montreux Record as a 'failing' Ramsar.

Left: Black Tailed Godwit (Courtesy of RSPB); Right: Lapwing (Courtesy of RSPB)

5.3. Through European legislation, the UK Government has a responsibility to address the deterioration on the Ouse Washes. As a result, it set up the Ouse Washes Steering Group comprising members from Defra, Natural England (then English Nature), the Environment Agency, and the RSPB to consider solutions to address the problems. Such solutions included considerations of water quality, improving drainage of water exiting the Washes and the option of creating replacement habitat off-site.

5.4. As a result, the Ouse Washes Habitat Replacement Project was born and is led by the Environment Agency. The aim of the Project was to create 1008 hectares of high quality lowland wet grassland near to the Ouse Washes by 2014.

5.5. Whilst the habitat creation at Block Fen / Langwood Fen lies outside the timescales for the Ouse Washes Habitat Creation project, the creation of lowland wet grassland in this vicinity will be directly linked to the special interests of the Ouse Washes and will complement the

habitat created by this scheme, and vice versa. In particular the creation of new wet grassland habitat following mineral extraction will provide alternative suitable habitat for breeding ground nesting waders and wintering wigeon to use when water levels are too deep or flooding too extensive on the Ouse Washes.

5.6. In order for any new enhancement habitat to be successful in attracting the species of birds which would normally nest on the Ouse Washes, it needs to be as close as possible, and ideally be immediately adjacent to the Ouse Washes. This requirement limits the geographical area that could potentially host new lowland wet grassland, and helps to make the Block Fen / Langwood Fen area a prime location.

5.7. At a national level broad targets are included within the Government's Biodiversity 2020: A strategy for England's wildlife and ecosystem services. These filter down to County level and the local Biodiversity Action Plan, which details targets and actions for more specific wetland habitats such as lowland wet grassland.

5.8. Mineral and waste planning authorities including Cambridgeshire and Peterborough also have obligations to further the conservation and enhancement of national Sites of Special Scientific Interest, which includes the Ouse Washes.

5.9. Over the longer term, the storage water bodies may have the potential to address some of the water level problems on the Washes by storing water that would otherwise be pumped into the Ouse Washes. The creation of lowland wet grassland habitat in this vicinity will undoubtedly be of enhancement value to the Ouse Washes and is directly linked to the special interest features of the site. It will contribute significantly to other regional and local targets, including regional and local Biodiversity Action Plan targets. It will also complement the development of the Great Ouse Wetland which recognises that within a mix of ownerships, a major wetland complex extending over 2000 hectares and 22 miles alongside the Great Ouse already exists. Additional land will provide new access and promotional opportunities.

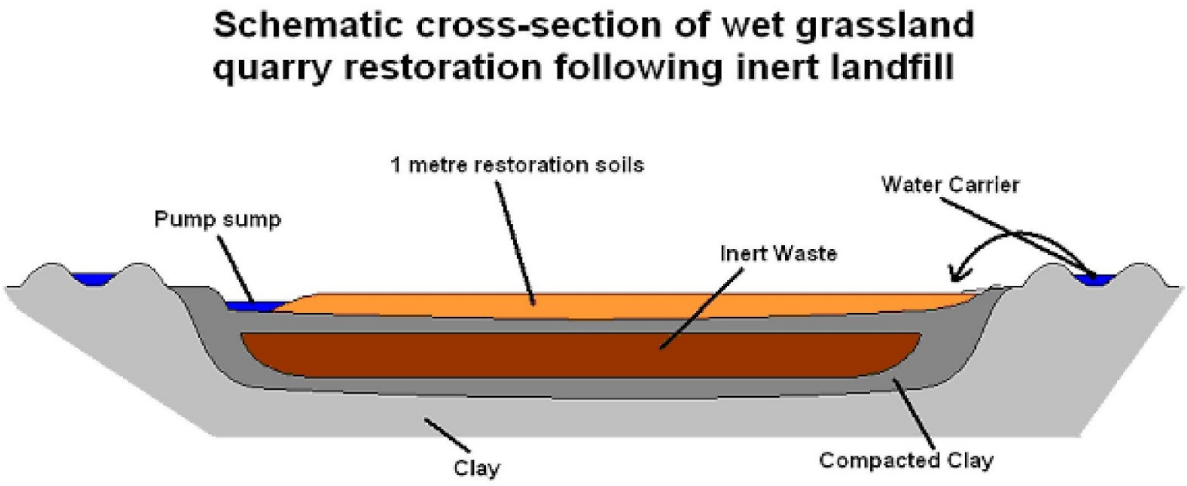
The Location of the Enhancement Habitat

5.10. As already noted any enhancement habitat must be located close to, and ideally immediately adjacent, to the Ouse Washes. When the creation of such habitat is being delivered through sand and gravel extraction its possible location is also influenced by the distribution of sand and gravel reserves. Fortunately in the Block Fen / Langwood Fen area economic sand and gravel reserves abut the Ouse Washes, which means the site offers a perfect location for the creation of new lowland wet grassland. The Block Fen / Langwood Fen site is also directly opposite Coveney which is a priority area for the Environment Agency's Habitat Creation Project. If both these areas were to be developed, they would complement each other and provide significant added value through the increased area of contiguous wetland.

5.11. The area where wet grassland will be created following mineral extraction is shown on Figure 1 Indicative Phasing in section 2. The Vision. This totals around 480 hectares in the east and north east sector of the Block Fen / Langwood Fen area.

Methodology for Creating Enhancement Habitat

5.12. A methodology for the creation of lowland wet grassland has been drawn up and is set out in Annex 2. However, in brief, following the extraction of the sand and gravel the base and sides of the void will be lined with compacted clay to an agreed specification, and filled with inert waste which will raise the land towards to its previous level. The inert waste will then be sealed in also using compacted clay. A 'cell' containing the waste will thus be formed. Subsoils will be placed on top of this cell, with peat forming the top layer to return to original contours. These soils will support the lowland wet grassland which will be created, and the water levels will be controlled by water carrying channels at the edge of the cell and a sump. This will enable the environment to be controlled and the grassland to be wetted and drained as required. A schematic cross section of a wet grassland area is provided Figure 4 Schematic cross-section of wet grassland quarry restoration following inert landfill, shown below:



5.13. As mineral extraction is taking place over a long period of time the extraction of sand and gravel and the creation of lowland wet grassland will be done on a phased basis. There will therefore be a number of wet grassland cells created. Any planning application will be required to set out details of phasing and the location and extent of cells and arrangements for water supply and removal. Given the amount of inert waste that is arising in the future, and the difficulty of finding suitable places for its disposal, the formation of the lowland wet grassland is unlikely to be limited by the availability of the fill material.

5.14. The habitat that will be created will require careful management in terms of the flows and availability of water. The waders for which the wet grassland will be created feed on invertebrates below the soil surface by probing the soil which needs to be kept moist through the spring until early June. High water tables also increase the number of invertebrates near the soil surface.

5.15. The wet grassland features, which are made up of surface scrapes, foot drains and furrows will therefore need a supply of water to replenish them during the winter period, so optimum water levels can be reached by the end of March or earlier if required. Water levels

will then need to be maintained in these ground features during the early part of the breeding season, and allowed to fall towards the end of the season.

5.16. In order to achieve the particular conditions needed by the lowland wet grassland and its birds, a dedicated water supply will be required so the water environment can be managed. This water will be provided by two existing irrigation reservoirs in the Block Fen area, and supplemented if required by water from the larger water storage bodies that will be formed elsewhere on the site (see Figure 1). This will need to be reflected in the restoration proposals. It is estimated that the supplementary water needs of the wet grassland are between 590,000 m3 in an average year, and the site will need to have the capacity to deliver up to 810,000 m3 in a drier year. These figures will also need to take account of climate change predictions.

5.17. The methodology for the grassland cells also includes the creation of sumps for pumping water off the grassland area should this be necessary.

Block Fen Pilot Project

5.18. A trial restoration has been undertaken following an agreed methodology, creating about 10 hectares of lowland wet grassland. Whilst this area is too small to attract significant populations of nesting bird populations, it provided a valuable opportunity to inform the methodology in terms of its design, implementation (including hydrological characteristics), and management needs of the habitat.

5.19. Following gravel extraction, inert fill and clay capping, the stockpiled subsoil and topsoils were placed to bring the finished site level back to the original field level. A specialist grass seed mix suitable for wet grassland habitat was sown, with good germination being achieved. Specialist machinery created "Dutch polder style surface furrows" along with a shallow pool scrape. Water control infrastructure has been installed along with dipwells, to monitor water levels. Lessons have been learned, all of which can be implemented on the next phase of works, these include using more accurate methods to level soils and minimising compaction of the subsoil. The vegetation structure is developing and grazing has been introduced, and invertebrate populations are being monitored and will develop as the wetland becomes established. The early conclusions are encouraging and show that conditions suitable for breeding wading birds are being created.

Long Term Management of the Enhancement Habitat

5.20. The creation of the new substantial area of lowland wet grassland is a vital part of the Block Fen / Langwood Fen vision, and one which acts on the excellent opportunity to provide enhancement opportunities for the special interest features of the Ouse Washes, which will supplement other work being undertaken by the Environment Agency and others. Over the long term, it may play a part in achieving and maintaining favourable condition on the Washes. Securing appropriate long term management of the area by a competent body is critical, and will form an essential part of planning obligations associated with any grant of planning permission.

Above: Ouse Washes (Courtesy of RSPB)

5.21. The lowland wet grassland will therefore be passed to an appropriate body with experience of managing such special grassland, and this body will take over the long term management and regular monitoring of the land. Given that the extraction of sand and gravel in this part of the site and its restoration to lowland wet grassland will not be complete until around 2048, this will be done on a phased basis.

5.22. The details of this arrangement will be secured through a legal agreement between the relevant parties involved, including the mineral and waste operators, land owners, and relevant competent bodies (drainage and nature conservation). This agreement must be in place before any planning permission will be granted.

6. Water Storage

The Need for Irrigation Water

6.1. The Block Fen / Langwood Fen area lies in the 'Middle Level' area which extends to around 70,000 hectares, much of which lies below sea level. The area is largely fenland, and being reclaimed land has a long history of being artificially controlled through man made drainage schemes. The most extensive of which is the Old and New Bedford Rivers between Earith and Denver, constructed by the Dutch engineer Cornelius Vermuyden.

6.2. The Middle Level Commissioners are now responsible for land drainage in the area which lies between the River Nene to the north west and the Great Ouse (Old Bedford River) to the east, and which is bounded by low clay hills to the south and west and by the marine silts of

Marshland to the north. The area is divided into 39 Internal Drainage Districts and is served by a large number of pumping stations.

6.3. With the area having some of the highest quality soils in the Country, the main use of land is for agricultural purposes. The Fens produce a wide range of flowers, fruit and vegetables, including potatoes, carrots, sugar beet and salad vegetables.

6.4. National planning policy promotes adaptation to climate change and the management of flood risk. Part of this involves the sustainable use of water resources including the development of winter water storage schemes. These schemes involve water being caught and stored in the winter, and used in the summer as spray irrigation water. The advantage of such a water supply is two fold. Firstly it enables the continued production of good quality crops, and secondly it helps to prevent the erosion of the peaty soils by keeping them moist and stopping them from becoming dried out and being 'blown away' by the wind.

6.5. The use of water for irrigation purposes is regulated by the Environment Agency through abstraction licenses, these allow farmers to use a certain amount of water for irrigation purposes. The peak period of demand for water extends from around mid June and through July, which often coincides with 'drought' conditions. In the Middle Level area licenses are in place, which allow the abstraction of water. If available licenses permit up to 140,000 m3 of water per day can enter the Middle Level area from the River Nene at Stanground.

6.6. However, there are also times during the summer when, despite abstraction licenses and other measure being in place, abstraction of water is restricted e.g. to night time, or 4 days a week, and there is a shortfall of available water for agricultural irrigation purposes.

The Need for Flood Water Storage

6.7. In addition to the irrigation needs off site, there will also be a need for water to maintain the wet grassland enhancement habitat that will be created (see Section 5). This should be the priority, and when required water should be drawn from the water storage areas.

6.8. Climate change is increasing river flows and giving rise to the potential for more frequent flooding. Water storage areas are vitally important as they offer the capacity to hold floodwater and release it when river levels have dropped. However, where circumstances allow the water can also be used for other purposes including water supply for summer irrigation.

6.9. The Environment Agency in their approved Cranbrook Drain / Counter Drain (Welches Dam) Strategy Study, has considered the long term management of the Cranbrook / Counter Drain catchment, which is an area lying west of the Counter Drain. As part of this review they have suggested that their preferred option is the creation of flood storage capacity through one or more water bodies. These would store flood water which would otherwise be pumped into the Ouse Washes, thereby helping to secure a more sustainable way to manage flood risk.

6.10. The creation of water storage bodies could also provide a significant contribution in finding a solution to addressing the future of the Welches Dam pumping station which is in need of replacement in the future.

6.11. To manage the risk of flooding and mitigate climate change the Environment Agency is looking to maintain a flood risk of 1 in 25 years, so is looking for water storage to

accommodate 16.5 million m3. The Block Fen / Langwood Fen area could contribute significantly to this scheme. Water from the Counter Drain could be transferred into the reservoirs either via the Forty Foot or by a parallel channel. If water transfer was to be achieved via the Forty Foot these leakage control measures would be required which could be addressed through quarry engineering.

The Location and Creation of Water Storage Bodies

6.12. The location of the water body is important. Having a large expanse of water too close to the Ouse Washes will attract predatory birds such as Herring and Lesser Black-backed gulls, which will eat the eggs and chicks of the ground nesting birds that breed on the Ouse Washes. Yet too far away and the costs and feasibility of removing flood water from the Counter Drain become impractical. Equally the water storage body needs to be well placed to capture winter water for irrigation and to feed it into the wider carrier drainage system for farmers to use in the summer.

6.13. The extraction of sand and gravel in the Block Fen / Langwood Fen area will create voidspace which offers the opportunity for the creation of water storage bodies. The deepest sand and gravel on the site lies in the western side, reaching a depth of around 8 metres. The sand and gravel is underlain by stiff blue clay, which provides a suitable material for lining the void and 'sealing' the new water bodies from the hydrology of the surrounding area.

6.14. Fortunately the western side of the site also meets the criteria for a good location for the water bodies:

- it is far enough away from the ground nesting birds on the Ouse Washes;
- it is close enough to enable water transfer from the Counter Drain to the water storage body during times of unseasonal flooding;
- it is well placed to intercept water which would normally enter the Counter Drain via the Mepal Pumping Station, and close to the Horseway Lock on the Forty Foot so water can be transferred into the Middle Level at its highest point, enabling it to supply the whole catchment area with irrigation water; and
- it is well placed to manage the interface between the water bodies and the new lowland wet grassland habitat

6.15. The amount of water storage space that will be created is influenced by the form and number of the lakes that will be created. It is possible to form one very large water body, but whilst this may provide more storage capacity in the long term it also poses problems in terms of delivery, as different landowners and mineral operators are involved, and they will be extracting over different timescales. Equally in terms of design a large water body may be more prone to wave erosion and will require additional maintenance. Having this in mind the water storage will be provided by a number of smaller lakes. Whilst these may appear to be separate, these will be engineered so they are hydrologically linked, enabling water storage to undertaken in a strategic way.

6.16. It is proposed that six or more smaller water bodies will be formed, with the aim of achieving a minimum of 10 million m3, but ideally 16.5 million m3 of water storage capacity. These water bodies will be created in a phased way, corresponding to the timing for mineral

extraction, with progressive restoration taking place. This should give rise, as a minimum to the following capacity:

	2016-2036	Post 2036	Project completion
Cumulative water storage capacity million m3	5.5m m3	4.5m m3	10.0m m3

Table 4: Creation of Water Storage / Supply Capacity

6.17. The above table reflects the total minimum capacity of the water storage bodies, but to safeguard the engineering some water will need to be kept in them at all times, and there will be a 'rest level'. If there is a rest level of between 0.5 to 1.0 metres, the volume available for storing external water is between 6 million m3 in an average year, increasing to 7 million m3 in a dry year.

6.18. The water that would be transferred to the water storage bodies would largely be from the Counter Drain. However, the water storage bodies could also intercept and capture some of the water that which would normally go to the Mepal Pumping Station, and then into the Counter Drain system. The records of the Mepal Pumping Station show that it would normally pump around 7.5 million m3 in a wet year, and around 5.5 million m3 in a drier year. Intercepting water before it reaches the pumping station would reduce pumping requirements, and associated costs.

6.19. In addition water would be captured by the water storage bodies through direct rainfall and any excess water coming from natural habitats. This could be in the order of between 1 and 2 million m3 per year.

6.20. After taking into account the water requirements of the natural habitats that will be on site, it is estimated that the water storage bodies could supply around 6.25 million m3 of water to the external area in a dry year, and 6.75 million m3 in an average year. This would make a significant contribution towards meeting the irrigation needs in the immediate and wider area, and can reduce the amount of water that enters the Ouse Washes system when they have capacity to accommodate it.

6.21. An alternative to the current proposed land restoration plans, which has potential to be a more sustainable restoration approach to Flood Risk Management within the Counter Drain system should also be considered.

6.22. The alternative approach would be to return finished ground levels following extraction to match the lowest areas of the adjacent IDB district. The purpose of this final restoration level is to link the drainage of the flood storage area to the IDB drainage network to reduce, or if possible eliminate, the requirement for pumping systems to maintain suitable drainage conditions for continued afteruse and for evacuating stored flood waters. Linking groundwater levels within the storage area with the surrounding IDB system may also reduce or eliminate the requirement for clay lining, or other similar impermeable barrier, of the storage area.

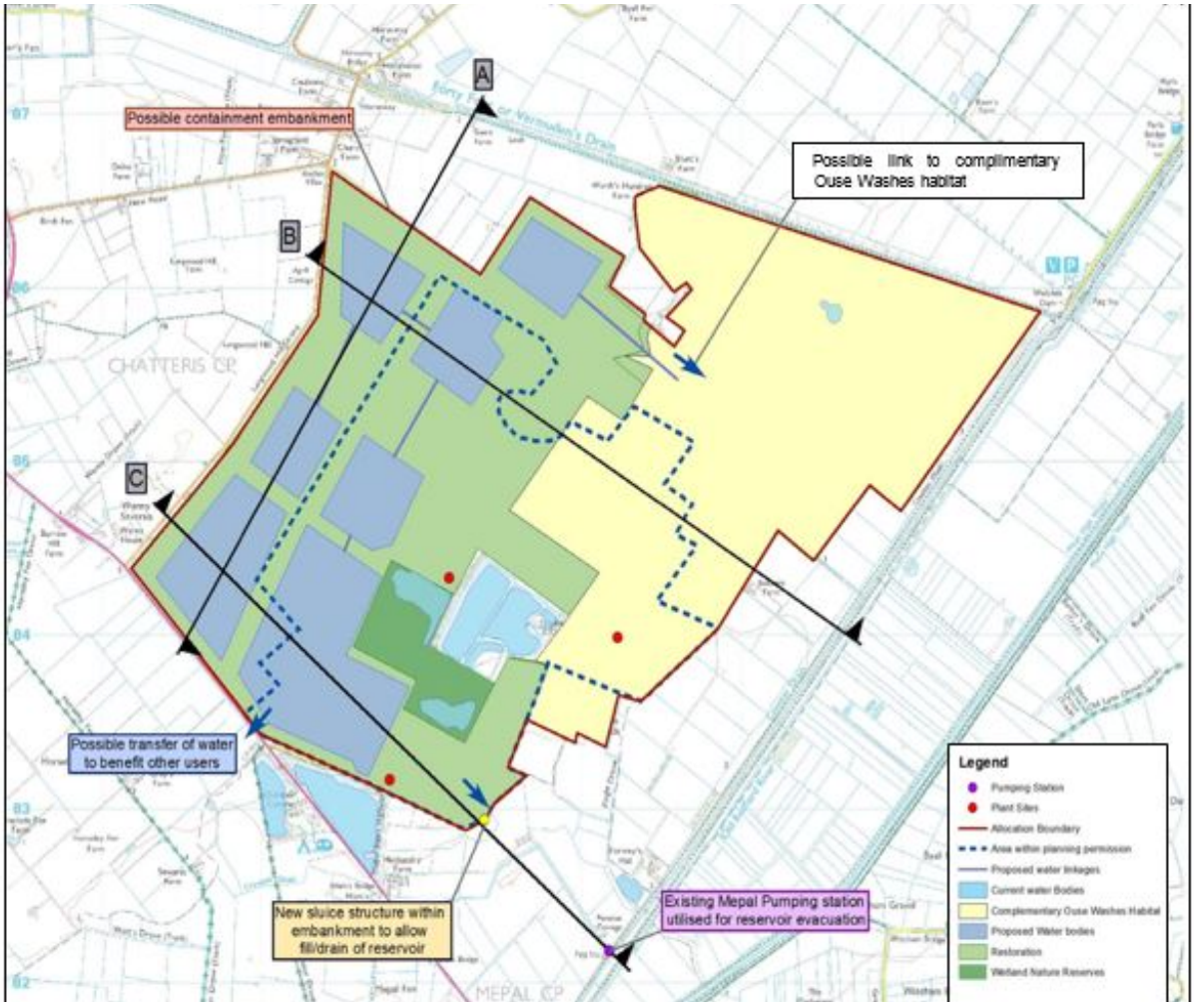
6.23. The Environment Agency would also seek to include a number of lakes within the restoration of the site. These lakes would again be maintained in continuity with the IDB system to provide a storage volume for flood events. The purpose of this would be to contain more

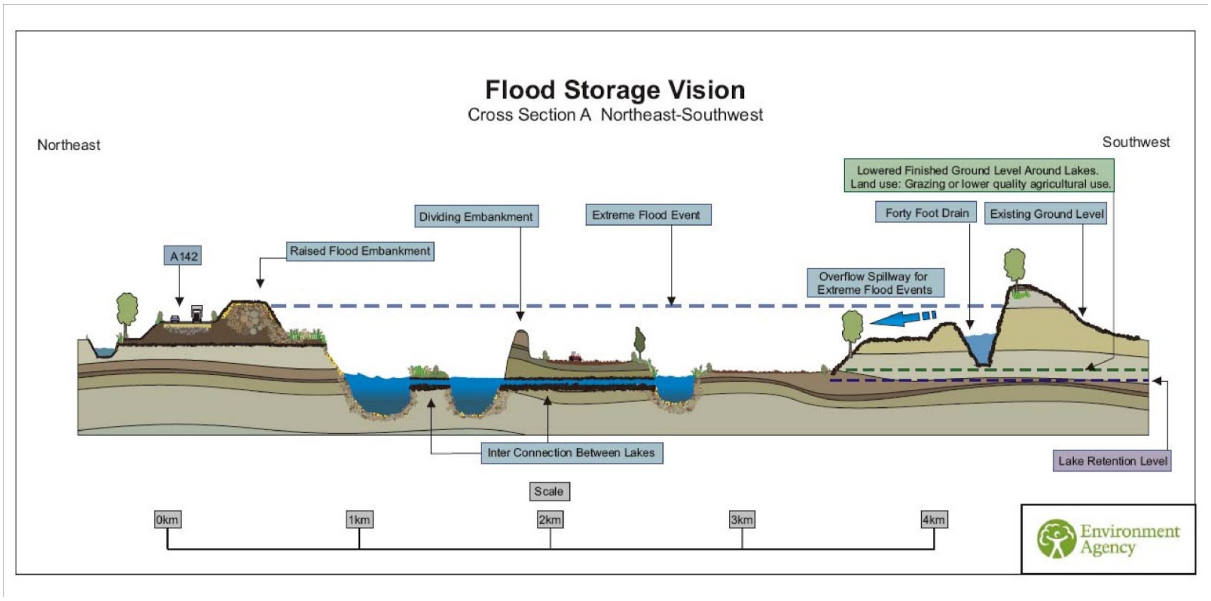
frequent flood events, for example 1 in 5 year to 1 in 10 year flood return periods, within the lakes. For the less frequent events there would be some over topping of the lakes within a defined and contained area. However, owing to the infrequency of these events it is expected that the remaining land can have other uses i.e. complementary grassland.

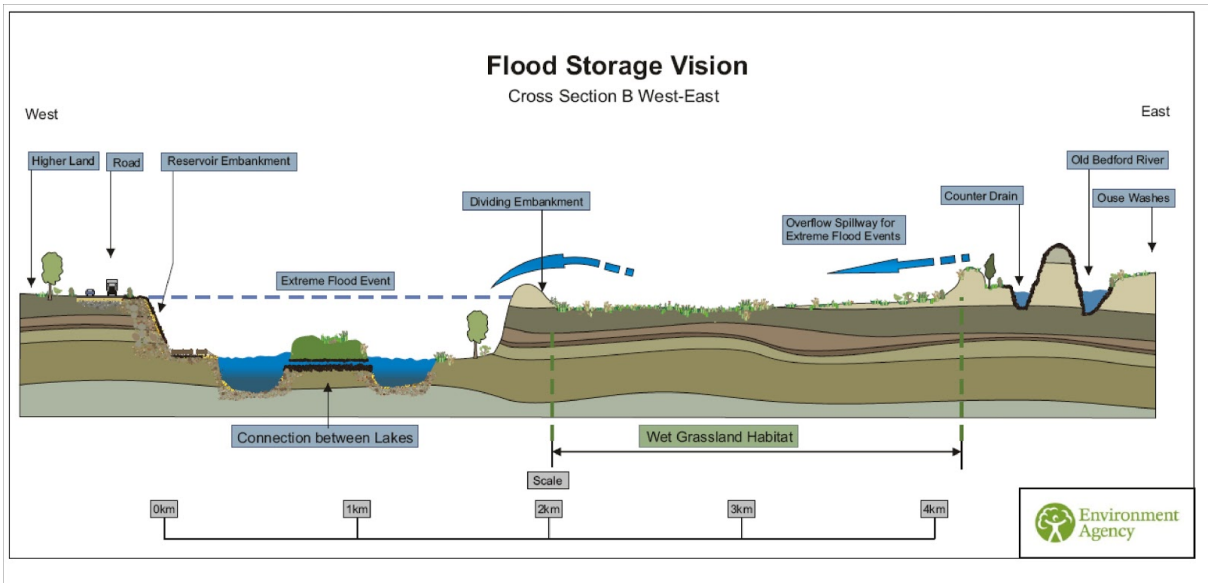
6.24. During the larger, less frequent events there may be a requirement for containment embankments to provide the additional storage above existing ground level.

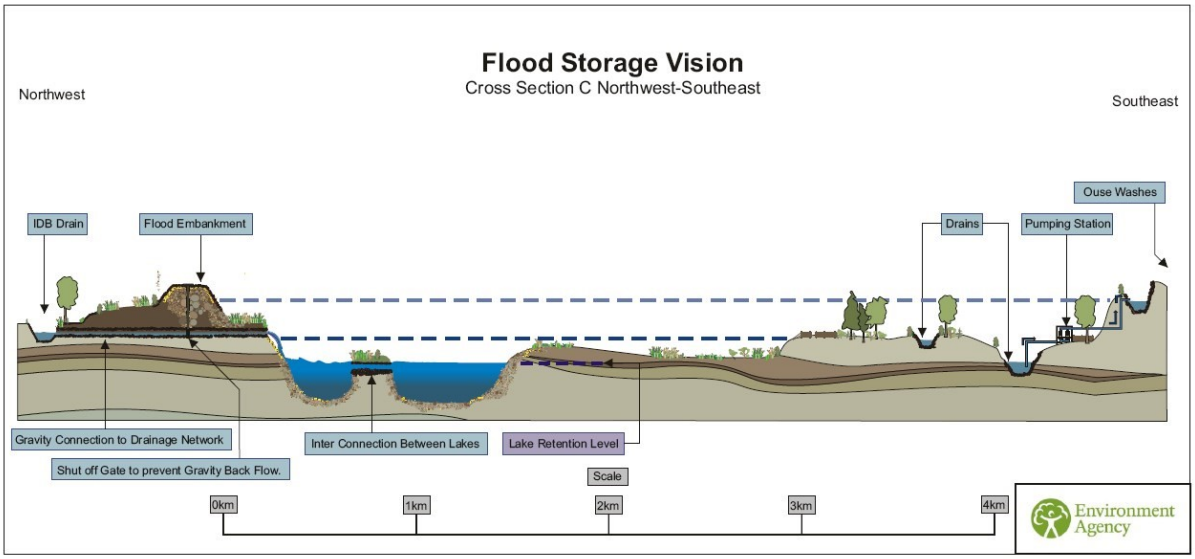
6.25. The details included in Figure 5 show the Environment Agency's flood storage concept, including a series of schematic cross sections to provide an overview on how the flood storage area might look.

Figure 4: Environment Agency's Flood Water Storage Concept and Schematic Cross Section




Flood Storage Vision
Cross Section A Northeast-Southwest
Northeast
Southwest
Lowered Finished Ground Level Around Lakes. Land use: Grazing or lower quality agricultural use.
Dividing Embankment
Extreme Flood Event
Forty Foot Drain
Existing Ground Level
A142
Raised Flood Embankment
Overflow Spillway for Extreme Flood Events
Inter Connection Between Lakes
Lake Retention Level
Scale
0km
1km
2km
3km
4km
Environment Agency


Flood Storage Vision
Cross Section B West-East
West
East
Higher Land
Road
Reservoir Embankment
Old Bedford River
Dividing Embankment
Counter Drain
Ouse Washes
Overflow Spillway for Extreme Flood Events
Extreme Flood Event
Connection between Lakes
Wet Grassland Habitat
Scale
0km
1km
2km
3km
4km
Environment Agency


Flood Storage Vision
Cross Section C Northwest-Southeast
Northwest
Southeast
Ouse Washes
IDB Drain
Flood Embankment
Drains
Pumping Station
Gravity Connection to Drainage Network
Inter Connection Between Lakes
Lake Retention Level
Shut off Gate to prevent Gravity Back Flow.
Scale
0km
1km
2km
3km
4km
Environment Agency

6.26. A detailed study is to be undertaken by the appropriate bodies to help determine the most suitable option for flood management and to set operating rules for the flood storage area. The design and operating rules will consider how to optimise flood storage whilst minimising adverse impacts to others.

6.27. As each storage area will potentially be a Large Raised Reservoir as defined under the Reservoir Act, legal guidance on how to register, appoint a panel engineer, produce a flood plan and report an incident should be followed https://www.gov.uk/guidance/reservoirs-owner-and-operator-requirements. In particular, a construction panel engineer should be appointed to oversee the project at the earliest opportunity (at least by the start of the design stage) in order to ensure compliance with the Reservoir Act. Further guidance can be obtained by emailing the Environment Agency reservoir safety team reservoirs@environment-agency.gov.uk, or by post: Reservoir Safety Team, Environment Agency, Manley House, Kestrel Way, Exeter, Devon, EX2 7LQ.

Landscaping

6.28. The form of the landscaping for the margins of the water storage areas is important. The margins of the lakes will fall within the buffer area of the lowland wet grassland and therefore must be complementary in its nature. The long term management regime must be appropriate, and should preferably be dry grazed grassland.

6.29. The land must also retain its open character, with minimal trees and hedges. Such features can host predators such as corvids and foxes which would eat the ground nesting birds (and their eggs) occupying both the Ouse Washes, and the newly created lowland wet grassland.

6.30. Managing the area in the way set out above will preserve the existing open landscape character of the Fens, and will increase the ecological value of the new lowland wet grassland.

Long Term Management of the Water Storage Bodies

6.31. Securing appropriate long term management of the water bodies and their margins by one or more competent bodies is critical, and this will form an essential part of planning obligations associated with any grant of planning permission.

6.32. The long term management and monitoring of this area will therefore be passed to appropriate bodies with experience of managing the storage and supply of water, and specialised habitat. Given that it will take over forty years to complete the extraction of sand and gravel in this part of the site and to complete restoration to these uses, this will be done on a phased basis.

6.33. A competent body will be identified to maintain and manage the site in accordance with the design and operating rules. As each storage area will potentially be a Large Raised Reservoir as defined under the Reservoir Act, each individual reservoir may need to be registered before construction and may need a legal operator in perpetuity. These operators would be legally responsible for operating and maintaining the reservoirs under the Reservoirs Act and would need to appoint a registered panel engineer at all stages in the design, construction and operation of the reservoirs. As noted previously, the following website provides guidance on the Reservoir Act: https://www.gov.uk/guidance/reservoirs-owner-and-operator-requirements. Alternatively,

contact the Environment Agency reservoir safety team by email: reservoirs@environment-agency.gov.uk, or by post: Reservoir Safety Team, Environment Agency, Manley House, Kestrel Way, Exeter, Devon, EX2 7LQ for further guidance.

6.34. As already noted above, the details of any arrangements will be secured through a legal agreements between the relevant parties involved, including the Environment Agency, Internal Drainage Board, mineral and waste operators, landowners and other relevant competent bodies (i.e. nature conservation). Agreements must be in opace before any planning permission will be granted.

7. Recreation and Leisure

Navigation

7.1. The River Great Ouse and its tributaries, the Rivers Cam, Lark, Little Ouse and Wissey, comprise the major navigation in the Fens and East Anglia, providing about 240 km (150 miles) of navigable waterway. These rivers flow through some of the most unspoilt water environments in the Country.

Above: River Cam

7.2. The lower reaches (Old West River and then the Ely Ouse) take boaters through the fenland landscape. The Bedford Rivers, also known as the Hundred Foot Drain (which is tidal) and Old Bedford River, were constructed as drains and run from Earith area in the south towards the Denver Sluice area in the north. The Counter Drain is also navigable from Welches Dam Lock to the Old Bedford Sluice, although in practice this is problematical owing to the condition of the Lock, leakage of water from the Forty Foot, and the small window available when tidal levels are favourable at the Bedford Sluice.

7.3. The Environment Agency and the Middle Level Commissioners are navigation authorities, and have statutory duties in respect to maintaining navigation routes. The Environment Agency is the navigation authority, but the Middle Level Commission also has statutory duties in respect of maintaining navigation routes. Many improvements have been made which has contributed to the rise in the leisure use of the Fens. The Environment Agency and partners are working on developing a Fen Waterways Link which will connect the cathedral cities of Lincoln, Peterborough and Ely. This is a 20 year project which seeks to enhance the existing waterways, opening up 240 km of waterway including 80 km of new waterway for navigation. It will create a new circular waterway for recreation, tourism and the

environment, through the Fens, and provide a focus for economic regeneration in the area. Indeed, it is estimated that The Link in total will potentially generate over 100,000 extra boat movements annually, contribute around £8 million per annum to the local economy, and provide over 500 permanent jobs. There will also be additional scope for increased unpowered craft and paddlesport activity.

7.4. In order to achieve the above objectives there is likely to be a need for more active water management to ensure navigation is serviced and maintained. The void left following mineral extraction within the Block Fen / Langwood Fen area will provide additional water storage capacity as part of the final restoration.

7.5. There is a clear opportunity to address the issue of the Forty Foot Drain, which is currently navigable only part of the year, owing to low water levels. Permitting mineral extraction south of the Forty Foot will enable the land along the length of the Forty Foot adjoining the Block Fen / Langwood Fen site to be 'sealed' on its southern side through quarry engineering, perhaps in advance of mineral extraction. This will help to stop the current migration of water out of the Drain, and will help address the lack of water in this stretch of the Forty Foot Drain, helping to maintain adequate water levels to allow navigation at any time.

7.6. This will contribute to the proposed new navigable link between the Forty Foot (Vermuyden's) Drain and the Counter Drain (Old Bedford River).

Recreation

7.7. At present informal public access into the Block Fen / Langwood Fen area is limited, focused on a limited number of public footpaths, and the linear paths which follow the banks of the Low Bank (west of the Counter Drain) and the Ouse Washes.

7.8. More formal recreational activities have previously been offered by the Mepal Outdoor Centre which lies south of the A142. Whilst it has been closed for the past two years, it is hoped to reopen in 2019. The Centre is set on the shores of a lake, enabling it to offer a wide range of water and land based activities for families, school and youth groups and corporate clients. Two other water bodies, provided through earlier sand and gravel extraction are used for fishing and jet skiing.

7.9. National planning policy encourages local authorities and others to make clear strategies for improving informal recreation, for both local residents and visitors. This is being taken forward by local policies and strategies, which seek to enhance recreation.

7.10. Through the creation of water bodies and new lowland wet grassland recreational activities in the Block Fen / Langwood Fen area will be increased. Although it will not be possible to provide for recreation in areas where active mineral extraction and restoration is taking place, as development progresses and restoration is completed, recreational provision will come on stream.

7.11. With regard to the lowland wet grassland area, it is envisaged that will be completed by the beginning of Phase 3. Access should be possible to this area throughout the year, although at certain times of the year direct access onto the wet grassland may have to be restricted as this would disturb ground nesting birds, but at other times more general access would be allowed for informal low key activities such as walking and bird watching.

7.12. Equally as the water storage bodies are completed other activities such as fishing, water sports, and walking could be extended into these areas. Considerable scope exists for the full range of water related activities, but coarse angling is a key component of informal recreation in the region. Stillwaters, perhaps more so than rivers, are particularly popular for fishery development, providing a focus for anglers of all abilities, generally accessible all year round and capable of significant economic benefit.

Above: Ouse Footpath

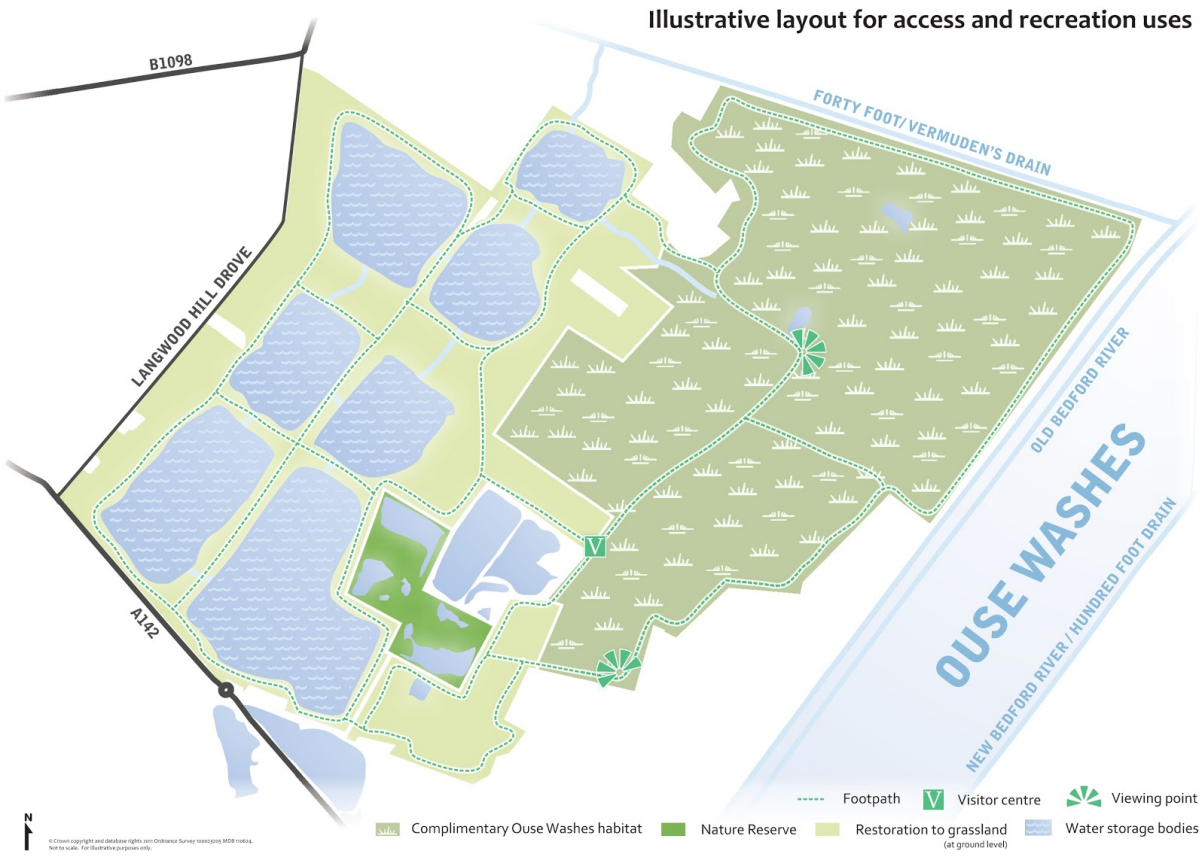
7.13. A network of paths will be provided with viewing points (some of which may be raised), with at appropriate places outdoor interpretation boards. An illustrative layout is provided in Figure 6 below. In the Block Fen / Langwood Fen area footpaths are often linear. If opportunities exist to create links with other footpaths, and / or to create circular walks, these should be investigated.

7.14. In due course a visitor centre will be provided, this will provide a focus for people visiting the area. The visitor centre will be located near to the existing lakes at Block Fen. As the development of the area will be phased, the visitor centre should also be approached in this way, starting with a limited car park and low key interpretation facilities. However, as the area expands this should be developed too, to provide a car park of around 150 spaces, a building around 500 m2 providing a tearoom, toilet and a multifunctional space. Flexibility to provide an educational function, and to extend the visitor centre and car parking in the future should also be retained. This is based on an assumed visitor level of 60,000 visitors per year, with a shared use of the centre between those wishing to use the nature reserve and / or the lakes for recreational purposes.

7.15. Ultimately this area will provide an important green space for the populations of nearby towns and villages, providing part of a wider strategic recreational strategy between Fenland, East Cambridgeshire and beyond.

7.16. In order to reduce the impact of traffic movements and assist in addressing climate change, access to the site for recreation purposes via public transport or cycling will be encouraged. Whilst initially this may be mainly via bus, the navigational improvements should also mean that access via the water would be increased in the longer term.

Figure 6: Illustrative layout for access and recreation use



8. Traffic

8.1. The location of sand and gravel reserves dictate where extraction will take place, and the traffic movements associated with this have to be managed to minimise adverse effects on the local communities and the highway network.

8.2. The existing mineral and waste disposal operations in the Earith / Mepal area, including those at Block Fen / Langwood Fen, Earith and Bridge Farm already give rise to lorry movements in the area. Over the short to medium term the main focus of and gravel extraction will move more towards the Block Fen / Langwood Fen area. Mineral extraction at Colne Fen for example will come an end in the short term; and capacity provided by the Colne Fen Quarry will effectively be replaced through the implementation of an existing planning permission for a new quarry at Block Fen / Langwood Fen.

8.3. With the development of waste recycling and disposal operations in this area, additional lorry movements will be generated.

Traffic Movement

8.4. WIthin Phase 1 the focus of mineral extraction in the Earith / Mepal area will be primarily on Block Fen / Langwood Fen. In the short to medium term some quarries will be active, but these will then be replaced by existing and allocated sites in the Block Fen / Langwood Fen area coming on line. In terms of lorry movements the pattern will therefore gradually change, and there will be a significant increase in the overall current level of movements associated with Block Fen.

8.5. Lorry movements will also be generated by the movements of construction waste to the Block Fen / Langwood Fen area for recycling and then for disposal (and use in the creation of the lowland wet grassland).

8.6. A survey was been undertaken on existing traffic movement (September 2007), and this was used to estimate potential traffic movements arising from the proposed uses at Block Fen. The results are set out below.

	Minerals	Waste	Total
Max Permitted vehicle movements (with planning permission)	435	18	453
Vehicles recorded on survey date 12/09/07	116	69	185
Anticipated vehicle movements 2010-2026	384	248	632

Table 5. Estimated Daily Quarry and Waste Management Goods Vehicle Movements

8.7. As mineral extraction ceases in the area of the new lowland wet grassland, the number of vehicle movements associated with mineral and waste management will decline significantly and remain at a much lower level until the site is fully worked and restored.

Sustainable Transport

8.8. Consideration has been given as to the feasibility of encouraging the use of more sustainable models of transport for the bulk movement of minerals and waste associated with operations at Block Fen.

Water

8.9. The Fortyfoot river lies along the northern boundary of the site . At present the navigability of the section between Horseway Lock is affected by problems associated with retention of water levels for river craft caused by seepage. Whilst proposed extraction of minerals may provide opportunities to address this problem generally the size of waterways and lock infrastructure are focussed on leisure traffic and not designed to accommodate barges for the transport of aggregates/waste. Also the navigable sections of waterway do not facilitate easy access to the future major growth areas (demand for aggregates and generation of waste) of Cambridgeshire. It has thus been concluded that transport of minerals/waste to and from is not feasible and therefore deliverable.

Rail

8.10. The Block Fen mineral deposits are not located close to rail infrastructure. The nearest locations to the area are at Manea (existing rail line) or Chatteris (old railway formation).

8.11. In respect of the latter the former railway alignment south of Chatteris to Somersham, St.Ives and Cambridge has been largely compromised by a number of new developments including industrial development, infilling of cutting with waste, mineral extraction, new road construction and the Cambridge-St.Ives Busway. It has therefore been concluded that the use of this old formation to relay a railway to supply the Cambridge area with aggregates from Block fen is not feasible or deliverable.

8.12. The existing railway at Manea links to Ely and Cambridge. One siding exists at Manea station but vehicular access for any transhipment traffic from Block Fen would have to be gained through the village. The siding is also close to existing housing. The impacts associated with using any existing siding capacity at Manea would have local amenity implications which are considered undesirable.

8.13. Block Fen is located 5 km from the March to Ely railway. Notwithstanding the high cost likely to be associated with the construction of a new junction and branch line the following are also relevant considerations, namely:

- The market for sand and gravel is local with generally over 85% being sold within 25 miles of a quarry;
- No mineral users / waste generators in Cambridgeshire have facilities to receive sand and gravel by rail/dispose of waste by rail. Many customers already located close to major roads;

- Mineral and waste rail movements need to be in bulk (circa 1000 tonne loads) to be economic;
- The optimum break-even distance for rail distribution is between 100-150 miles (which would only facilitate out of county movements);
- High cost of establishing rail / road transhipment facilities (circa £3m);
- High capital investment costs in annual train and wagon hire; and
- Costs of rail are 5 times more expensive than road alternative.

8.14. On the basis of the above it has been concluded that rail transport of sand and gravel / construction waste associated with the Block Fen / Langwood fen area to meet the needs within Cambridgeshire and Peterborough is not economically viable and is therefore undeliverable.

Traffic Management

8.15. The significant growth agenda in Cambridgeshire and Peterborough will bring an increase in traffic movements. A part of this, as outlined above, will be attributable to mineral and waste management activities supporting new and existing communities. This issue will require careful consideration in its entirety by the relevant organisations involved, including the Local Planning Authorities, the Highways Agency and Local Highway Authorities.

8.16. Other policies in this Local Plan set out requirements in respect of traffic and highways. The Block Fen / Langwood Fen area is to be accessed via the existing purpose built roundabout junction on the A142 Ely to Chatteris road, which is the principal highway within the Master Plan area. This roundabout is considered to have more than adequate capacity to accommodate the traffic likely to be generated by the proposed mineral extraction and construction waste recycling and disposal activities, and the Highway Authority has advised that this should be the sole means of access to the site.

8.17. Within the site the main ‘internal’ road is Block Fen Drove. This passes adjacent properties and is narrow at certain points. In the light of continued and increased lorry movements further consideration may have to be given to the Droves maintenance, and if necessary this would involve widening or off line improvements. The grant of further planning consents will be conditional on a contribution to secure the satisfactory improvement of this Drove.

8.18. With regard to minerals and waste management traffic, in the future the average payload of vehicles is likely to increase, whilst the total number of movements can be reduced by the 'backloading' of lorries where they bring in one type of load, and take out another. Mineral and waste operations lend themselves to this as new sand and gravel or recycled aggregates can be taken to the development site, and waste materials removed at the same time and brought back for recycling or disposal. The principal waste operator in this area has indicated that up to 50% of lorry movements could be 'backloaded', and that this may increase over time. Other initiatives may also include off-peak deliveries, the use of mineral transfer stations and private haul roads.

Recreational Traffic

8.19. Proposals have been set out for the provision of recreational facilities which will be provided in a phased manner, as the nature conservation and recreational uses of the site develop. These proposals have been based on an assumed visitor rate of 60,000 visitors per annum once the site is complete. There is an expectation that visitors may visit using a variety of means e.g. cycle, car, bus; and that visitor numbers will be highest at weekends through the spring and summer periods.

9. Sustainable Use of Soils

9.1. The Earith / Mepal area is known to contain some of the best and most versatile soils in the Country, and this is reflected by part of the land being graded under the Agricultural Land Classification Scheme as Grades 1 and 2.

9.2. National planning policy seeks to protect high quality land and prevent its loss, and where it is going to be developed for an alternative use, it requires a scheme for the sustainable use of soils for the longer term.

9.3. A package for the sustainable use of soils can encompass a range of different aspects. This can include for example:

- ensuring land can be put back into agricultural use if required;
- relating restoration proposals to the soils resource;
- considering the wider benefits of proposals on the soil resource;
- securing appropriate long term management of the restored land and associated soils; and
- using surplus soils to improve areas of poor soils in the area.

9.4. A survey has been undertaken in order to obtain soils information to inform the preparation of this Master Plan. It has been established that the range of soils across the site is complex, with significant variation in texture both laterally over short distances, but also vertically down the soil profile.

9.5. In terms of topsoils these can be divided into three main groups, namely peaty / organic mineral mainly found in the north of the site area, loamy soils which form the main topsoil type, and a smaller area of clayey soils towards the west of the site.

9.6. Subsoils can be grouped into two main categories, being a complex loamy and clayey soils which occur over the majority of the site, and a small area to the west of the site which has clayey soils. A particularly feature of these soils is their permeability which has been established through a well developed soil structure which will contribute significantly to the flexibility of the use of the land.

9.7. Very few areas of deeper peats were identified, but where found these were towards the south of the site. The pH varies across the site, but very few samples were recorded below 5, and the majority of top and sub soils were in the 6-7 range.

9.8. It has been confirmed that soils on the active mineral sites have generally been handled with care, and stored recognising their different characteristics.

9.9. One of the main issues to be addressed with regard to soils within any restoration strategy, is to achieve a balance between the depth and permeability. It will be important to retain the topsoils together with the structure and depth of subsoils. Increased soils depth and consistency would be beneficial to the long term sustainability of the land, and the survey that has been undertaken indicates that with the soils on site this should be a readily achievable objective.

9.10. In considering a sustainable soils restoration package regard also needs to be had to the function the soil, as existing and proposed under restoration plans. Approaching restoration from the perspective of the soil function enables a wider consideration of how soils can be used in a sustainable way. The table below sets out information on the range of issues relevant to soil function, and the proposed afteruses of the site.

Soil Function	Food and Fibre Production	Platform for construction	Environmental Interaction	Source of Raw Materials	Protection of Cultural Heritage	Support for Habitats and Biodiversity	Comments
Existing Use-Agriculture	✔	✔	✔	✔	✔	✔	Main function is food and fibre production with the others as potential or latent functions.
Proposed Afteruse:							
Agriculture	✔	✔	✔	✔	?	✔	Main function food and fibre but with positive measures to secure habitat and biodiversity gains increased soil depth and consistency will be a positive benefit.
Nature Conservation	✔	✔	✔	✔		✔	Assume cultural heritage in soils layers has been assessed and either preserved or recorded prior to working.
Water Storage			✔			✔	Indirect impacts on food and fibre production through irrigation. Permeability of the subsoil is a particular attribute of the site and should be retained in any restoration strategy.
Recreation	✔	✔	✔	✔	✔	✔	Potential for all functions to be utilised.

Table 6: Main Soil Functions

9.11. Table 6 above identifies six main soils functions, those that are particularly relevant to Block Fen / Langwood Fen are:

- the effect of development on the range of soils functions;
- the loss of existing soil function or the creation of a beneficial function through proposed land use;
- the potential for the reduction of impact or the increase of benefit; and
- the possibility to compensate and mitigate for impacts.

9.12. The following are therefore matters which will need to be addressed in any restoration strategy:

- depth and consistency of soils in terms of restoration objectives, especially the use of surplus soil arising from the proposed land uses to achieve a deeper and more consistent soil profile across the site;
- the avoidance of soil organic matter loss. Although the extent of peat soils across the site is not as extensive as first envisaged, measures should be put in place to ensure that the organic soils remaining are best utilised and maintained. The range of land uses proposed allows this issue to approached with greater flexibility and with a long term perspective;
- handling and movement of soils to retain inherent characteristics especially the permeability of the soils and to avoid losses through wind and water erosion; and
- soil water regime to ensure the effective drainage of the site and / or ground water control for the range of land uses.

9.13. To achieve the full potential of the site in terms of sustainable use of soil, a comprehensive approach will have to be taken which may involve the co-operation of landowners and the minerals and waste industry.

9.14. With regard to achieving the above some opportunities to meet sustainable soil objectives have already been identified. The methodology for the creation of lowland wet grassland would allow the land to revert back to an arable agricultural use should this be required in the long term.

9.15. There are also opportunities to relate the soil resource to the restoration uses of the site. For example, if an area which is to be developed for the water bodies proves to have good peaty soil capable of proving a good basis for lowland wet grassland, this soil can be carefully removed, stored and placed in another area of the site being used for habitat creation. Relocating and using the soil in this way ensures it will be not be lost, but will be managed for the longer term.

9.16. The wider benefits on the soils of the area are also becoming evident and represent an important resource which must be used sustainably. The creation of the water bodies on the site will displace high quality soils from this area, which will not be put back in place. This can be compensated for by their use in the creation of the enhancement habitat as described above, or they could be removed to address soil management problems in another area i.e. to augment depleted peat derived soils off site. In addition, the creation of the water storage bodies, and the transfer of water into the Middle Level area will compensate for the

displacement of soils by supplying water to irrigate the much wider area, enabling the soils in this area to be kept moist (preventing their erosion by the wind), whilst enhancing their productivity for crops.

9.17. Also, it is not enough just to use the soils in a sustainable way; in order to keep them in the 'carbon store' it is necessary to secure their long term future management. Arable production on peat soils causes the release of carbon dioxide held in the peat as it oxidises after ploughing. Grassland is a land use that helps protect the peat resource and reduces the release of carbon dioxide. Restoring the Block Fen / Langwood Fen to wet grassland is a practical action to reduce emissions in line with the County Council's commitment to addressing the challenge of climate change.

9.18. The management of the land and soils uses that will be created is already being addressed, and the arrangements for the enhancement habitat and water storage areas are addressed more fully in Sections 5 and 9 .

9.19. More detailed survey work will be required at planning application stage, and this will be needed to inform detailed proposals addressing phasing, restoration and the sustainable use of soils. Appropriate arrangements would be secured by planning condition or planning obligations through any planning permissions granted.

10. Conclusions

10.1. The Block Fen / Langwood Fen area is unique, not only in terms of its location and characteristics, but also in terms of the opportunities it offers. This Appendix to the Local Plan, in the form of a 'Master Plan' for the area, seeks to address the challenges that exist in taking forward this area for sand and gravel extraction and waste recycling and disposal in support of the construction industry, and at the same time determine a sustainable way of restoring the site which will contribute to addressing national and international issues such as climate change, create enhancement habitat for the internationally important Ouse Washes, help deliver more sustainable flood risk management, and address the need for water storage and supply in the Fens.

10.2. The vision and objectives set out in this Master Plan are deliverable through the co-operation and commitment of a number of parties, and formal mechanisms such as legal agreements and planning conditions which can be implemented through the land use planning system. Prior experience has shown this can be achieved. The key stakeholders have already worked together to deliver the existing access to the permitted quarries, and to help define the future strategy for the Block Fen / Langwood Fen area through the development of this Master Plan.

11. Annex 1 - Planning Applications

11.1. Applicants should review the information available on the County Council's planning applications webpage and are advised to contact Cambridgeshire County Council's Minerals and Waste planning team to arrange for pre-application discussions. Pre-application discussion (which are chargeable) should also cover archaeological and historic environment matters, and if necessary an additional discussion with the County Archaeological Team should be arranged.

11.2. The Environment Agency has advised that any hydro-geological impact assessment should include:

- a survey of existing on-site ground levels and flow patterns, including any previous monitoring on areas with planning permission;
- a water features survey, including all abstractors and potentially affected surface water features;
- an assessment of the impact of dewatering operations and any mitigation needed;
- the short and long term impact of blocking flow in the aquifer with impermeable barriers. There is potential for groundwater levels to rise on the upstream side and fall on the downstream side;
- proposals for dealing with any areas of higher permeability material discovered within the underlying Ampthill clay, and proposals for sealing off large watercourses such as the Forty Foot Drain; and
- details of how flow patterns will be re-established following restoration.

11.3. In relation to the creation of wet grassland habitat details will be required on how the water levels are to be achieved and how the hydrology of the site might deliver the habitat. Applicants are advised to refer to the Environment Agency's Eco-hydrological Guidelines for Lowland Wetland Plant Communities published in 2004. This provides background for the water requirements of the created habitat.

11.4. As part of any planning application for this site a Flood Risk Assessment (FRA) will need to be produced to address the risk of flooding to the site, and to address any potential increase in surface water generated by new hard standing and / or changes in soil types / landforms. Any FRA would need to be prepared and undertaken to the satisfaction of the Environment Agency, Lead Local Flood Authority and the Middle Level Commissioners.

11.5. Applicants will be required to prepare a scheme of measures for dust suppression to avoid direct and indirect dust deposition having adverse effects on the Ouse Washes.

11.6. Applicants will be required to prepare a scheme of noise suppression to avoid noise having adverse effects on the Ouse Washes environment.

11.7. Any habitat created should consider the requirements of protected species found, or likely to be found, in the area. Protected species including water voles and otters are known to be

present near to the proposed development site. Any waste used to fill the site will have to be shown to have no adverse impact on the nearby Ouse Washes SSSI, SPA, SAC and Ramsar site.

11.8. An ecological survey will be required prior to the development of detailed plans, to enable an assessment of the level of risk posed by the development. The detailed design, construction, mitigation and compensation measures should be based on the results of a survey carried out at an appropriate time of year by a suitably experienced surveyor using recognised survey methodology.

11.9. The survey and risk assessment should:

- identify any rare, declining, protected or otherwise important flora, fauna or habitats within the site include water voles and otters;
- assess the importance of the above features at a local, regional and national level;
- identify the impacts of the scheme on those features;
- demonstrate how the development will avoid adverse impacts propose mitigation for any adverse ecological impacts or compensation for loss; and
- propose wildlife/habitat enhancement measures.

12. Annex 2 - Methodology for the Creation of Enhancement Habitat

Wet Grassland Features

12.1. It is proposed that the wet grassland features will comprise of surface scrapes and foot drains / wet furrows. Furrow spacing will be chosen to provide if possible moist surface conditions between the furrows. The wet features will be replenished with water during the winter period to provide optimum water levels by the end of March or earlier if desired. Water levels will be maintained in the features during the earlier part of the breeding season and then allowed to fall towards the end of the breeding season.

Soil conditions and suitability for wet grassland development

12.2. The soil profile to be developed will comprise of a 500 mm depth of clay cap on top of the inert fill, followed by 650 mm depth of subsoil, with a 250 mm depth of peat on the surface. The depth of usable soil profile will, therefore, be a minimum of 900 mm. If possible a depth of 1.2 metres would be preferred, formed by having a greater depth of peat, which would increase the effectiveness of the wet grassland.

12.3. The peat topsoil will have a high water holding capacity and be ideal for water transmission, grass establishment and bird probing, but its depth is rather limited. In developing the features every effort needs to be taken to maintain as much peat in the surface layer as possible.

12.4. Of the 3 samples of subsoil taken, 2 were a gravely sandy clay loam (southern storage area) and the third a gravely loamy sand (northern storage area). The gravely nature of these sandy and loamy soils are likely to have a moderate to high hydraulic conductivity providing they are not significantly compacted during placement.

12.5. Owing to the anticipated hydraulic conductivity of the subsoil and the overall profile depth (900 mm), there is a good chance that with appropriate furrow spacings and water levels, it should be possible to maintain moist surface conditions between the foot drains.

Critical requirements in soil placement

12.6. To obtain optimum soil conditions during soil placement, every effort must be taken to achieve the following:

- maximise the depth of peat in the surface layers; and
- avoid excessive compaction when placing the subsoil.

12.7. To achieve these desired conditions attention must be paid to the following:

- ensure the surface of the clay cap is level before subsoil placement; and
- initiate the main wetland features within the subsoil layer before placing the peat topsoil.

12.8. Discussions are needed with the contractor to devise a placement method with the equipment available or obtainable, which will produce a consolidated soil condition without excess compaction.

12.9. If possible, running large heavy dump trucks over the subsoil during placement should be avoided, as this is likely to cause considerable compaction. If such operations are unavoidable and serious compaction occurs, it will be necessary to subsoil after subsoil placement before the peat layer is spread.

12.10. A much more satisfactory way of using large dump trucks is for them to be confined to the clay cap. However, this should only be contemplated when there is a significant thickness of soil in place to avoid damage to the engineered containment of waste. They can then dump their soil at the edge of the advancing subsoil laying zone and the dumped soil spread, leveled and consolidated by a lighter tracked dozer.

12.11. The peat layer will have to be spread on a compaction vulnerable subsoil, hence relatively small light tracked dumpers and light tracked dozers would be ideal for this operation.

Other site requirements

Retention of water within the grassland cell

12.12. To retain water within the wet grassland cell, it will be necessary to ensure that the current compacted clay layer around the cell boundary extends upwards to an elevation above the final soil surface, with some additional allowance to allow for some surface water ponding.

Reservoir

12.13. A reservoir will be required to store water for water supplementation during the breeding season. This could be above ground storage, allowing gravity feed into the wetland or below ground, possibly in an existing borrow pit from which water would have to be pumped into the reserve. The choice will be dependent upon the water source, the type of power supply available for pumping and the costs.

12.14. If an above ground reservoir is to be constructed, consideration could be given to the possibility of its capacity also meeting the requirements of additional cells in the future.

Drainage

12.15. The winter rainfall input will exceed the water storage capacity of the wetland features in most years, hence there will be a need for a drainage outlet from the enclosed basin to prevent unwanted flooding. Providing a control on this drain outlet would also provide a means of lowering water levels within the features as required during wet spring / summer periods.

Supplemental water requirements

12.16. The moisture deficit values (mm) at the end of June for this area as follows:

	Dry Grassland	Wet Grassland	Open Water
Dry Year (Higher Quartile)	104	166	200
Median Year	86	122	150
Wet Year (Lower Quartile)	68	86	110

Table 7: Moisture Deficit Values

12.17. Assuming some 20% of the area will be open water held within the scrapes and furrows, and that the whole grassland surface can be kept moist, the dry year water losses through evapo-transpiration through to the end of June will be 1700 m3 / ha.

12.18. Allowing the open water levels to fall during the period to the end of June, the dry year supplementary water requirement will be as follows:

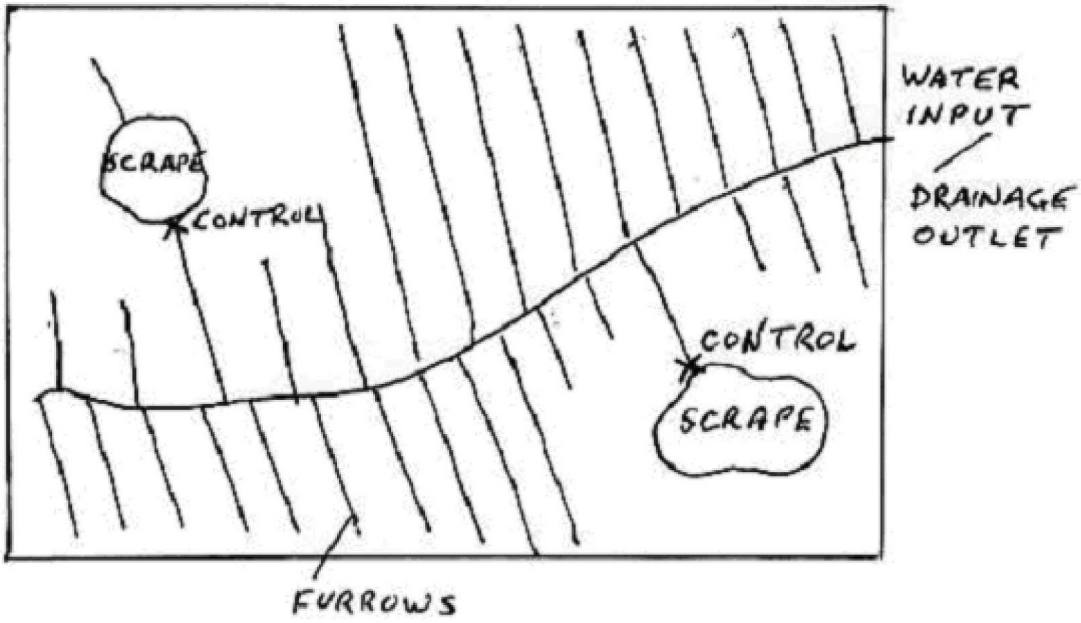
Water Level Fall	Supplementary Water Requirement
20cm	1300 m3/ha
25cm	1200 m3/ha

Table 8

Water management options

12.19. The uniformity of the site will restrict the options available for water management within the different features. Whilst it may be advantageous at times to manage water levels in the scrapes differently to those within the foot drains / furrows, this will be more difficult owing to the hydraulic connection within the subsoil. Cutting off the water supply to the scrape with a control structure in the supply channel will stop direct water inputs, but there will still be some seepage inflow through the subsoil. This seepage inflow can be minimised by extending the distance between the nearest furrows and the scrape, so increasing the seepage distance and hence reducing the amount of water inflow, see rough schematic layout below. The other alternative would be to install a seepage cutoff curtain around the scrape.

Figure 7: Wetland Grassland Features



Above: Wet Grassland Features

12.20. The maximum depths of the features could be varied, allowing different areas to dry up or be wetted at different times. The side slopes of the scrapes can also be chosen so that the desired amount of muddy margin is exposed for a given fall in water level.

12.21. A pilot area of lowland wet grassland, in the order of 10 ha, has been created. Whilst this may be too small to make a wholly satisfactory bird assessment, it will provide valuable information on the hydrological aspects of developing wetland conditions in these circumstances. Dipwell information will allow the hydrological characteristics of the restored soil to be assessed. In addition, the project area may provide information applicable to future situations where peat may be in short supply.

12.22. In the current absence of quantitative hydraulic conductivity data, it is suggested that the foot drains / furrows be installed at a spacing of some 20 – 25 m. However, if hydraulic conductivity data comes to hand before soil placement, adjustments should be made if necessary to this spacing. Optimum spacings, if different to those at installation, could be determined from subsequent field monitoring.

Cambridgeshire County Council and Peterborough City Council

CAMBRIDGESHIRE AND PETERBOROUGH MINERALS AND WASTE LOCAL PLAN APPENDIX 2: THE LOCATION AND DESIGN OF WASTE MANAGEMENT FACILITIES

March 2019

1. Introduction

1.1. The Cambridgeshire and Peterborough Minerals and Waste Local Plan (MWLP) contains a suite of policies that require waste management facilities to be built in suitable locations, and to achieve a high quality in their design. This Appendix expands on those policies by providing further guidance.

1.2. Waste management facilities segregate, recover, recycle, treat or transfer the types and volumes of waste that would otherwise go to landfill. These facilities will deal with municipal (mainly household) waste, commercial and industrial waste, inert waste including sustainable construction waste, agricultural, and some hazardous waste e.g. clinical and bio medical waste.

1.3. The most common types of facilities are summarised in section 4. However, it should be noted that waste management is an area of rapid change and it is likely that, as technology evolves, new types of facilities will develop. Each of these facilities has its own characteristics and relevant locational and design criteria; some of which are unique to the facility whilst others are shared in common with other facilities.

1.4. This guidance is not intended to be rigid or prescriptive but to provide a framework for developing high quality solutions. Applicants and developers should use this guide to inform their choice of site location and the design of their facility. The choice of location and design should be clearly explained in the documentation supporting any planning application.

1.5. Submission of a waste management licence at the same time as a planning application is also encouraged, so that the design and site management issues and operational issues can be considered holistically.

Scope of this Appendix

1.6. This Appendix focuses on waste management facility development. Landfill sites and very local facilities such as bottle banks are not addressed by this Appendix.

1.7. Matters which fall under the regulatory regime of other authorities are not directly covered by this Appendix. However, the requirements of these other regulatory bodies will need to be met through the design of the facility.

Status of this Appendix

1.8. This Appendix forms part of the explanatory text of the MWLP. On adoption of the MWLP the Location and Design Guide Supplementary Planning Document (Adopted July 2011) is revoked and superseded by this appendix. It is important to note that if any text in this appendix conflicts in any way with the provisions of the Policies set out in this Local Plan or any other Development Plan Document, then the contents of those policies prevail.

2. Locational Criteria

2.1. The Locational Criteria below cover a range of matters which should be addressed in the site selection for waste management facilities. Some of the issues may only apply to certain types of facility, whilst others will apply to all. Choices should be clearly explained in the documentation supporting any planning application, whilst being proportionate to the size of the proposal.

Siting

2.2. The type of facility and processes will influence the size of the site and the location of any building. The following principles apply to all types of facility:

Siting General Principles

- Facilities should aim to be developed on previously developed land, enabling positive re-use and avoiding the need to develop greenfield land. However, it is recognised that within the plan area, there is a limited supply of previously developed land and it is not always in the most appropriate or sustainable location. Some greenfield development may be necessary, especially where it is co-located with other waste uses.
- The site location will need to have the capacity to accommodate the associated traffic movements.
- Waste management facilities giving rise to large traffic flows must be located close to the primary road network and roads suitable for use by HCVs.
- Consideration should be given to transport by rail or water when these options are practical.
- Opportunities for siting that maximise the use of sustainable forms of transport (public transport, cycling and walking) for staff are encouraged.
- Access arrangements should be designed to minimise impact on the environment and nearby surrounding uses, including residential property.
- There are benefits arising from co-location with other waste processing facilities, which arise when haulage distances can be reduced, and where waste reception and processing are located together.
- Preference is given to development in less environmentally sensitive locations.
- Some facilities are acceptable within residential or mixed use areas, including new development areas, providing transport and amenity impacts such as noise and litter are controlled and design issues carefully considered.

- Sites will be located to prevent pollution, address the risk of flooding and must avoid affecting designated habitats or protected species and must consider the effects on rights of way.
- Siting should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets.

Rural Location Plan

Rural Locations

2.3. Rural locations on or close to the main road or rail networks are potentially appropriate for a range of waste management facilities. In rural locations the design of the facilities should reflect the scale and design of agricultural buildings, though there may be instances where more innovative design would be appropriate. Local distinctiveness, in terms of landscape character, and architectural design, will be an important consideration. Opportunities may also exist to re-use existing buildings. Local Landscape Character Assessments, The Cambridgeshire Landscape Guidelines and Town and Village Design Guides are useful sources of information on local distinctiveness. Landscape and boundary treatment is particularly important to screen low level activity around the facility to reduce visibility and to enhance biodiversity value.

2.4. Rural settings should provide the opportunity for significant landscape proposals. Areas for any external storage of baled materials, gatehouses and weighbridges should also be screened, to avoid an 'industrial' appearance. Windrow composting is likely to require a rural location. All access roads should be hard surfaced to avoid access and local roads becoming dirty, dusty or contaminated and to facilitate the use of mechanised cleaning machines.

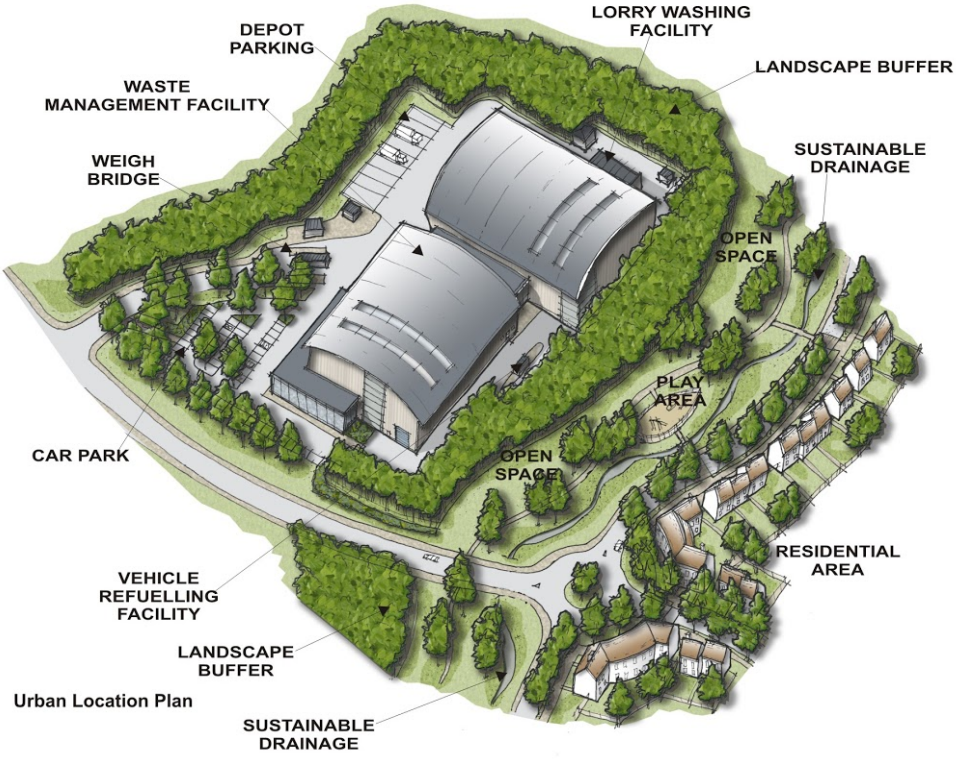
2.5. In open rural areas where additional planting may not be appropriate given local landscape characteristics, greater attention will have to be given to building form and construction materials, particularly the external appearance where quality and colour are important. It may be possible to locate the facility at lower levels through excavation, flood management permitting, or utilise a mineral excavation site. With innovative design the natural physical features of the site and its setting could offer an opportunity to assimilate the proposed development without reliance on planting. There will be occasion in environmentally sensitive areas where it will not be possible to site a facility without being harmful to the character, appearance and setting of a site, in such cases development should be avoided.

Rural Location Principles

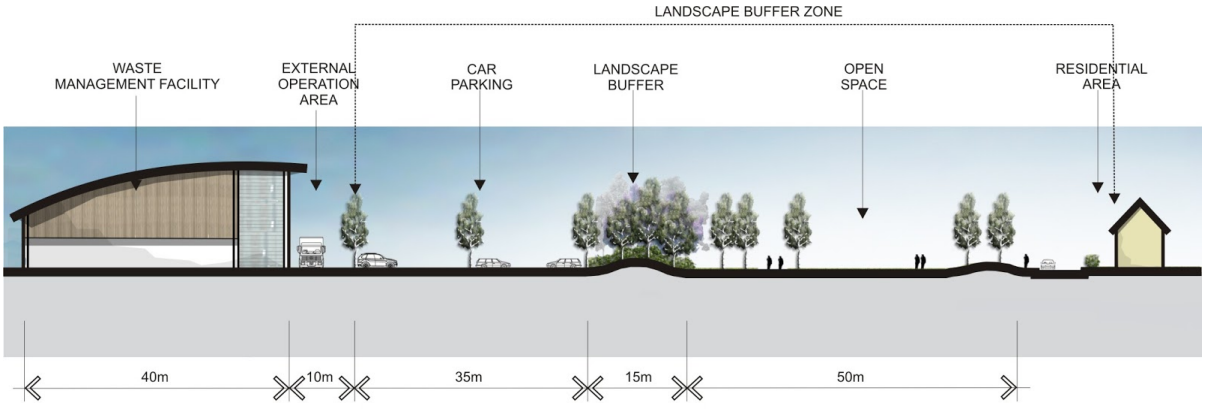
- Buildings could reflect agricultural built form or re use redundant farm buildings, if appropriate, or designs may be innovative.
- Designs should be in sympathy with local landscape character and distinctiveness. Site locations should allow sufficient space for quality landscape treatment.
- Site design should minimise views to operational areas, particularly external storage and parking, and any other elements that present a more 'industrial' appearance.
- Security gatehouses/weighbridges should be located away from immediate public view. Designs should take account of existing rights of way and any views from them, conserving important environmental features, such as water

bodies and habitat areas. All new landscape or buffer areas should enhance biodiversity.

- Easy access to main road networks suitable for HCVs.
- Opportunities for new planting should be created and, where possible, buffer planting should be linked to existing woodland.
- The proximity of rail networks and waterways should be considered when choosing site locations to promote alternative sustainable forms of transport.
- Proposals, including planting, should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets.
- The location should be selected to ensure that larger vehicles accessing the facility do not have to be routed through residential areas.



Urban Location Plan



Urban Location Indicative Section

Urban Locations

2.6. Urban locations are appropriate for a range of waste management facilities, particularly those operations which take place inside a building. These can be located within established commercial / industrial areas, or planned into new developments. Opportunities may also exist for the re-use of buildings, such as warehouses, factories or former airfield buildings.The design should respond to the context, with a high quality urban design. Facilities should be located on or close to the main road network, avoiding the need for HCVs to travel through any residential areas.

2.7. Sites should be located in areas with good access to public transport. Cycle provision for employees should also be included.

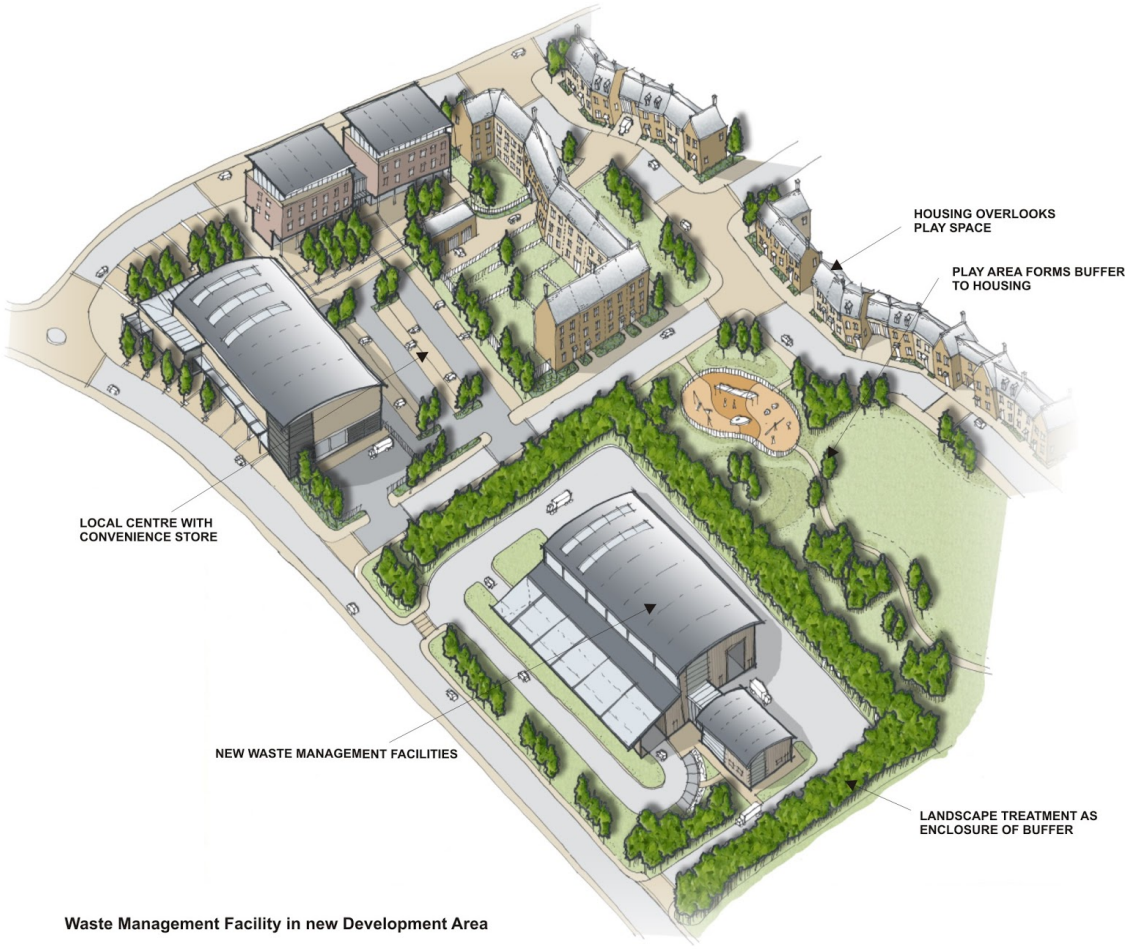
2.8. Appropriate buffer areas should be provided between the facility and any adjacent residential areas. These areas could include other employment land uses, or a buffer zone including uses such as car and cycle parking, landscape planting or open space. Waste management facilities can also act as a buffer between sensitive land uses and other forms of development such as between residential areas and main roads, railways, and Water Recycling Centres. The actual size and treatment of the buffer would depend on the location and facility proposed.

2.9. WIthin urban areas there may also be potential for the integration of renewable energy and / or with district heating networks.

Urban Location Principles

- The location and design of buildings should complement the existing or planned scale and built form of the local area.
- The location should be selected to minimise vehicular conflict.
- Locations for new waste management facilities should be selected to maximise opportunities for buffers to more sensitive land uses. Buffer areas can include a wide variety of uses from employment use to landscape areas.

- Easy access to the main road network.
- Opportunities for new planting should be created and where possible buffer planting should be integrated with features including linkages to woodland.
- Proposals, including planting, should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets.
- Proposals should seek to maximise the potential for renewable energy and / or in areas that could allow for the development of district energy networks.



Waste Management Facility in new Development Area

Urban Edge / New Development Sites

2.10. Urban edge and major new development sites provide good opportunities for waste management facilities, where they can be designed as part of the development from the outset, and are also close to where the waste is generated. Sites within new development areas should incorporate temporary waste management facilities to service needs through the development phase. In appropriate cases these could then provide permanent facilities when the development becomes established.

2.11. Major new development areas are likely to include a range of land uses, including residential development, some employment land, open space and possibly local community facilities. Land use planning, including the of use Master Plans, can determine appropriate locations for waste management facilities. This may be within traditional areas such as employment land, or through a more imaginative approach, waste management can be successfully integrated with other forms of planned land uses. The needs of the existing communities living and working adjacent to major development areas or in urban fringe areas must also be taken into account when considering where to locate a new waste facility.

2.12. Buffers between waste facilities and residential areas could comprise employment land uses, car parking and landscape areas. Locations close to local facilities such as shops and community halls could be appropriate and may minimise travel. The actual design of the facilities and buffers that may be appropriate, would depend on the context, with the plan above showing a possible arrangement. The detailed design within a new development area should be carefully considered and include appropriate buffers created by different land uses or landscape treatments, supplemented by high quality design. Access to a good road network is important and facilities should be located to avoid HCVs having to travel through residential areas.

2.13. New development proposals will require the use of sustainable technologies, particularly to address the challenges of climate change. Possible technologies include combined heat and power, and bioreactors, using waste as fuel to generate heat and power. In the case of locating heat and power facilities consideration would need to be given to the location of the waste management facility, but also to potential users of the energy generated, and the means of transfer for the heat/power.

Urban Edge / New Development Principles

- Facilities should ideally form part of the initial masterplan.
- The location and design of buildings should complement the planned scale and built form of the local area and new development areas.
- The location should be selected to minimise vehicular conflict avoiding access through residential areas.
- The development should maximise opportunities for buffers to more sensitive land uses. Buffer areas can include a wide variety of landscape, tree belts, open spaces, parking, ponds, and nature conservation areas.

- Facilities could form buffers themselves, between sensitive land uses such as residential areas, and major roads, railways or Water Recycling Centres.
- Easy access to the main road network should be provided.
- Opportunities for new planting should be created and where possible buffer planting should be integrated with existing landscape/woodland features.
- Proposals, including planting, should not be harmful to the character, appearance, and setting of the historic environment and specific historic assets.
- The needs of existing communities must be taken into account.

Co Location of Facilities

2.14. Co-location of waste management facilities can offer significant benefits in reducing the need for transport of waste and the treated product in operational terms and is encouraged. There are synergies in different collection and treatment methods, and bringing more than one facility together can maximise the amount of resource recovery that can take place and provide a more sustainable waste management solution.

2.15. Co-location also makes for an efficient use of land which may also offer benefits in reducing the transport of waste. Some facilities may be co-located at landfill sites where the ancillary use would be tied to the life of existing time limited operations. However, any proposal for a range of facilities must address the cumulative effects of the proposal, to ensure that overall environmental effects are acceptable.

Temporary Facilities

2.16. Major construction sites or development areas should provide temporary waste management facilities to separate and recycle construction and demolition waste. The on-site facilities would encourage re-use of recycled material, minimise the transport of waste materials from the site and reduce the need for importation of new materials, thereby reducing the overall impact on the surrounding road network.

2.17. Temporary facilities should have the ability to recycle or reuse building materials including brick, concrete, plasterboard, metals, glass, wood and soils. Although temporary, some of these facilities would be in place throughout the construction period (this may become years in the case of new development areas) and should be in place from the commencement of development. The nature of major development may mean that the facility may need to be moved within the site to reflect the approved development phasing plans. Temporary screening can be used to minimise impacts on completed parts of the development.

3. Design Criteria

3.1. The design criteria below cover a range of design topics to be addressed in the design of facilities. Some of the issues may only apply to certain types of facility, while others will apply to all. Design choices should be clearly explained in the documentation supporting a planning application whilst being proportionate to the size of the proposal.

Built Form

3.2. Different approaches to built form would be appropriate depending on whether it is an urban or rural location. In rural locations it could be appropriate to follow a form reflecting agricultural buildings. Simple portal frame buildings, with metal or timber cladding would be appropriate, although more imaginative schemes should also be considered.

3.3. Consideration should be given to the scale of the setting and the massing of the built form. It may be possible to vary the size and height of different parts of the building to provide visual interest. The overall size of the building footprint, and associated built works, should be minimised to avoid potential adverse impacts on landscape.

3.4. As part of an overall approach to sustainability the use of green and brown roofs should be considered together with provision for the enhancement of biodiversity. Colour treatment should be simple. Green, brown and grey coloured cladding is likely to be most appropriate.

3.5. The built form in an urban setting and urban edge setting provides more opportunity for an imaginative bold design approach. The buildings by their nature are likely to be fairly large in scale, and can comprise metal frame struts with cladding. However, there is still scope for more innovative design and use of alternative materials where this is appropriate. The roofs need not be simple portal frames but could be curved, monopitch or a combination of approaches.

3.6. Details need to be considered as an important part of the building and not as an add-on. Particular care should be given to corners, roof lines and how the building meets the ground. These have a significant effect on the overall impression of a building.

3.7. Any security buildings at the entrance should be considered as part of the overall design, and in a complementary architectural treatment to the main facilities.

3.8. The cladding of buildings could be profiled metal or metal panels. Office facilities could be incorporated into the main building facility, maintaining a simple ‘low-key’ external appearance, or could be stand-alone. If separate, the scale, height and massing of the different built forms should be carefully considered.

3.9. Any ventilation or extractor grills and any service pipes should be incorporated into the design of the facades, and not added insensitively as an afterthought. A broader range of colour treatments would be appropriate, depending on the individual settings. Space

should also be provided for the internal storage of materials including unprocessed waste and processed waste.

3.10. Further information can be found in national Planning Practice Guidance - Design[1]

Built Form Principles

- In both rural and urban locations built form should reflect local distinctiveness and be sympathetic in design, although where appropriate, design may also be imaginative. Roof design should be carefully considered. Utilitarian portal frame buildings are unlikely to be of high enough design quality for urban locations.
- Cladding materials could include profiled metal or proprietary metal panelled systems, used in an imaginative way. Various colour treatments may be appropriate. Colour treatment and the design of the elevations should be of a scale and type with the surrounding townscape.
- Any vents, chimneys or service infrastructure should be designed positively as part of the scheme, and not added as an afterthought.
- Any security kiosks and weighbridges should be considered as part of the overall built form. Efficient use should be made of energy and resources.
- Space for the internal storage of waste should be provided.
- Consideration should be given to the massing of the buildings, in order to reduce the bulk of the proposals overall.
- Sustainable drainage systems should be used to control the flows and discharge rates of water.

Local Distinctiveness

3.11. All proposals should address local distinctiveness and, where appropriate, can be imaginative in their design. Local distinctiveness should be addressed through building form, colour treatment or materials and in appropriate cases urban art forms. Within new major development areas, local distinctiveness should be addressed by embracing the development vision for the area.

3.12. Further national information is available at: Planning Practice Guidance: Design[2]

Transport, Access, Parking and Circulation

3.13. The site should be accessible by sustainable forms of transport. Access, circulation and parking should be integral to the design of the site, and safe access for all users must be provided. Site layout should allow the early separation of cars and pedestrians/cyclists from HCVs. HCVs must be able to circulate efficiently, without

[1] https://www.gov.uk/guidance/design
[2] https://www.gov.uk/guidance/design

unnecessary reversing. Access for disabled employees and visitors should be integral to the design.

3.14. Operational areas should be located to minimise their noise and visual impact, for example, at the rear of the buildings or behind appropriate landscape areas. Car and cycle parking should be located away from the external working areas. In general the provision of car parking should be minimised, and cycle parking should be maximised. Showers and lockers should be provided for employees to encourage cycling. Landscaped parking areas could be used to form a buffer to more sensitive neighbouring uses. Covered cycle storage should be provided.

3.15. At Household Recycling Centres, and other facilities where the public will visit in addition to the operational staff, circulation and signage is particularly important.

3.16. Further national information: Planning Practice Guidance - Design - Assess and Inclusion; Planning Practice Guidance - Travel Plans, Transport Assessments and Statement

Transport, Access, Parking and Circulation Principles

- Clear, safe circulation for HCVs, cars, cyclists and pedestrians.
- Operational areas well screened by buildings, landscape or less sensitive neighbouring uses.
- Safe access for the public on sites where public access is possible.
- Covered cycle storage, showers and lockers for staff.
- Potential use of energy-efficient low-emission fuels.
- Separate access for cyclists/pedestrians from cars.

Lighting

3.17. Lighting is an integral part of design. Exterior service areas must be lit to meet health and safety requirements. The building orientation should be designed so that highly lit areas around the building are located on the less sensitive aspects. The building itself may be able to screen the highly lit areas. Lighting equipment that minimises the upward spread of light above the horizontal should be used. Luminaires should reduce light spill and glare to a minimum. Glare should be kept to a minimum by ensuring the main beam angle of all lights directed towards any potential observer is kept below 70 degrees. Higher mounting heights allow lower main beam angles, which reduces glare. A balance may have to be struck between the daytime impact of tall mountings, against the nighttime impacts of reduced glare.

3.18. The Institute of Lighting Engineers has produced Guidance Notes for the reduction of Light Pollution (see below). This includes guidance and good practice in relation to the provision of lighting appropriate to the setting of the development.

3.19. Developers should also take into account the sensitivities of biodiversity, in particular protected species which are sensitive to lighting, such as bats.

3.20. Further national Guidance: Planning Practice Guidance: Light Pollution[3]; Institute of Lighting Engineers' Guidance Notes for the Reduction of Obtrusive Light GN01:2011[4]

Lighting Principles

- Provision of a lighting scheme and supporting information to demonstrate the scheme is compliant with relevant guidance.
- Minimisation of light pollution and efficient use of energy.
- Potential use of solar panels on rooftops and / or other forms of micro generation of power to reduce energy cost and environmental impact.

Landscape and Boundary Treatments

3.21. The starting point for any landscape or boundary treatment should be the local landscape character, and ecological and landscape surveys. The landscape proposals should make use of existing features, protect existing habitats and features of value, and help assimilate the project into its surroundings, reinforcing the essential characteristics of the local landscape or townscape. Information on landscape character is available nationally and locally. All landscape proposals must be in accordance with local landscape character and should reflect information on native species appropriate to each character area.

3.22. The key principles include:

- Sufficient space should be allowed for a quality landscape treatment, and planting between roads and buildings.
- Native species should be used, appropriate to the locality.
- Proposals should enhance biodiversity and mitigate for any unavoidable losses.

3.23. Most facilities will require secure boundary treatments. The design of the boundaries should be considered as part of the overall design. Secure boundaries typically 2.4m high may be required. They should be visually sympathetic as well as practical. Galvanised palisade fencing would rarely be acceptable, either in an urban or rural setting.

3.24. Acceptable boundary treatment may include colour-coated palisade fencing (typically dark green or black), or coloured mesh panel fencing. Chainlink fencing is unlikely to be acceptable.

[3] https://www.gov.uk/guidance/light-pollution
[4] https://www.theilp.org.uk/documents/obtrusive-light/

3.25. All gates should match the adjacent fencing, and be appropriately colour coated.

3.26. Mounding is another potential boundary treatment. However, this would only be acceptable where it is in keeping with the surrounding landscape character. Steeply sloping mounds also tend to dry out rapidly, making it difficult to successfully establish landscape planting on them. Nevertheless, in some instances, carefully considered land modelling could help to reduce low level visual and noise impacts of new facilities. When this is the case the slopes should not normally exceed 1 in 5, and should allow for plants to establish. If space is restricted the combined use of retaining structures and earth modelling could be considered. Gabion baskets with aggregate provision could provide a suitable solution and can create useful habitat, by providing potential refuge for reptiles and amphibians.

3.27. 'Offsite' landscape planting can be useful in some places, providing visual screening close to potential viewpoints.

3.28. High quality landscaped areas should be incorporated into the design at an early stage. Suitable management arrangements should be in place to ensure that the landscaping scheme is well maintained.

3.29. Further Information: Cambridgeshire Landscape Guidelines[5]; national: Planning Practice Guidance - Design - Local Character[6]

Landscape and Boundary Treatment Principles

- Use of high quality materials (not galvanised palisade fencing or chainlink).
- Sensitive combination of planting with secure boundary treatment.
- Appropriate use of earth modelling, using gentle slopes, with sufficient space and with no effects on local land drainage and flood defences.
- Use of thorn hedging for both screening and re-enforcing boundary treatment.

Noise

3.30. Facilities have the potential to cause noise nuisance. Mitigation can be achieved through sensitive location and sympathetic design as well as best practical means to control noise (noise abatement measures). Some facilities can be located inside buildings which allows much greater control over noise effects along with careful selection of processing plant. Detailed landscape treatment, including careful consideration of levels and any landscape buffers, can also help with noise mitigation. Developers should use 'Smart' or 'white noise' reversing bleepers or equivalent on all on-site vehicles, and for road going delivery vehicles. These bleepers reduce the potential nuisance caused by vehicles reversing whilst still assisting safe site

[5] https://www.cambridgeshire.gov.uk/residents/libraries-leisure-&-culture/arts-green-spaces-&-activities/protecting-and-providing-green-space/
[6] https://www.gov.uk/guidance/design#local-character

operations, other technology may achieve similar effects. Limiting the hours of working can also provide a form of mitigation.

3.31. Where noise may be a potential issue developers may be required to carry out a background noise level survey, and to evaluate the impact of the development against it. The noise report should indicate the types of activity and predicted noise levels, details of traffic movement and hours of operation, along with appropriate mitigation and noise level monitoring and reporting. The purpose of a noise survey is to assess noise impact locally, characterise the existing noise climate at noise sensitive premises, and to help ensure that the best practical means is used to mitigate any adverse noise when taken on a cumulative basis. The latter may include noise monitoring at agreed points / sensitive receptors which could be off site. In such circumstances the Councils may require that noise monitoring and reporting arrangements be secured through a legal agreement. Noise generated through construction should also be a consideration.

3.32. Further national information: Planning Practice Guidance - Noise[7]

Noise Principles

- Use of good insulation of buildings to reduce noise level.
- Provision of a noise report, demonstrating compliance with agreed noise limits.
- Mitigation measures should be built into the evolving design to achieve the required level of attenuation.
- Use of 'Smart' reversing bleepers, or smart alarms.
- Monitoring arrangements to ensure compliance with agreed noise limits.
- Use of sensitive location and sympathetic design.
- Consideration of landscape areas within and bordering the site.
- Use of battery powered vehicles to reduce noise levels.

Air Quality

3.33. Air quality issues may arise from on and off site dust, this may come from different sources for example, traffic, and from the on site operations of the facility. Emissions from most Energy from Waste facilities will be monitored and regulated by the Environment Agency through their environmental permitting regime. Particulate concentrations are particularly high in parts of Cambridgeshire and Peterborough, and the contribution of any waste management could be relevant to attainment of local air quality objectives.

[7] https://www.gov.uk/guidance/noise--2

3.34. Mitigation could include enclosing processes in buildings with controls on emissions, and the use of energy efficient low emission fuels. Dust can arise from the movement of waste materials during processing, such as tipping and external stocking. A number of systems are available to minimise problems. These include maintaining negative air pressure in waste reception halls, to draw any dust or emissions into the building, rather than letting them escape through the doors. Filters can be used to control emissions to air.

3.35. Fixed and mobile spray systems can also be utilised to minimise dust by damping down. Careful building design can allow natural cleansing by rainwater to maintain and clean building elevations.

3.36. The Environment Agency monitors emissions from waste management developments and developers should seek their advice at an early stage.

3.37. Proposals should include mitigation measures to maintain and improve air quality by the management of dust and odour.

3.38. Further information: Planning Practice Guidance - Air Quality[8]; Cambridgeshire Insight - Air Quality[9].

Air Quality Principles

- Measures to control air quality, dust and odour.
- Potential use of energy efficient low emission fuels.
- Locating waste management facilities downwind from sensitive receptors.

Water

3.39. All schemes should include measures to ensure water quality and the efficient use of water. Pollution control measures should be incorporated to ensure that any water that leaves the site is to an acceptable quality standard. For facilities such as composting sites, any water collected could be captured, recirculated and reused to aid the composting process. Facilities should also include measure to minimise water usage. Any landscape treatment should be designed to minimise any requirements for irrigation.

3.40. Sustainable drainage systems (SuDS) should be used to manage surface water run-off and maintain water quality. SuDS may include such methods as swales, lagoons, reedbeds, retention ponds, filter strips, infiltration and permeable paving to minimise the run-off and the amount of water entering watercourses. Any SuDS measures should be fully integrated with the landscaping proposals, with an

[8] https://www.cambridgeshire.gov.uk/business/planning-and-development/flood-and-water/surface-water-and-sustainable-drainage-systems-suds-planning/
[9] https://cambridgeshireinsight.org.uk/environment/airquality/

appropriate overarching management regime.Careful consideration should be given to the adoption and long-term management of such systems.

3.41. Further information: Cambridgeshire County Council - Surface water and sustainable drainage systems (SuDS) planning[10]

Pest / Vermin / Bird Control

3.42. Schemes should include measures to prevent pests and vermin as appropriate. Such matters are regulated by the Environment Agency who should be approached for advice in design. Examples of mitigation include site management practices, vermin proof vents and rapid closing doors.

Security

3.43. Safety and security should be considered for each of the design elements, whether building construction, boundary treatments or landscape design. The principles in 'Secured by Design'[11] published by the Association of Chief Police Officers (ACPO) should be followed. Waste management facilities should be planned in a way that makes sure the blocks overlook their surrounding spaces, such as cycle routes and footpaths to increase surveillance. Where possible, windows and doors opening onto public roads and footpaths can provide greater security for users of the waste management facilities. Blank walls should be avoided if possible. If the incorporation of fenestration is not possible for technical reasons, these walls should be enhanced by the introduction of additional building materials and/or patterned brickwork to add architectural interests. Vulnerable areas should be well lit.

3.44. Further national Information: Planning Practice Guidance: Design - Security Measures; Secured By Design[12]

Energy Efficiency and Sustainable Construction

3.45. Sustainable construction techniques take account of ways to reduce waste, flood risk and pollution, minimise energy requirements, and use local and renewable materials and sources, during the construction, occupation and demolition of development.

3.46. Developers should seek to use re-used or recycled materials. Local supply options should be used to minimise travel distances. Opportunities to use standard sizes and accurate estimates of materials to minimise off-cuts and waste should be followed. The use of PVC should be minimised. Construction materials should be low maintenance and durable. Consideration should also be given to eventual decommissioning of facilities, re-use, recycling and / or disposal of materials.

3.47. The ozone depletion potential and global warming potential of all materials should be considered and the use of unsustainable materials minimised.

[10] https://www.cambridgeshire.gov.uk/business/planning-and-development/flood-and-water/surface-water-and-sustainable-drainage-systems-suds-planning/
[11] http://www.securedbydesign.com/
[12] https://www.gov.uk/guidance/design#security-measures

3.48. Buildings should be designed to minimise carbon emissions and energy use throughout the life of the building. Designs should maximise the use of controlled daylight, and the opportunity to control solar gain. The use of heat recovery systems should be investigated and high levels of insulation should be provided. Other aspects to consider include the feasibility of the generation of renewable energy and/or use of green electricity and heating. Roofs may also be appropriate for solar panels which help reduce energy costs.

3.49. The proposals should be designed to reduce energy consumption and to minimise heat loss. Proposals should also include the use of renewable energy sources where possible such as solar, ground source heat, wind.

3.50. Construction materials should generally be those achieving an 'A' summary rating in the BRE publication, the 'Green Guide to Specification'[13]. Development proposals should seek to achieve a sustainability rating that results in high levels of performance against BREEAM[14] that standards that are prescribed nationally at the time or alternatively in accordance with local planning authority standards where these are more stringent.

3.51. Further advice on sustainable construction is available from the Building Research Establishment (BRE)[15], who provide advice and consultancy.

Energy Efficiency and Sustainable Construction Principles

- Consider the site's context and function within its wider setting; the opportunity to improve connectivity by foot, cycle, public and private transport to and from neighbouring uses and features.
- Where possible, extend the life of buildings by renovation and refurbishment.
- Use whole-life thinking and design for flexibility, to extend building lifetimes, to encourage future re-use and recycling of products and materials, during construction, occupancy and demolition phases of the development.
- Incorporate resource efficiency measures, which aim to minimise demand for water, energy or other natural resources.
- Design to minimise operational environmental impacts.

[13] http://www.bre.co.uk/greenguide/
[14] https://www.breeam.com/
[15] http://www.bre.co.uk/

4. Facility Guidelines

4.1. This section provides further detail on how the guidance can be related to individual facilities. This section is not exhaustive as new technologies will evolve. Planning conditions will ensure that mitigation measures are delivered. These measures can protect compatibility with the environment and surrounding land uses, and can be required, monitored and enforced. The key issues and recommendations for mitigation and management are outlined in the following section.

Summary of Common Issues

	Traffic / Access	Air / Dust	Odour	Noise	Litter	Flies, vermin and birds	Water Resources	Landscape and visual Impact
Material Recovery Facility	●	●		●	●		●	●
Windrow Composting	●	●	●	●			●	●
In-vessel Composting	●	●	●	●		●	●	●
Anaerobic Digestion	●	●	●	●	●	●	●	●
Inert Waste Processing	●	●		●				●
Energy from Waste	●	●	●	●	●	●	●	●
Household Recycling Centres	●	●		●	●	●	●	●
Transfer / Bulking up Facilities	●	●	●	●	●	●	●	●
Mechanical Biological Treatment	●	●	●	●	●	●	●	●
Pyrolysis / Gasification	●	●	●	●	●	●	●	●
Water Recycling Centres	●		●				●	●

Indication of Suitable Locations & Common Built Forms

	Urban Areas	Urban Fringes	Rural Locations		Indoor / Building	Outdoor (with structures)	Stack
Material Recovery Facility	●	●	●		●		
Windrow Composting			●			●	
In-vessel Composting		●	●			●	
Anaerobic Digestion		●	●		●	●	
Inert Waste Processing	●	●	●		●	●	
Energy from Waste	●	●	●		●		●

Household Recycling Centres	●	●				●	
Transfer / Bulking up Facilities	●	●	●		●	●	
Mechanical Biological Treatment	●	●	●		●		
Pyrolysis / Gasification	●	●	●		●		●
Water Recycling Centres	●	●	●			●	

Examples of Potential Mitigation

Issue	**Potential mitigation**
Traffic / Access	• Design internal roads for ease of access and vehicle routing and manoeuvring. • Encourage use of sustainable transport and provision of cycle parking for visitors and staff, and adequate parking for staff. • Locate near good road or rail access. • Route traffic away from inappropriate roads, residential areas and schools. • Use traffic routing agreement. • Separation of public and operational traffic.
Air / Dust	• Dust suppression systems. • Landscaping, including soil bunds. • Negative pressure ventilation systems. • Operational management practices. • Mounding and planting. • Wheel cleaning facilities.
Odour	• Odour suppression incorporated into dust suppression system. • Operational managements practices. • Use of biofilters and deodorisers to treat exhaust air.
Noise	• Acoustic fencing. • Appropriate orientation of building. • Careful positioning of machinery / plant. • Design of building with acoustic features, e.g sound proofing. • Fit silencers to plant and machinery. • Hard landscaping including soil bunds. • Use of "smart" or 'white noise' reversing bleepers.
Litter	• Appropriate storage. • Litter fences. • Operational management practices including litter picking.
Flies, Vermin & Birds	• Ventilation and ducts fitted with bird cages. • Drainage system to be fitted with grates. • Operational management practices. • Rapid shutting doors. • Vermin proof design.
Water Resources	• On site wastewater treatment. • Engineered containment. • Minimise water use and re-circulate used water. • Provision of sealed drainage system. • Separate collection of roof water.
Landscape visual impact	• Careful consideration of design, positioning and colour of boundary treatment. • Design of building and stack that is responsive to local context, taking an appropriate form, massing and size using appropriate materials,

	colours and detailing. ● Tree and hedgerow planting.

Guidelines for Specific Facilities

Material Recovery Facilities

4.2. These facilities receive source separated, co-mingled, commercial and municipal waste such as paper, card, glass, plastics, steel or aluminium. Waste is mechanically sorted further, separated, bulked and sold for recycling. MRFs and their associated fixed machinery are located within buildings, with measures to minimise noise, dust and odour issues. Large doors are required to allow access to vehicles tipping waste materials and for it's subsequent collection. Sufficient space is required, ideally within the building itself, for the storage of bulked up waste materials, prior to collection. These operate at different scales though the annual throughput is generally between 50,000 and 100,000 tonnes. MRFs typically require a site between 0.5Ha and 3Ha in size.

4.3. Facilities are likely to generate traffic, particularly HCVs, and should be located close to the main road or rail network. Many nuisance issues associated with putrescible wastes do not apply to MRFs as these mainly deal with paper, cardboard, plastics, cans etc; but there are potential amenity issues such as odour (where materials such as plastics are not washed), noise and litter. An urban or rural location could be appropriate, and facilities could be located within major development areas. A buffer is likely to be required between facilities and residential areas. Facilities will be located within buildings, and with good quality design and mitigation, facilities may require a buffer / stand off distance from sensitive receptors. Each proposal will be subject to detailed assessment, including consideration of mitigation measures, which may mean this distance can vary.

4.4. **Common Issues:** Traffic / Access; Some Odour, Noise; Litter; Water Resources, Landscape & Visual Impact.

Windrow Composting

4.5. Composting is a biological process in which micro organisms convert biodegradable matter into a stabilised residue known as compost. The majority of waste composted in the UK is garden type waste. The biodegradable waste is shredded into finer particle sizes to speed up the composting process. The shredded waste is then commonly formed into windrows of 1.5 to 3m in height for composting. The process typically takes 8 to 14 weeks. The windrows are usually turned mechanically or aerated by fans. The process can take place outdoors, or in covered simple buildings. Facilities can vary in size, but are typically between 1 Ha and 4 Ha in size.

4.6. Traditional windrow composting is appropriate in rural locations and would not normally be appropriate in an urban situation. Facilities should have good access to the primary road or rail network.

4.7. **Common Issues:** Traffic / Access, Air / Dust, Odour, Noise, Water Resources, Landscape and Visual Impact.

In Vessel Composting

4.8. This involves the composting process inside a vessel where conditions are optimised for breakdown of materials. After the initial enclosed process the compost is matured in a part open area process. The process is quicker than windrow composting and allows a higher degree of process control. Facilities usually include a waste reception hall and the vessels themselves, which could comprise: silos, containers, agitated bags, tunnels and enclosed halls. Facilities can again vary in size, but are typically between 1 Ha and 4Ha in size.

4.9. Facilities are likely to generate traffic, particularly HCVs, and should be located close to the main road network. In Vessel enclosed facilities can be located in urban or rural locations, or within new major development areas. Facilities may require a stand off / buffer distance from sensitive receptors. . This would however be dependant on the precise type of operation and levels of control that can be achieved. With good levels of control such as carrying out operations in buildings with biofilters, a smaller buffer may be appropriate.

4.10. **Common Issues:** Traffic / Access, Air / Dust, Odour, Noise, Pests / Vermin / Birds, Water Resources, Landscape and Visual Impact

Anaerobic Digestion

4.11. This is the biological treatment of biodegradable organic waste within a vessel, in the absence of oxygen, using microbial activity to break down the waste in a controlled environment. Anaerobic Digestion results in the generation of:

- Biogas rich in methane and can be used to generate heat and/or electricity,
- Fibre potentially used as a soil conditioner,
- Liquor potentially used as a liquid fertiliser.

4.12. For the treatment of household waste, specialist facilities are required. Facilities are typically up to 1 Ha in size.

4.13. Facilities are likely to generate traffic, particularly HCVs, and should be located close to the main road network. An urban or rural location could be appropriate for facilities located within buildings. Facilities may require a stand off / buffer distance from sensitive receptors. Each proposal will be individually assessed, taking into account mitigation measured, and an appropriate distance will be determined. Co-location with composting facilities can aid disposal of the solid and liquid residues, and a rural location maybe most appropriate for this.

4.14. **Common Issues:** Traffic / Access, Air / Dust, Odour, Noise, Litter, Pests / Vermin / Birds, Water Resources, Landscape and Visual Impact.

Inert Waste Processing Facilities

4.15. These recover waste materials such as soils, concrete, rubble, construction and demolition waste through a combination of crushing and mechanical screening operations . Facilities are often open air, but screening equipment can be installed in buildings to minimise environmental impact particularly in relation to dust generation. Facilities can vary significantly, but are typically between 1 Ha and 3 Ha in size.

4.16. Facilities are likely to generate traffic, particularly HCVs, and should be located close to the main road or rail network. There is the potential for amenity issues relating to noise and dust. An urban or rural location could be appropriate, and temporary facilities could be located within major development areas, and on quarries and landfill sites. A buffer is likely to be required between facilities and residential areas. Facilities may require a stand off / buffer distance from sensitive receptors. Each proposal will be individually assessed, taking into account mitigation measures, and an appropriate buffer distance will be determined.

4.17. **Common Issues:** Traffic / Access, Air / Dust, Noise, Landscape and Visual Impact.

Energy From Waste

4.18. Energy from waste facilities are typically characterised by large buildings, which are designed to handle high volumes of mixed waste, and / or secondary fuels such as refuse derived fuels, shredded tyres and waste solvent fuels. These facilities are designed to burn waste under controlled conditions at high temperatures; heat is received from the process to generate electricity or heat water as part of a wider utilisation scheme. Input waste volumes are typically reduced by 90%. Facilities include receptor halls, cement kilns, furnaces, heat recovery facilities and control rooms. The buildings are typically large in scale with tall chimneys. Energy from Waste facilities can also include an educational function informing people about recycling generally and the role of energy from waste facilities in terms of energy generation. Where such a function s to be provided it needs to be considered as an integral part of the design and operation of such facilities. Typical facilities require sites in the range of 2 Ha to 5 Ha in size.

4.19. Facilities are likely to general high volumes of traffic, particularly HCVs, and should be located close to the main road or rail network. Facilities are likely to be large in scale and need sizeable sites to accommodate the plant and associated site works. An urban or rural location could be appropriate. With good quality design and mitigation, facilities could be located up to 250m from sensitive receptors. Each proposal will be individually assessed, taking into account mitigation measures, and an appropriate buffer distance will be determined. Facilities are likely to include tall structures with chimneys, and consultation with the Civil Aviation Authority or Ministry of Defence may be necessary when located with airfields in the vicinity.

4.20. **Common Issues**: Traffic / Access, Air / Dust, Odour, Noise, Litter, Pests / Vermin / Birds, Water Resources, Landscape and Visual Impact.

Household Recycling Facilities

4.21. Household Recycling Centres (HRC) provide a centralised collection facility to which householders can bring their waste, predominantly for recycling and reuse. These facilities vary from other waste management facilities in that they are provided for the use by the public.

4.22. A HRC must be accessible to members of the public. The public are responsible for transferring waste from their vehicles to the correct collection bay. When the containers within the bays are full, they will be sheeted prior to usually being removed from the site and replaced with an empty container. Busy periods tend to be at weekends, evenings and public holidays. New facilities are required in order to manage traffic effectively and maximise the space to increase recycling opportunities. Co-location with other waste management facilities maybe appropriate for new facilities minimising transport of the waste.

4.23. Public areas should be segregated from the service vehicles collecting the full containers. Modern facilities should be split level. Facilities need to be close to where the waste is generated.

4.24. The handling capacity of a HRC will depend on the design and size of the site. Sites tend to be minimally 1.2 hectares and can handle between 10,000 tpa and 25,000 tpa.

4.25. A key planning constraint with respect to HRC's will be traffic and access. Careful transport planning is required to minimise queueing. There also needs to be easy accessibility to the different waste stream deposit areas by the public, but minimal conflict with those driving through once they have deposited their waste.

4.26. Facilities are likely to generate traffic at off peak times and should be located close to the main road or rail network. Access to good public transport and footpath network would also be beneficial for users and employees. Facilities have the potential to cause nuisance from litter and odour. An urban location would be appropriate, close to the waste source. Facilities could be located within major development areas providing an adequate buffer is provided.

4.27. **Common Issues:** Traffic / Access, Air / Dust, Noise, Litter, Pests / Vermin / Birds, Water Resources, Landscape and Visual Impact.

Transfer/ Bulking up Facilities

4.28. These facilities receive waste from kerbside collections or commercial sources and bulk them up for onward transfer and processing. Facilities can be located within buildings depending on the types of waste being managed. Facilities vary in size and are are sometimes co-located with household recycling centres or processing facilities to maximise synergies and minimise travel.

4.29. Facilities are likely to generate traffic, particularly HCVs, and should be located close to the main road or rail networks. As the facilities operate by collecting waste from a more local area, before bulking up to move on to more strategic sites for processing, facilities are more likely to be located in smaller towns or settlements or near strategic infrastructure such as railheads.

4.30. At facilities accepting a putrescible waste there is the potential for litter odour and leachate. An urban or rural location could be appropriate, or they could be located with a major development area providing an adequate buffer is provided.

4.31. **Common Issues:** Traffic / Access, Air / Dust, Odour, Noise, Litter, Pests / Vermin / Birds, Water Resources, Landscape and Visual Impact.

Mechanical and Biological Treatment

4.32. This is a term that covers a range of technologies where waste is treated using biological and mechanical processes. The mechanical stage has two main roles. In many (but not all) technologies the waste is broken down into smaller parts, such as by shredding. Some recyclable material is then removed. In the biological stage the waste is compacted or digested, usually in an enclosed system. If an anaerobic system is used methane can be produced which can be used to produce energy. The site of plants can vary but would typically be between 1 Ha and 3 Ha in size.

4.33. Facilities are likely to generate traffic, particularly HCVs, and should be located close to the main road or rail network. Mixed household waste processing has the potential to cause additional nuisance from litter odours and leachate compared to MRFs. Facilities will be located within a building. An urban or rural location could however be appropriate, and facilities could be located within major development areas providing an adequate buffer is provided.

4.34. **Common Issues:** Traffic / Access, Air / Dust, Odour, Noise, Litter, Pests / Vermin / Birds, Water Resources, Landscape and Visual Impact.

Pyrolysis and Gasification Facilities

4.35. This is the treatment with heat of mixed waste within a vessel, in the absence or limited use of oxygen. Using this technique to breakdown the waste in a controlled environment results in the generation of:

- Biogas that can be used as a fuel or to general electricity; and
- Stable granules that can be further processed or recycled.

4.36. Specialist facilities are required. Facilities can vary in size.

4.37. Facilities can generate traffic, particularly HCVs, and should be located close to the main road network. An urban or rural location could be appropriate. Each proposal will be individually assessed, taking into account mitigation measured, and an appropriate distance will be determined.

4.38. **Common Issues:** Traffic / Access, Air / Dust, Odour, Noise, Litter, Pests / Vermin / Birds, Water Resources, Landscape and Visual Impact.

Waste Recycling Centres

4.39. Facilities for the recycling of waste water, including sewage and commercial effluents. Facilities include a range of mechanical and biological treatments, which increasingly

include apparatus and techniques for generating fuels / recovering energy from sewage treatment.

4.40. Facilities can generate traffic, particularly HCVs, and should be located close to the main road or rail network. There are potential amenity issues such as odour and air quality and a buffer is likely to be required between facilities and residential areas.

4.41. **Common Issues:** Traffic / Access, Odour, Water Resources, Landscape and Visual Impact.

Glossary

Air Pollution Control - A term used to describe the combination of techniques which together clean air emissions from processes prior to discharge to the atmosphere.

Anaerobic - In the absence of oxygen.

Anaerobic Digestion - Anaerobic Digestion is a process in which biodegradable material is encouraged to breakdown in the absence of oxygen. Waste is broken down in an enclosed vessel under controlled conditions, resulting in the production of digestate biogas.

Biodegradable - Capable of being broken down by plants and animals. Biodegradable municipal waste includes food and garden waste, paper and card.

Biodiversity - The relative abundance and variety of plant and animal species and Ecosystems within particular habitats.

Biogas - Gas resulting from the fermentation of waste in the absence of air.

Combined Heat and Power (CHP) - A highly fuel efficient technology which produces electricity and heat from a single facility.

Commercial Waste - Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding municipal and industrial waste.

Compost - A bulk reduced, stabilised residue resulting from the aerobic degradation of organic waste.

Energy from Waste - Facilities that burn waste. Heat is received that can generate electricity or heat water.

Feedstock - Raw material required for a process.

Gasification - A process where hydrocarbons are broken down by carefully controlling the oxygen present in a vessel.

Green and Brown Roof - Green roofs and brown roofs are constructed ecosystems located on top of building or structures, contributing to local biodiversity. The roof of a building is partially or completely covered in plants, which is generally believed to assist in reducing surface water run off from buildings, provide biodiversity habitat, reduce the visual impact of a building and effect the heat retention of a building.

Green Waste - Vegetation and plant matter from household gardens, parks, and commercial landscapes.

HCV - Heavy Commercial Vehicle.

Household Recycling Centre (HRC) - A facility where the public can dispose of bulky household and garden waste.

Incineration - The controlled thermal treatment of waste by burning, either to reduce its volume or its toxicity.

Industrial Waste - Waste from any factory or any premises occupied by an industry.

Inert Waste - Waste which will not or is slow to biodegrade or decompose e.g. soils, concrete rubbles, and construction and demolition waste.

In-vessel Composting - The aerobic decomposition of organic waste within an enclosed container, where the control systems for material degradation are fully automated. Moisture, temperature and odour can be regulated, and a stable compost can be produced much more quickly than outdoor windrow composting.

Landfill - Landfill is the controlled deposit of waste to land.

Leachate - Leachate is the term given to water which has come into contact with waste materials and which has drawn pollutants out of those materials into solution, thereby contaminating the water.

Leachate Treatment - Leachate treatment is a process to reduce the pollution potential of leachate.

Material Recovery Facility (MRF) - A facility to receive source separated waste, to sort it further and bulk it up for recycling.

Mechanical & Biological Treatment (MBT) - A range of technologies, for dealing with mixed waste, that can include shredding and separation and treatment of the organic element by digestion.

Mixed Waste Processing - Mixed waste processing is designed to recover valuable components from unsorted municipal solid waste for recycling and deliver a stabilised residue for final landfilling.

Municipal Solid Waste (MSW) - This involves household waste and any other wastes collected by the Waste Collection Authority or its agents, such as municipal parks and garden waste, and commercial or industrial waste.

Pyrolysis - Thermal breaking down of waste in a vessel in the absence of air producing bases that can be used a fuel and solid by products.

Sensitive Receptor - Physical or natural resource, special interest or viewer group that will experience an impact.

Transfer/Building up Facilities - Facilities for receiving waste from kerbside collection, to bulk them up for transfer for recycling or processing.

Waste Recycling Centres - Facilities to treat sewerage or commercial effluent. Waste water undergoing a variety of treatment, before release back into the water course or licenced discharge points.

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